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The Construction of Locative Situations: the Production of Agency in Locative Media Art Practice

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The Construction of Locative Situations:

the production of agency in Locative Media art practice.

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This Thesis is submitted to the Dublin Institute of Technology in Candidature for the Degree of Doctor of Philosophy

Graduate School of Creative Arts and Media & Digital Media Centre

June 2012

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Abstract

This thesis is a practice led enquiry into Locative Media (LM) which argues that this emergent art practice has played an influential role in the shaping of locative technologies in their progression from new to everyday technologies.

The research traces LM to its origins at the Karosta workshops, reviews the stated objectives of early practitioners and the ambitions of early projects, establishing it as a coherent art movement located within established traditions of technological art and of situated art practice. Based on a prescient analysis of the potential for ubiquitous networked location-awareness, LM developed an ambitious program aimed at repositioning emergent locative technologies as tools which enhance and augment space rather than surveil and control.

Drawing on Krzysztof Ziarek's treatment of avant-garde art and technology in "The Force of Art", theories of technology drawn from Science and Technology Studies (STS) and software studies, the thesis builds an argument for the agency of Locative Media. LM is positioned as an interface layer which in connecting the user to the underlying functionality of locative technologies offers alternative interpretations, introduces new usage modes, and ultimately shifts the understanding and meaning of the technology. Building on the Situationist concept of the constructed situation, with reference to an ongoing body of practice, an experimental practice-based framework for LM art is advanced which accounts for its agency and, it is proposed, preserves this agency in a rapidly developing field.

The thesis demonstrates that the user centric practices developed by LM exert far reaching influence on the application of location-aware technologies, which sees them emerge into the everyday different to what they might have been. LM art projects are seen to have foreshadowed key categories of current location-aware applications and services. This, it is argued, is not co-incidental but is rather the result of an intentional desire, and accompanying actions, to shift the meaning of these technologies. As location-aware technologies become ubiquitous it is advanced that the forms they take and the ways in which they are employed are co-constructed by LM art practice.

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This dissertation would not have been possible without the support of colleagues, friends and family.

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Thanks to John Buckley whose passion and knowledge was a source of inspiration over the course of many conversations on art and technology and to Mick Wilson for his advice and encouragement.

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I would like to thank my children Darach and Lia for their forbearance. And to Emer for everything.

I dedicate this thesis to the memory of my parents Patrick and Grace McGarrigle.

Declaration

I certify that this thesis which I now submit for examination for the award of PhD, is entirely my own work and has not been taken from the work of others, save and to the extent that such work has been cited and acknowledged within the text of my work.

This thesis was prepared according to the regulations for postgraduate study by research of the Dublin Institute of Technology and has not been submitted in whole or in part for another award in any other third level institution.

The work reported on in this thesis conforms to the principles and requirements of the DIT's guidelines for ethics in research.

DIT has permission to keep, lend or copy this thesis in whole or in part, on condition that any such use of the material of the thesis be duly acknowledged.

Signature _____ Date _____

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Introduction

In the summer of 2008 I was asked to create a walk in Manchester to coincide with a conference on psychogeography at the Manchester Metropolitan University. The walk was organised in collaboration with the Loiterers Resistance Movement (LRM), a very active group of local psychogeographers who wage an ongoing war of attrition against what they see as the privatisation of their city. The walk ran into difficulties from the outset, city officials objected on the ground that walkers could injure themselves by walking into lamp posts thus opening the city to damages, the LRM offered to bubblewrap all lamp posts on the route whereon the city officials countered that that would constitute 'criminal damage'. Eventually just as it seemed that the impasse wasn't going to be resolved the city officials discovered the walk was part of the art programme of the conference and the objections were dropped. Art, after all, was part of the business of the city and to be encouraged.

This incident illustrated the fact that the simple act of walking in the city still retains some force as a political act, with artists granted a privileged position between activists and city officials as urban space and its reframing becomes a site of contestation in the contemporary city. At the time I had recently launched my "JoyceWalks" project and my art practice was increasingly becoming one of walking art enabled and mediated through locative technologies, placing the work at the intersection of art, technology and urban space, a position as fraught with difficulties as it is replete with opportunity. This troubled position of artistic engagement with the city, as illustrated by my Manchester experience, is rendered more problematic for Locative Media (LM)[1] when this engagement is mediated through emergent locative technologies enabled through the extensive networks of GPS and mobile telephony.

The narrative of this dissertation begins with two events. The first, President Clinton's signing of the order to switch off selective availability on the Global Positioning System (GPS) in May 2000, and the second a workshop on location in an abandoned Soviet-era base at Karosta, Latvia in 2003. The former, which enabled the full accuracy of GPS for non-military devices, ushered in the era of consumer GPS devices and ubiquitous

1 Chapter One begins with a detailed explanation of the term 'Locative Media'

location-awareness. GPS introduced the conceptualisation of location in terms of coordinates of longitude and latitude, previously the realm of specialists, into the everyday setting in train a sequence of events which has culminated in today's culture of ubiquitous location-awareness. The latter established Locative Media (LM) as an art practice which engaged with locative technologies as creative tools for augmenting and enhancing space. It has resulted in a body of loosely related art practices which share an engagement with exploring, revealing and disrupting the spaces of everyday life through the application of locative technologies, the influence of which is evident in today's location-aware practices.

The thesis traces the unfolding of these interconnecting events demonstrating the imbricated nature of locative technology, space and practice set against a background of ubiquitous urban computing. Following the parallel and intertwining paths of location-aware technologies and LM as they influence and are influenced by each other, I draw attention to the intentionality of LM, identifying its foundational ambition to shape these technologies, and demonstrating the considerable influence LM has exerted on the form and practice of everyday location-aware products and applications. Drawing on Krzysztof Ziarek's treatment of avant-garde art and technology in "The Force of Art", theories of technology drawn from Science and Technology Studies (STS) and software studies, the thesis builds an argument for the agency of LM. LM is positioned as an interface layer which in connecting the user to the underlying functionality of locative technologies offers alternative interpretations, introduces new usage modes and ultimately shifts the understanding and meaning of the technology.

This research and analysis is supported and advanced by a series of related art projects collectively known as "WalkSpace". Five projects; JoyceWalks, the WalkSpace iPhone app, NAMAland, WalkSpace: Beirut-Venice and Walking Stories are considered individually and collectively with access to an online documentation resource for each of the individual projects allowing the reader to access texts, photographs and videos documenting the works and in some cases (dependent on location and technical requirements) download the works themselves. They are contextualised within a tradition of peripatetic art with an emphasis on their reliance of locative technologies establishing them as distinct from previous generations and existing iterations of

walking art but nonetheless still existing within that tradition. The practice is considered for the ways in which it negotiates the constraints of the platforms on which it operates, produces new usage modes and introduces spatial practices which act to produce space.

Building on the Situationist concept of the constructed situation, with reference to this ongoing body of practice, an experimental, practice-based, framework for LM art is advanced which accounts for its agency and, it is proposed, preserves this agency in a rapidly developing field.

The dissertation demonstrates that the user-centric practices developed by LM exert far reaching influence on the application of location-aware technologies, which sees them emerge into the everyday *different to what they might have been*. LM art projects are seen to have foreshadowed current location-aware applications and services. This, it is argued, is not co-incidental but is rather the result of an intentional desire, and accompanying actions, to shift the meaning of these technologies. As location-aware technologies become ubiquitous I advance that the forms they take and the ways in which they are employed are co-constructed by LM art practice.

Chapter Summaries

Chapter One introduces the field of Locative Media Art, establishing the range of activities and practices for which the term accounts. Locative Media (LM) is traced back to its origins in order to identify its foundational impulses and ambitions and in the process serve as a point of departure in indicating future directions.

The chapter begins with a discussion of the origins of the term itself, concluding with a definition of the term 'Locative Media' which makes a case for its continued relevance. The role of GPS within early LM is examined and revealed as key to the practice's identity. The complexities of LM's contestation of notions of locational awareness embedded within the GPS system are shown, not only to be instrumental in the foundation of the practice but, to still define LM's approach to location-awareness, even as the importance of GPS as a locational technology diminishes.

LM is positioned as a parasitic practice, one which while working within the GPS infrastructure introduces spatial practices which owe more to Henri Lefebvre's concept of "lived space" than to what has been seen as the innate cartesianism of GPS. A distinction is drawn between 'position' as instrumentalised localisation of space as points in a cartesian grid, and of location as the space of individuals and communities, replete with the histories, narratives and layers of association, which imbue location with meaning which can be revealed and augmented through the application of LM.

These characteristics are revealed in a survey of existing taxonomic accounts and the chapter concludes by tentatively proposing a novel outline taxonomy of LM practices, one which builds on existing accounts extending them to better account for the changing nature of the practice as location-aware technologies become embedded in everyday life.

Chapter Two turns to the ways in which location-awareness introduces another dimension into technologically mediated urban space. I invoke Mark Weiser's notion of ubiquitous computing (Ubicomp) and its contemporary versions of urban and pervasive computing to paint a spatial picture of the contemporary city as hybrid space enmeshed in code and software. Whereas Ubicomp was originally envisaged as a smooth system where computational power recedes into the background, I emphasise the improvised, uneven and contingent nature of the unfolding of these technologies which opens them to appropriation from social and avant-garde art practices. The notion of urban spatial practices acting as interface to the underlying power and technicity of the city's embedded software and computational power is introduced with a consideration of the role of LM practices in this process.

I argue that emergent locative technologies are becoming part of the urban everyday and question what the added factor of ubiquitous networked location-awareness means in the context of urban space increasingly mediated by code. Rather than consider the technologies, their modes of operation and their (market) positioning, ambitions and capabilities, I focus on the spatial practices which grow up around these emergent

locative technologies, from commercially oriented location based services to LM art works. Drawing on ideas from user interface design I emphasise the role of user practices in uncovering functions and usage modes of technologies and revealing their relative value and importance.

While extensively predicted and theorised for many years location-aware mobile devices and a range of accompanying services have only recently become commonplace with the wider acceptance of smartphones. While usage of location based services has seen recent rapid increase, user numbers are still small and their future is far from assured. I invoke the notion of the 'proximate future' (Bell and Dourish) to argue that locative technologies are still emergent and as the trajectories of new technologies are notoriously difficult to predict there is still much to play for. I demonstrate with specific examples that emergent usage patterns and practices of locative technologies represent significant advances in the integration of locative technologies into the everyday.

The chapter concludes with an account of the spatial practices of LM highlighting three specific approaches of LM practice; the interventionist practices of Augmented Reality, the community based public authoring of "Urban Tapestries", and the radical transparency of Hasan Elahi's "Tracking Transience".

Chapter Three addresses the agency of LM art practice which I locate in the ways it has shaped emergent location-aware technologies. LM art projects have foreshadowed all of the key categories of current location-aware applications and services. This is not co-incidental but is rather the result of an intentional desire and associated actions to shift the meaning of location-aware technologies. As location-awareness moves into the everyday I advance that the forms it takes and the ways in which it is employed are co-constructed by LM art practice. With location-awareness assuming a pivotal role in developments in mobile media and the mobile internet this influence has far reaching consequences in the unfolding of these technologies.

Drawing on Krzysztof Ziarek's treatment of avant-garde art and technology in "The Force of Art" and concepts on the shaping of technology from Science and Technology Studies (STS) and software studies, this chapter builds an argument for the agency of LM and explores the mechanism for this influence. This argument is constructed on Ziarek's notion of technological art as 'Forcework', which acquires agency through operating outside of power, causing a fundamental rethinking of the meaning of the technology. I develop a case for the forcework of LM which overcomes weaknesses in Ziarek's stance toward the role of practices in the agency of technological art. This positions the artist as an 'augmented-user', developing LM as an interface layer which, in connecting the user to the underlying functionality of locative technologies, offers alternative interpretations, introduces new usage modes and ultimately shifts the meaning of the technology.

I detail the limitations to agency embedded in technological artifacts and emergent code based platforms, arguing that the activist engagement of LM's augmented-user with the technology overcomes the limits and restraints on agency configured into the technology itself. This is achieved at the level of practices and I outline the way in which LM art practices have shaped emergent usage conventions for locative technologies and applications which serve to evade embedded systems of constraint. The chapter concludes with the example of the OpenStreetMap's Haiti Crisis Mapping project as illustrative of the agency of LM.

In **Chapter Four** I turn toward the practice component of the dissertation with a consideration of the WalkSpace series of works. The chapter begins with a brief treatment of each of the works; "JoyceWalks", the "WalkSpace iPhone App", "NAMAland", "WalkSpace: Beirut-Venice" and "Walking Stories". This chapter is connected to an online documentation resource for each of the individual projects which allows the reader to access texts, photographs and videos documenting the works and in some cases (dependent on location and technical requirements) download the individual works.

The projects are discussed individually as walking art projects. They are contextualised within a tradition of peripatetic art while emphasising their reliance on locative technologies which establishes them as distinct from previous generations and existing iterations of walking art whilst, nonetheless, still existing within that tradition.

This distinction is further developed with a discussion of the projects as interface, building on the concept of LM's 'augmented-user', introduced in Chapter Three, involved in a process of augmenting locative technology with an interface layer which interprets their underlying core functionality. I consider the ways in which the WalkSpace projects negotiate the constraints of the APIs they employ and work within closed platforms such as the Apple iPhone and Layar's Augmented Reality Browser.

The chapter concludes by positioning the WalkSpace series as being involved in what I term the 'Construction of Locative Situations' drawing on the Situationist constructed situation to be developed further in Chapter Five.

Chapter Five builds on the Situationist concept of the constructed situation, develops the idea of the 'locative situation' as a speculative framework which accounts for the agency of LM, and points toward future directions, ensuring a continued agency in the light of a changing locative landscape.

The chapter discusses the Situationist Internationale (SI) and the central role of the constructed situation as a theoretical underpinning of their praxis but one which, unlike their techniques of *détournement* and the *dérive*, remained unrealised after their demise. I detail the connections between Locative Media and the situationists at a level of practice, common approaches and shared concerns, suggesting that these connections go beyond superficial similarities and name-checking. Rather than promoting a revisionist reading of these techniques I invoke this idea of the SI as a theoretical and practical resource to be drawn upon, an activist resource which empowers and informs actions but which refrains from guiding them.

I develop a speculative practice-based framework which sees LM as being involved in the construction of locative situations; following from the Situationist constructed situation, LM's locative situations act as interface serving to both interpret the underlying technologies of location and introduce spatial practices which produce space in a Lefebvrian sense.

Chapter 1:
What we talk about when we talk about Locative Media

..what was once the sole preserve of builders, architects and engineers falls into the hands of everyone: the ability to shape and organise the real world and the real space.
Ben Russell (1999)

1.0 Introduction

This chapter introduces the field of Locative Media Art, establishing the range of activities and practices for which the term accounts. Locative Media (LM) is traced back to its origins in order to identify its foundational impulses and ambitions and in the process serve as a point of departure in indicating future directions.

The chapter begins with a discussion of the origins of the term itself, concluding with a definition of the term 'Locative Media' which makes a case for its continued relevance. The role of GPS within early LM is examined and revealed as key to the practice's identity. The complexities of LM's contestation of notions of locational awareness embedded within the GPS system are shown not only to be instrumental in the foundation of the practice but to still define LM's approach to location-awareness, even as the importance of GPS as a locational technology diminishes.

LM is positioned as a parasitic practice, one which while working within the GPS infrastructure introduces spatial practices which owe more to Henri Lefebvre's concept of "lived space" than to what has been seen as the innate Cartesianism of the GPS system. A distinction is drawn between 'position', as instrumentalised localisation of space as points in a Cartesian grid, and of location, as the space of individuals and communities, replete with histories, narratives and layers of association, which imbue place with meaning and which can be revealed and augmented through the application of Locative Media.

These characteristics are revealed in a survey of existing taxonomic accounts of LM and the chapter concludes by tentatively proposing a novel taxonomy of LM practices which builds on existing accounts, extending them to better account for the changing nature of the practice as location-aware technologies become embedded in everyday life.

To begin we must first discuss the origins of the term. "Locative Media" is widely accepted to have been first coined by Karlis Kalnins (Bleecker and Nova, 2009; Galloway, 2008; Hemment, 2004; Raley, 2010; Tuters and Varnelis, 2006; Vollrath, 2007; Zeffiro, 2006) at the "Locative Media Workshop : Mapping the Zone" event which took place in an abandoned Soviet era military base in Karosta, Latvia from July 16th to 26th, 2003.[1] The term was originally employed to distinguish between the questioning artistic uses of locative technologies from their instrumentalised commercial and military uses. The proposition was that locative technologies, which had at this point (2003) only recently become widely available for civilian use, represented a fundamental, perhaps even paradigmatic, shift (or the means to bring about such a shift) in our perception of geographic location. That the artistic uses of these technologies not only represented a new artistic medium but had an important role to play in the opening up of the possibilities of these media to everyone. It was as if what Ben Russell had predicted in the prescient Headmap Manifesto (1999), perhaps the founding document of Locative Media, had come to pass and "what was once the sole preserve of builders, architects and engineers falls into the hands of everyone: the ability to shape and organise the real world and the real space" (Russell, 1999).

It is this clear statement of intent present in the term which sets Locative Media, the art practice, apart from recent common uses of the term to refer to location-aware media, granting the term itself both a historical significance and a continued resonance among practitioners. It can, however, also cause substantial confusion. With a term like Locative Media (LM) it is increasingly difficult to distinguish between media which are locative, the more logical usage, and the art practice. In one sense LM is a victim of its own success if it can be claimed that the proliferation of locative technologies have been influenced in part by the art practice. In this dissertation I will use the term Locative Media to refer to the art practice in order to acknowledge the roots of the practice and establish a continuity between current practices and the origins of the field.

1.1 Locative Media

LM can be thought of as a range of artistic practices and approaches which engage with an expanding set of locative technologies such as, but not limited to, GPS, Wi-Fi,

1 See http://locative.x-i.net/ for the original workshop web page.

cellular telephone networks, bluetooth, RFID[2], mapping, an ever increasing variety of geotagging applications as well as new location-aware applications and technologies which will become available in the future. These technologies in turn enable an expanding group of location-aware devices; portable GPS units, mobile devices from PDAs to the latest digital cameras, laptop computers, the new generation of smartphones and even the most recent web browsers. In addition to these devices which are actively location-aware there exist a myriad of devices which are passively location-aware, that is they can record a user's location at the time of usage for example transport smart cards, electronic toll road cards, store loyalty cards and so forth (See Greenfield, 2006; Kitchin and Dodge, 2011:215). I will also include in the expanding class of locative technologies geolocating social media platforms which have unique characteristics which render them worthy of separate consideration. LM art practices are thus made possible through the affordances of these technologies but also represent an ongoing critical engagement with the technologies and their evolving modes of operation, a critical engagement which acknowledges that it operates within the parameters of the technology without seeking to disavow this connection or adopt a position of distance or separateness.

I will attempt to further refine this definition and propose that LM has a dual approach. Firstly, it is a set of practices (principally, but not exclusively[3] urban based) which seek to renegotiate, re-imagine and re-enchant urban space through the application of locative technologies to develop novel and experimental methods for navigating, exploring, experiencing and being in the city. Secondly (as Ben Russell suggests), Locative Media can be considered as providing a framework for critical engagement which re-frames locative technologies, shifting their meaning and in this way has a role to play in the shaping of these emergent technologies.

Locative Media art can be further described through its essential approach to location which draws a clear distinction between position, the instrumentalised localisation of space as points in a cartesian grid which can be tracked and targeted (militarily and commercially), in favour of location, what Henri Lefebvre identifies as lived space (espace veçu) (1991:33, 38-39), the space of individuals and communities replete with

2 Radio Frequency Identification Tags
3 GPS assumes a greater importance in non urban based Locative Media as Wi-Fi and cellular networks are less available

histories, narratives and layers of association which can be made visible through the application of locative technologies. It is this approach which reveals the promise of LM; the ability to (re)construct the map which is bigger than the territory[4].

1.2 GPS

When the term Locative Media was first employed, while it was acknowledged that Locative Media encompassed a diverse range of techniques and approaches, the Global Positioning System (GPS) was identified as being of the greatest significance. GPS enabled practices were singled out as representing what Bleecker and Knowlton (2004) described as "an exciting" set of practices which couldn't have occurred without the GPS system and "its network of satellite and military operations support". It was the novelty of these practices, their appropriation of what was a military system for creative purposes, and most importantly the fact that their very existence depended on a functioning GPS infrastructure which set them apart.

The first GPS satellite of the modern system was launched in 1978 with the 24th and final in 1994. The system was usable by the late 1980s and Initial Operational Capability (IOC), the capability of sustaining the civilian Standard Positioning Service (SPS) on a continuous worldwide basis, was declared in December 1993 (Pace et al., 1995:246). While GPS has been a working (if incomplete) system since the late 1980s it first impinged on public consciousness during the first Gulf War of 1990. During the war a shortage of military GPS receivers which were capable of receiving the fully accurate military GPS signal led to selective availability (SA), that is the facility to degrade the quality of the civilian service to an accuracy of 100m, being temporarily switched off to allow military users to use the more widely available civilian GPS receivers (Clarke, 1992 ; Harris, 2006; Kiernan, 1991). This brief interlude allowed civilian users to experience the full power of GPS and gave equipment manufacturers such as Garmin and Magellan a glimpse of the potential market for unrestricted GPS. The resulting commercial pressure contributed to the permanent ending of selective availability by US President Clinton in 2000[5], a decade ahead of schedule, ushering in the era of non professional GPS. In 2007 it was announced that it was no longer the intent of the US to re-activate SA and that the capability would be discontinued in

4 From 'On exactitude in science' Jorge Luis Borges (1998)

5 See the US Government's official GPS website http://www.GPS.gov/systems/GPS/modernization/sa/

newer GPS III satellites. The action was taken to "eliminate a source of uncertainty in GPS performance that has been of concern to civil GPS users worldwide" (Source US Department of Defence Press Statement[6]) confirming GPS's transition to a civilian system.

In the mid to late 2000s GPS entered a broader consciousness with the availability of affordable in-car satellite navigation (satnav) systems. Sales of satnav went through a period of tremendous growth. According to sales monitoring firm Mintel sales of satnav in the UK went from an annual value of £5m in 2002 to £340m in 2007,[7] with similar growth in western Europe and the US. The growth of satnav and its introduction of satellite navigation to a wider public was accompanied by a regular diet of stories of misadventure caused by GPS errors;[8] from the woman who drove her car into a river whilst following GPS instructions,[9] to the Norwegian tourists shot in a Brazilian Favela because the GPS route to the airport brought them through gang controlled territory[10]. A common theme of the GPS-disaster genre was misfortune brought about by an over-reliance on a fallible technology. As Carolyn Marvin suggests in her account of the process of social acceptance of new technologies (Marvin, 1988), such accounts are indicative of a process of social integration of a new technology. It is true to say that it was satnav which truly brought GPS location into the mainstream consciousness. However, even after such an expansion, the era of the dedicated satnav unit is said to be numbered as satellite navigation for smartphones becomes available at low cost, and increasingly for free, illustrating the pace of change typical of emergent technologies. Satnav has become a proven practice of GPS but one now more commonly encountered as an integrated component, which has receded into the background supplying a functionality as part of the evolution of location-aware technologies (Arthur, 2009:30).

This brief glance at the history of GPS navigation is to quickly touch on the processes through which what could be called the culture of location has been established, bringing the concept of position as described by coordinates of longitude and latitude

6 http://www.defense.gov/releases/release.aspx?releaseid=11335 accessed February 10 2012
7 Source The Telegraph April 12 2007 http://www.telegraph.co.uk/news/uknews/1548348/Satnav-sales-hit-340m-despite-scare-stories.html accessed February 10 2012
8 I have documented 95 stories in the mainstream media in a two year period
9 http://www.thisislondon.co.uk/news/article-23389219-96000-merc-written-off-as-satnav-leads-woman-astray.do accessed: February 10 2012
10 http://www.smh.com.au/travel/GPS-guides-norwegian-tourists-into-trouble-in-rio-20081126-6inc.html accessed: February 10 2012

from the realm of the specialist into everyday life. This intersection of the locative and everyday life is the locus of LM.

Through singling out the role of GPS as conceptually more significant than other tools for locating position, I suggest that these early pioneers were establishing two key tenets for Locative Media. Firstly they are positioning Locative Media as an aleatory product of the GPS program, a parasitic practice whose access to the infrastructure it requires for its very existence can be withdrawn in an instant. Secondly, I suggest that it is this fundamental instability at the core of the practice which compels it to account for the nature of its role within the GPS constellation, staking a claim for it as a tactical resistance (in a deCertian sense), using the tools (of GPS) for purposes for which they were never intended (deCerteau, 1984:32).

Positioning Locative Media as a historical product of the GPS system places it in a very specific context as a practice only possible due to a multibillion dollar US military initiated space based navigation, positioning and timing system. GPS infrastructure consists of a constellation of 24 orbiting satellites and an extensive infrastructure of earth tracking and control stations operated by the U.S. Department of Defense[11] to provide "navigation, position location, and precision timing services to users worldwide"[12], developed at a cost of over $10billion[13] with an annual $400m maintenance bill. On one hand this acknowledges that the "culture of location-awareness" (Bleecker and Knowlton, 2004) from which LM and its associated art practices spring is a direct result of the military envisaging, design and implementation of a satellite location system while on the other hand questioning in the words of Lisa Parks "how might Western controlled satellite technologies be appropriated and used in the interests of a wider range of social formations?" (2005:10)

As location-awareness has shifted from the stand alone GPS unit to a wider array of mobile devices, GPS is less significant now in the practice of LM. This is due to the

11 While GPS is co-ordinated by a civilian organisation "The National Space-Based Positioning, Navigation, and Timing Executive Committee" (http://www.pnt.gov/) - it is still under the de-facto control of the military with the U.S. Air Force developing, maintaining, and operating the space and control segments (http://www.GPS.gov/systems/GPS/) through the "Global Positioning Systems Directorate" a "joint service effort directed by the US Air Force and managed at the Space and Missile Systems Center, Air Force Space Command, Los Angeles Air Force Base" (http://www.losangeles.af.mil/library/factsheets/factsheet.asp?id=5311)

12 USAF Space Command Global Positioning Systems Wing http://www.losangeles.af.mil/library/factsheets/factsheet.asp?id=5311 accessed: February 10 2012

13 Appendix B of Pace et al. (1995) The Global Positioning System

difficulties of obtaining a reliable GPS fix in an urban environment using the lower cost GPS chipsets available for mobile phones which led handset manufacturers to develop hybrid positioning systems that use a mixture of positioning techniques including cell tower location, Wi-Fi signals as well as GPS. Recent developments also include chips that use broadcast television signals to locate phones even indoors[14] .

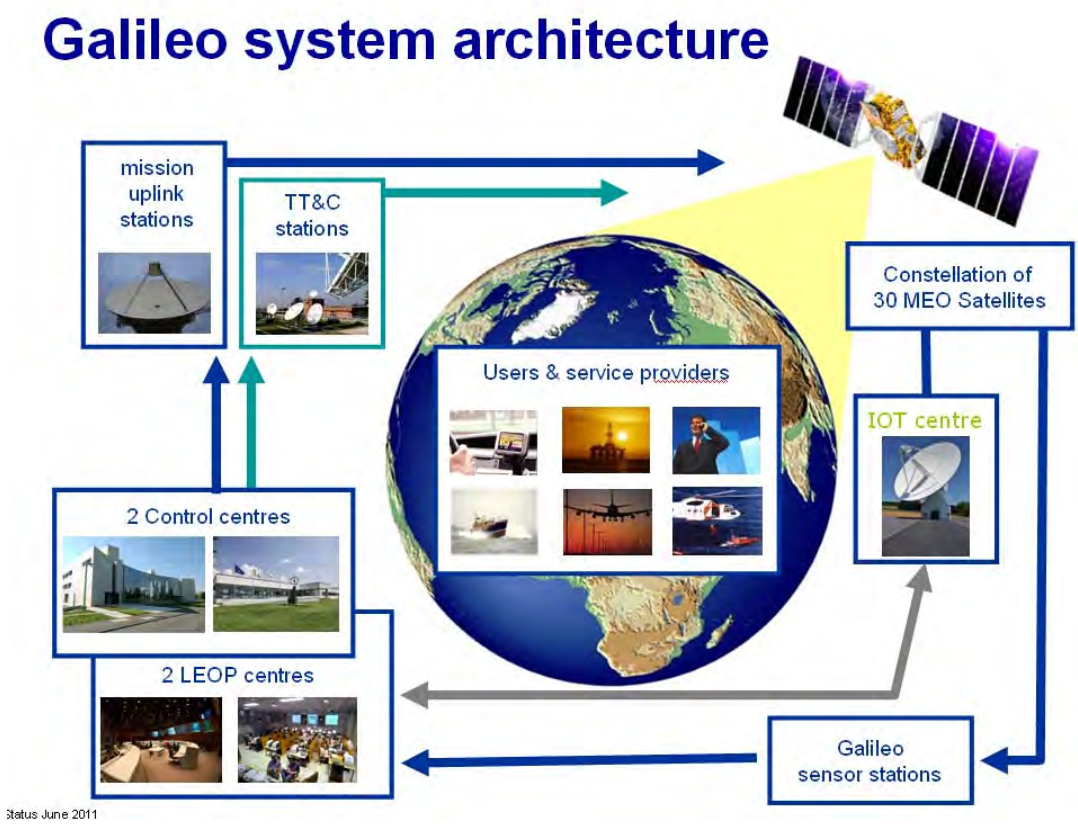

Figure 1.1 The Galileo System Architecture (source: European Space Agency)

Advances in Global Navigation Satellite Systems (GNSS), the general term for satellite positioning systems of which GPS is one, will change the landscape once again. The EU funded Galileo GNSS is due to achieve Initial Operational Capability (IOC) mid decade[15] with an increased satellite constellation of 30 over GPS's 24 satellites. Galileo predicts a tenfold increase in accuracy[16] over GPS. More importantly it is a civilian system, with no military oversight and no capability of deteriorating or disabling the signal for military criteria. It will offer commercial users a guarantee of availability and

14 See http://www.invisitrack.com
15 There are currently two satellites launched with a further two scheduled for 2012 and 18 by 2015 (source: http://www.esa.int/esaNA/galileo.html)
16 http://www.satellite-navigation.eu/

will be inter-operable with GPS and GLONASS (Globalnaya Navigatsionnaya Sputnikovaya Sistema)[17]. Similarly, GPS satellites are being upgraded; the first launch of the latest block 2F satellites (interim satellites launched due to delays in the design of the GPS III satellites) took place in May 2010. These new satellites are the first GPS which don't include a selective availability capability replacing it with a separate military signal operating in tandem with the civilian signal, marking GPS's move to a fully civilian system. As these new systems become available it is expected that the increased accuracy and availability of GPS will lead to it assuming an increased relevance in locative services and LM art.

At this point I will leave the history of satellite navigation systems. It will suffice to say that satnav was the application which brought GPS from an obscure technical system for specialists into mainstream consciousness. It could be said that it established a culture of location-awareness in the sense that it has been instrumental in introducing a different way of thinking about location, in terms of longitude and latitude rather than as named places, and in bringing what was the preserve of the specialist into the everyday. For satnav owners the accompanying narrative certainly suggests that it encouraged a ceding of navigational skills to the system, becoming what Mark Weiser called (1991) a ubiquitous technology, only visible when it stops working, which this author can testify is not an uncommon occurrence.

Although satnav may have introduced this new culture of location-awareness, I suggest that locative technologies can still be considered as emergent technologies and that the locus for this emergence is what could be described as the second wave of locative awareness enabled by the latest generation of 3G and GPS enabled smartphones. This trend is typified by the Apple iPhone and by phones powered by Google's Android operating system. The improved location-awareness of recent generations of smartphones has enabled a myriad of location based applications and facilitated the introduction of location based social networking, advances which have brought location-awareness into an ever expanding set of everyday situations. In the third quarter of 2011, 115 million smartphones sold worldwide representing 26% of all

17 GLONASS is the Russian GNSS system, originally declared operational in 1996, it fell into disrepair due to Russia's economic difficulties but has been rebuilt achieving operational status once more on Dec 8 2011 (Source: GPS World http://www.gpsworld.com/gnss-system/news/glonass-fully-operational-first-time-15-years-12379)

mobile phone sales, a 42% increase on the same period of 2010 (Source Gartner[18]). With these figures smartphones can still be considered emergent rather than ubiquitous technologies but I suggest that the rapid growth in sales is putting in place the conditions necessary for a truly ubiquitous location-awareness and the much vaunted geospatial web. I will discuss later in more detail the implications of this rapidly changing locative landscape and the role of LM art practice in a culture of ubiquitous location-awareness.

GPS and Locative Media

The acknowledgement of LM as a product of the GPS system, a parasitic artform which must operate within the commercial, military and governmental locative infrastructure or not at all is, I would suggest, at the core of the identity of the practice. It is, paradoxically, these very constraints wherein lies its strength. For the very real limitations of this contingent practice demand that LM accounts for its role within the GPS sphere, to acknowledge that the practice operates within this military-industrial framework characterised by Brian Holmes as the "Imperial Infrastructure" (Holmes, 2004), an infrastructure which raises profound concerns about surveillance and privacy. I suggest that it is this very acknowledgement which demands that it assume a questioning stance or mode of operation, which in turn causes a shifting of our perception of locative awareness, from a Cartesian *position* to a more human centred *location*.

While art has always engaged with new technologies both as tools and in order to examine and critique their societal role, LM differs in its dependence on the GPS infrastructure for its very existence. It is the special nature of this relationship, described by Andrea Zaffiro as both "an appropriation and assimilation of surveillance technologies" (2006), which separates LM from other media art practices which employ technologies, such as the internet or even computer graphics, originating in military research initiatives. GPS is a military technology with an unprecedented potential for tracking and locating the subject. However, the technical affordances of the system equally offer an unprecedented potential for enriching real space through an over-layering of location sensitive information, foregrounding the rich lived experience of

18 http://www.gartner.com/it/page.jsp?id=1848514

place. This coexistence of the utopian (Tuters, 2005) and dystopian (Hemment, 2004) tendencies of locative technologies, held in tentative equilibrium, is central to the identity of LM as a practice which privileges the human-centred enriching of space but is cognisant of the dangers inherent in the tools employed. I propose that LM art acts as a tactical counterbalance which seeks to change the meaning (that is the ways in which the user understands and engages with the technology constituted through the modes in which it is enacted and effects their everyday life) of GPS and by extension the full spectrum of locative technologies through their re-imagining and re-positioning as they move from emergent to ubiquitous technologies.

I suggest that it was in recognition of this duality at the heart of LM which from its inception forced early practitioners to either account for this relationship or to open themselves to accusations of being what Andreas Broeckman characterised as the "avantgarde of the society of control",[19] operating within the "imperial infrastructure" of the GPS system. This is not to say that all LM art practices operate within what could be described as a tactical sphere of resistance or as a counter-public seeking to rethink these technologies and address the criticisms levelled by Broeckman (Graham, 2004) and Holmes (2004). However the nature of the response (or lack of) to these concerns is of particular relevance in a field where close co-operation between practitioners and industry and research sponsors is commonplace, and where a very real danger exists of the technologists' research imperatives becoming conflated with those of the artists (see Galloway, 2008:168-175).

Considerations of the relationship between LM practice and GPS infrastructure are to some extent historical as this total reliance on GPS technologies is no longer a feature of most LM. While the GPS controversy may be relegated to historical importance it nonetheless reflects a debate which will resurface where such a close relationship between technology, its developers, and an art practice exists. This is, as argued earlier, the locus of tension on which the practice builds its critical edge. Similarly many of the concerns about privacy have lost their urgency as the popular form that locative technologies are adopting has taken what would have been considered an unexpected direction in the early days of LM. This new direction is exemplified by the growth of

19 Andreas Broeckman quoted in Beryl Graham (2004)"Exhibiting Locative Media" http://www.metamute.org/en/Exhibiting-Locative-Media-CRUMB-discussion-postings accessed February 12 2012

locative social networking with applications such as Foursquare[20] and the "check in" model[21] which emphasises an opt-in self reporting of location where participants voluntarily broadcast their location, indicating that certainly among users of these services being tracked is not of great concern.

However, while the concerns raised in this early period, circa 2004 (Graham, 2004), most notably discussed by Tuters and Varnelis in their 2006 paper "Beyond Locative Media", no longer have the urgency they once had as the locative landscape changes, they raise issues which still need to be considered if LM is to continue to engage with emergent locative technological practices. On one level the landscape is evolving; GPS is leaving its military origins behind, whilst covert tracking of devices remains controversial[22] the number of users volunteering their location through location based social media services such as Foursquare, Facebook and a myriad of other location-aware apps and services continues to grow. The concerns remain valid but I argue that they have shifted beyond the superficial level of location-aware technologies as tracking devices or even their military origins (indeed what media technology doesn't have military origins?) to a more fundamental level of how they are understood, how they mediate our understanding of space, and the ways in which they produce space. I will return to these concerns in more detail in Chapter Three, but for the moment I raise them as they are important influencers in suggesting or perhaps even determining a direction for Locative Media.

Once it is established that LM art is indeed a novel practice (or more correctly set of practices) this in turn raises the question as to whether it is a 'novelty' practice and what the implications of this are. What I mean by this is that if LM art is a practice which depends on the novelty of locative technologies (for example the spectacle of seeing a google earth tour or realtime GPS traces overlaid on a map for the first time) but one which fails to go beyond this superficial, if spectacular and entertaining, engagement with the technologies, then as the technologies become part of the everyday and

20 Foursquare reports 15m users and 1.5b check ins as of January 2012. In 2010 these figure were 3m users and 185m checkins. Source: https://foursquare.com/about/

21 Foursquare is a mobile phone application which uses the geolocation feature of GPS enabled phones to allow users to check in at venues broadcasting their location to other Foursquare users, often simultaneously broadcasting to Twitter and Facebook. In 2011 they also began offering merchant tie-ins with special offers available to users checking in.

22 In April 2011 researchers found that Apple's iPhone was storing location tracking data to a hidden file http://www.guardian.co.uk/technology/2011/apr/20/iphone-tracking-prompts-privacy-fears

ubiquitous it can be assumed that LM will lose whatever relevance it once had.

This echoes the 2004 criticism of the earlier Net.Art movement by Ben Sisario in the New York Times[23] which asked whether it had lost its sense of purpose and distinctiveness with its initial novelty. Thus new media art practices were characterised as dependent on novelty with the suggestion their mode of audience engagement is as a showcase for novel technologies, with this engagement attenuating as the novelty factor diminishes. This criticism has perennially dogged media art. While the argument is based on an overly simplistic reading of the art practices, it does touch on the real concern raised by Holmes, Broeckman and Dudesek (Tuters, 2005) among others of an inherent tendency in Locative Media of adopting an uncritical stance toward the technology. What Coco Fusco (2004) and Jordan Crandell (2005) see as an incipient neo-cartesianism at work in LM which fails to pay due attention to the panoptical qualities of the media and its potential (and actual) use in surveillance and control.

The counter argument succinctly summarised by Marc Tuters is that "the self-conscious locative artist treats the technology tactically, starting from an assumption that mobile technology will not only track you, but in fact, that it is tracking you, and you work backwards from a frank acceptance of the existing society of control to develop useful hacks" (2005). I suggest that LM avoids these charges through the political nature of its engagement with the technology, through the desire to stake a claim for alternative ways of perceiving and experiencing the spaces of the city and a willingness to question the trajectory of the unfolding of these technologies, with the suggestion that there are other directions possible. In making this claim I return to the early texts on LM from the Karosta workshop and Ben Russell's "Headmap Manifesto" to identity the *foundational ambitions* for the practice. While these debates around LM from this period seem to have lost their relevance in the face of a changing locative landscape, I suggest that with the advent of ubiquitous location-awareness these original concerns will gain a renewed relevance, and once more come to the fore in considering the complex relationship of the practice with its constituent technologies.

23 Internet art survives but the boom is over http://www.nytimes.com/2004/03/31/arts/artsspecial/31SISA.html accessed February 12 2012

1.3 Position vs Location

Central to this critical stance is the distinction between position and location which lies at the core of LM practice. This stance is derived from the early experiments with the technology at Karosta and later and I suggest from the linkage of the practice with GPS. LM's employment of GPS is distinguished by a qualitatively and conceptually different approach toward location than that of the application based approach favoured by specialist user groups, such as the military, mariners, cartographers and surveyors. It could be said that LM practitioners form another relevant user group (Bijker and Pinch, 1989:34) whose approach is equally valid and, I would say, suggested by the technology.

This distinction in approach I suggest comes down to the difference between *position* and *location*. Position is a point on a Cartesian grid identified by coordinates of longitude and latitude; for example as I write this, an app on my iPhone locates me at 53° 17' 22.74" N latitude, -6° 8' 15.26" W longitude, which is very useful information if I was lost at sea or to be targeted by a proximity marketing campaign or Predator drone[24], but provides no information about the nature of this place, its history and the layers of association which constitute my relationship with it. This key differentiation is at the heart of LM; the distinction between position as instrumentalised localisation of space as points in a Cartesian grid, to be tracked and targeted with locative technologies, and of location as an "existential, inhabited, experienced and lived place" (Bleecker and Knowlton, 2004), the space of individuals and communities replete with histories. narratives and layers of association which imbue location with meaning that can be revealed and made visible through the application of locative technologies. Both capabilities coexist in uneasy balance within locative technologies. I will argue later that decisions made now about the future of locative technologies in terms of forms of adoption and emerging use patterns will shift this balance so that it is weighted toward either tracking and targeting or revealing and enriching. While I accept that the spectrum is more nuanced I argue nonetheless that these represent the range of options and, following the approach suggested by theorists of technology, I will later argue that the applications suggested by LM art have a role to play in the shaping of these emergent technologies.

24 US Airforce pilotless remote controlled aircraft used to launch attacks in Afghanistan.

At the heart of LM's claim to criticality and its aspirations to being a tactical practice is the notion of location as lived space which LM practices address and make visible. This challenges the Cartesianism of position and introduces the notion of the agency of LM which will be dealt with at more length later. The notion of lived space originates in Henri Lefebvre's influential theories on spatial production developed in "The Production of Space" which places spatiality centrally in a theory of social space that "encompasses on the one hand the critical analysis of urban reality and on the other that of everyday life" (Lefbvre, 1996:185). The central tenet of Lefebvre's argument in "The Production of Space" (1991) is that space cannot be considered as an empty neutral container in which objects and people are situated (1991:68). Rather space is a social product, defined by a complex set of interrelationships, resulting in a multiplicity of interconnected and overlapping spaces which influence, and are influenced by each other (1991:86-87). Central to this understanding is the concept that space is not a pre-existing absolute but is a product of the interaction between the essential components of space (1991:33, 38-39), and is in effect a social product. Production, it must be stressed, is for Lefebvre broader than the common understanding of the "economic production of things and includes the production of knowledge, society and institutions" (Elden, 2004:184).

Lefebvre posits that space can be described by what he calls a "conceptual triad" (1991:33, 38-39) of spatial practice (perceived space), representations of space (conceived space) and representational spaces (lived space) and that social space is a interrelated mixture of all three components.

Spatial practice or "perceived space" he describes as the "material space" (1991:33) of a society. Perceived Space is, in effect, the space of everyday life, connecting spaces of work, leisure and private life. Spatial practice describes peoples' way of operating within these everyday urban spaces, producing spaces which reflect the habits and customs of a city's inhabitants. According to Lefebvre there is a direct causal connection between the spatial practice and the space of a city, so much so that the spatial practice of a society can be discovered through analysing its spaces (1991:34), a notion which is familiar to us from archaeology where the customs and practices of ancient societies are deduced from a close reading of the archaeological remains of their cities. While spatial practice is the process by which space is moulded to reflect the practices of the users of

the space, making the space more responsive to the needs of its users, it can also act as a coercive force dictating the range of acceptable practices (1991:73) and defining practices which are outside of the norms of the society. In this respect he claims that the space of a city is also a mechanism of control: He who produces the space, controls the city.

The second element of Lefebvre's triad, "representations of space" (conceived space) is characterised by a mathematical approach to space. It is the space of city planners, architects and engineers. It could be said that conceived space refers to the built environment of cities including the transport and civil engineering infrastructure, and increasingly incorporates the urban networks of ubiquitous and pervasive computing and locative infrastructure. Rob Shields describes it as "the discursive regimes of analysis, spatial and planning professions and expert knowledges that conceive of space" (1999:161). As conceived space contains the infrastructure upon which Locative Media builds, it is of particular interest to LM practitioners. Lefebvre identifies conceived spaces as the dominant space of any society (1991:38-9).

The final element of the triad is "representational space" (lived space) (Rob Shields translates this as "spaces of representation") which Lefebvre describes as the space of "inhabitants" and "users". It is the space which "the imagination seeks to change and appropriate", which overlays physical space and makes "symbolic use of its objects". (1991:39). Lefebvre sees representational spaces as spaces of resistance or "counterspaces" (Soja, 1996:68) where users manipulate imposed space making it their own, it is the space wherein LM art operates.

If space is a social product, defined by a complex set of interrelationships and the "outcome of a sequence and set of operations" (1991:73) then this production process results in a multiplicity of interconnected and overlapping spaces which influence, and are influenced by, each other (Lefebvre 1991:86-87). Furthermore space isn't superseded whenever a new space is produced but rather each space overlays previously produced spaces resulting in a multi-layered space in which the layers "co-exist, overlap and interfere" (Lefebvre, 1991:86) with each other and that it is the dynamic relationship between these layers which establishes the nature of social space (Lefebvre 1991:86-87). Social space is for Lefebvre the result of this "triple dialectic" with

practised (perceived), thought (conceived) and imagined (lived) space elements synthesised together in a social spatialisation (Shields, 1999:120). Shields considers "as a dialectical contradiction of: everyday perception/practice versus spatial theory/concepts relativised by a transcendent, entirely other, moment: creative, fully lived space" (Shields, 1999:120).

Social space in turn acts as a tool of control in that it is "what permits fresh actions to occur, while suggesting others and prohibiting yet others" (Lefebvre 1991:73). In this sense it has "the property of being materialised by a specific social process to act back upon itself and that process. It is, therefore, simultaneously material object or product, the medium of social relations, and the reproducer of material objects and social relations" (Gottdeiner, 1985:129). Therefore if space is in a state of continuous production, a state of continually being brought into existence, then it is the process rather than the product which is of most interest. This leads on to an acceptance that position, for example as defined by a set of coordinates of longitude and latitude, is of small importance in and of itself. Of greater significance is how that location is related to other locations and to the practices which define that location. It is the practice, the procedures and the process that lead up to, for example, standing at a specific location as a participant in a locative art work that matter rather than the GPS coordinates of that location.

I propose that Lefebvre's analysis of space forms an influential theoretical backdrop which, consciously or not, informs many LM projects through its articulation of social space in a state of continuous production, a concept central to LM practices which set out to produce temporary critical spaces.

1.4 Taxonomic Considerations

I acknowledge the problems of attempting taxonomic classification for any art practice, and especially for an emergent one, but in order to establish current thinking I will nonetheless summarise briefly the existing attempts to describe the principal approaches at work in Locative Media practice. These operate primarily as descriptors of the practice rather than attempts to fit it into any rigid taxonomic structure and date from the 2004-2006 period when LM was considered a *bona fide* art movement which either replaced or built on the net art movement, depending on your viewpoint. Now I suggest

it is better to consider it as a set of diverse practices which have coalesced around issues arising from advances in locative technologies, but which don't quite a movement make. It is also significant that they date from a time when locative technologies were not yet ubiquitous but were widely anticipated to become so, operating in what Bell and Dourish (2006) have termed the "proximate future" where predicted future modes of operation for locative technologies are, of course, vulnerable to actual outcomes and real modes of operation. This survey of these quasi-taxonomic attempts also serves another purpose. I will argue later that the influence of LM practice from this period (the heroic period as it were) is clearly identifiable in the range of recent commercial locative applications, forming part of what might be considered a locative turn, and subsequently use these observations to build an argument for the agency of LM practice in the shaping of emergent locative technologies.

The Headmap Manifesto

Locative Media has always had an expansive aspect which positions it not only as a range of specific practices focusing on location but also as a set of approaches and a framework for the consideration of, and engagement with, rapidly deploying locative technologies. In his introduction to the TCM online reader on Locative Media (2004) Ben Russell offered a broader more discursive definition of Locative Media which envisages it as more than a practice led consideration of the relationship between location and the user mediated by new technology. Russell places LM squarely at the convergence of a rapidly unfurling technology and the social and physical spaces in which it is being deployed, describing it as:

> a new site for old discussions about the relationship of consciousness to place and other people. A framework within which to actively engage with, critique, and shape a rapid set of technological developments. A context within which to explore new and old models of communication, community and exchange. A name for the ambiguous shape of a rapidly deploying surveillance and control infrastructure.
> (Russell, 2004)

Russell suggests that the discussion isn't technological in nature, but one which is foregrounded and made possible by the emergence of locative technologies, which

"suggest and condition(s) ways of thinking, ways of doing and ways of seeing" (2004). LM creates a space for "a whole range of interesting and rich human centred conversations" facilitating a reconsideration of the nature of urban space and ways of operating within the city. Russell sees this opening up of locative technology's ability to "shape and organise the real world and the real space" (1999) to everyone as a fundamental departure, the implications of which will be felt in a wide range of domains from social relationships to computing platforms. Locative Media in this context provides a framework which artists can use to "engage with, critique and shape" the emergent technologies. I suggest that this ability to shape the emergent technology is a central tenet of LM which lends the practice an agency in the shaping of these technologies and will explore the nature and implications of such an agency in Chapter Three.

Beyond Locative Media

Perhaps the best known and certainly the most cited effort at classification is that outlined by Marc Tuters and Kazys Varnelis in their influential 2006 "Beyond Locative Media" paper. They propose that Locative Media projects can be roughly categorised as either "annotative - virtually tagging the world - or phenomenological - tracing the action of the subject in the world". These in turn they see as corresponding to "the twin Situationist practices of *détournement* and the *dérive*". Synopsising LM to the essentials of annotation of real space and phenomenological tracing in space effectively describes the principal impulses at work in the first wave of LM, offering a useful framework for the consideration of existing projects. However, in the current dynamic landscape of emergent locative technologies it is perhaps too reductive to be of use in the consideration of the ongoing engagement of LM art practices with locative technologies. Of more significance here is their suggestion that Locative Media "offers a conceptual framework by which to examine the certain technological assemblages and their potential social impacts" connected to what Bruno Latour sees as the "possibility for the arts to re-present anew what are the common stakes" (quoted in Tuters, 2005), re-echoing Russell's view of LM as a framework for new discussions. I will return later to this aspect of LM the ability to "present anew" or re-frame the technology to propose that it lies at the heart of the agency of LM.

Tuters and Varnelis in their exhortation of the Situationists (warily) raise another trope of LM as a Situationist (inspired) practice. Clearly the connections between LM and the practices of the Situationist International (SI) are extensive and there exists a trend among practitioners of invoking the SI. There is ample evidence to suggest that SI concepts such as psychogeography and the techniques of *détournement* and the *dérive* (drift) have exerted considerable influence on Locative Media practices. These connections are useful in that they serve to connect LM to earlier locative art practices and to situate it, not only as a technologically mediated art form, but also within a wider tradition of location-aware art practices which engage with urban space, in a tradition which includes Fluxus and walking artists from Richard Long to Francis Alÿs. However, a certain amount of caution needs to be employed for fear of aligning LM too closely within a Situationist frame of reference as it presents a ready-made framework for the consideration of the practice as a neo-Situationist practice as it were. This can then act as a short cut to understanding that fails to consider the specificities of LM as a practice engaging with, and responding to, contemporary conditions, enabled through a specific enactment of technological assemblages. Nonetheless I propose that Situationist practices do inform LM, that these connections are real and substantive, not just nostalgic yearnings, and I use them to underpin a proposed framework for the consideration of LM art in Chapter Five. It must be stressed, though, that the exact nature and extent of the connections need to be clearly elucidated to avoid falling into that familiar frame of reference which Situationist thought can provide.

Brief Taxonomy of Locative Media

Bleecker and Knowlton in their 2004 "Brief Taxonomy of Locative Media" identify six distinct categorisations of GPS enabled LM practice. Many of their categories overlap and flow into each other, and even though they have been overtaken by developments in locative technology they represented a necessary effort to put shape on the range of LM practices while also illustrating, as they freely acknowledge, the drawbacks of a taxonomic approach in the face of a rapidly unfolding technology. I have previously discussed their account of LM as a product of GPS which I propose has assumed a greater current significance then these taxonomic categorisations in the light of developments in the technology.

Rather than exhaustively treat of their categories I will briefly deal with a few key

characteristics identified by them which still retain significance. One such characteristic is what they label "geographic space", that is the practice of "situating media within geographic space and indexing the connection between the location and the media through either coordinates of longitude or latitude or by physically tagging the location". What Drew Hemment described as "a convergence of geographic space and data space" (2004) essentially an over-layering of a user generated data set over real space to be locally accessed, equating to the annotation Tuters and Varnelis later speak of (2006). It is this characteristic which has assumed a central role in the latest location based social media applications typified by Foursquare and Yelp[25] which overlay locations with a wealth of user generated recommendations, tips and reviews which are generated and accessed in real-time through location-aware devices which as Ben Russell correctly predicted "make possible invisible notes attached to spaces, places, people and things" (1999).

Another significant focus of their taxonomy is mapping practices, with three of their six categories, "map hacking", "experiential mapping" and "cartographic legibility". These refer to the practice of mapping. These address the trend of 'hacking' or remapping cartographic representations to reveal narratives of experiential lived space, mapping counterspaces (Soja, 1996:68) and tracing and visualising "location-specific data sets" (Bleecker and Knowlton, 2004). While the discourse of the new cartography movement, typified by the work of JB Harley (1989, 2002) and Denis Woods (1992), has firmly established the notion of maps as political documents, advances in locative and mapping technologies have made available the means for non-specialists to deliver multiple re-mappings of space thorough a variety of affordable GPS devices and location-aware smartphones. Online mapping tools such as Google Maps offer facilities for overlaying personalised data sets in easily created mash-ups, and many web 2.0 services like the popular photo sharing sites Flickr and Panoramio have incorporating geo-tagging[26] (what Goodchild (2007) terms as Volunteered Geographic Information). The most comprehensive of these user generated maps is the Openstreetmap[27] project which is building an opensource digital map of the world through crowdsourced volunteer labour. The resulting dataset is freely available under the terms of a Creative Commons

25 www.yelp.com

26 This location imagery has been scraped to create memorable visualisations by Eric Fischer http://www.flickr.com/photos/walkingsf/sets/72157624209158632/ and to map social networks (Khalili et al., 2009)

27 www.OpenStreetMap.org

Attribution-ShareAlike 2.0 license (CC BY-SA) and in major cities its core map rivals those offered by Google and Bing maps incorporating a wealth of local data added to the map by over 600,000 OpenStreetMap members, up from 200,000 in June 2010[28] . For example the Samuel Beckett Bridge in Dublin was opened on December 19th 2009 and as of June 25th 2010 was still not in Google Maps of Dublin but was added to Openstreetmap on the day of opening.

Locative Dystopia

Drew Hemment offers a broader view of Locative Media which seeks to balance its utopian and dystopian aspects suggesting that a consideration of the dynamic, between both immanent tendencies of LM, is what is of most importance. Hemment describes LM as a practice which uses "portable, networked, location-aware computing devices" as "social interfaces to places" for "user-led mapping, social networking and artistic interventions in which geographical space becomes its canvas" (2004). He proposes that this opens up "a manifold of ways in which geographical space can be encountered and drawn" creating a framework through which "a wide range of spatial practices may be looked at anew" (Hemment, 2006). This articulation of LM as social interface which allows a repositioning and a rethinking of the technology is significant in thinking about the agency of the practice, particularly as they become part of the everyday.

Hemment clearly differentiates LM's utopian dimension by identifying the constitutive aspects that rather than merely adopting a traditional oppositional stance defining themselves through that which they oppose, seek to reconstruct the technologies as collaborative technologies building an alternative mode of operating, thus staking a claim for the future of the technology. In this sense LM goes beyond tactical media, or at least beyond the criticisms of tactical media levelled by theorists such as Geert Lovink (2005) and Ned Rossiter (2006) (and effectively countered by Rita Raley (2009)). Instead of being limited to temporal engagements, LM's ambition is to shift the meaning, understanding and usage of locative technologies in an ongoing critical engagement, going beyond the short-termism of tactical intervention.

But as locative technologies herald the Internet of Things[29], that is a "location specific internet that is organised semantically and accessed via mobile networked devices"

28 source:wiki.OpenStreetMap.org/wiki/Contributors accessed May 1 2012
29 See theinternetofthings.eu for the European Internet of Things research initiative

(Hemment, 2004), or in other words an internet where everyone and everything is networked, the price of participation is the voluntary and involuntary sharing of location information. If locative technologies offer what Hemment described as an "unprecedented capacity to pinpoint and to connect the individual to ever proliferating databases that are the new repositories of power" (2004), this capacity is exponentially greater now as location based applications and smartphones proliferate. In June 2010[30] Apple changed the non-negotiable terms and conditions for iPhone users to allow Apple to "store the real-time geographic location of your Apple computer or device and share it with partners and licensees." It may be that the choice of opting in or out of this sharing of location may become the choice of either opting in or out of mobile phone usage altogether. Media theorist Eric Kluitenberg even argues that while now we speak of the right of everyone to be connected to the network, in the future a more important right may be the right to disconnect (2006).

LM as an art practice is a condition of possibility which suggests of things to come. It represents an ongoing state of engagement with an emerging technology which has a role to play in the shaping of this technology. What has gone before, I will argue, has had discernible effects on the unfolding of the technology as is seen in the relative importance of locative narrative, the tagging and annotation of locations, augmented reality and principally in a privileging of the experiential *location* over the Cartesianism of *position*. I will later argue that this stems from an ongoing process of engagement with the technology. Although much heralded, the locative era has in fact only just begun, the technologies and their application are in the process of being shaped with their final societal position yet to be determined. All is still to play for.

1.5 A Taxonomic Approach

I don't claim any great novelty in this attempt to categorise the traits of LM, rather I would describe it is a drawing together and revisiting of the various existing categorisations in light of the shifting locative landscape. Mostly this effort at categorisation arises from a pragmatic practitioner's viewpoint seeking to rethink the practice, to regroup the strands in terms of methodological approaches which are technique and device independent. The aim is to uncover the underpinnings of a framework for considering LM art which will have continued validity and applicability

30 http://www.apple.com/legal/privacy/ accessed June 26 2010

as the technology and its applications evolve. As with any categorisation of a practice there is of course a substantial overlap and slippage between the categories. The categories I advance are; Invisible Notes in Real Places, Location and Being in the World, Remappings, Hybrid Space, Performing the City, and Locative Situations.

Invisible notes in real places

Possibly the most familiar characteristic of LM art is that of accessing location specific information and media on mobile devices in real time. This is the technical facility to access context specific content in the very places to which it refers, and to annotate those locations. It is the central mechanism enabling a significant portion of LM art which orientate about the concept of leaving "invisible notes in real places" (Russell 1999). It is about making transparent and accessible the layers of tacit knowledge associated with physical places and their communities, revealing hidden histories and enabling individuals to annotate their own space which foregrounds location as lived space (Lefebvre). The applications to which this is put include re-imagining space through the over-layering of fictional narratives, revealing hidden histories and alternative narratives and re-enchanting space with locational sound works and artistic interventions. Once this ability to locate media in real space exists, then space itself is the canvas (Hemment) for multiple layers of meaning and invisible interventions, in effect acting as site specific art which needs no official sanction, which can be both ephemeral and permanent as required.

Projects typical of this approach include Valentina Nisi's "Media Portrait of the Liberties" (2004), a LM walking tour of Dublin's oldest neighbourhood, overlayering the rich oral history of an inner-city community over the real locations involved, accessed with GPS enabled PDAs. While "Media Portrait" delivered an authored static data set in pre-set locations, Proboscis' London based "Urban Tapestries" (2004) project sought to facilitate a community in recording an alternative grass-roots history accessible in familiar places, as a kind of 'public authoring' or "Mass Observation for the 21st Century" (Galloway, 2008). Adopting similar methodology for different ends are projects like Mark Shepard's "Tactical Sound Garden" (2006) which provides a framework for the user to create and access location based 'sound gardens', that is location specific sound environments to be experienced on mobile devices, and an array of locative sound works notably by artists such as Teri Rueb, Steve Symons and Masaki

Fujihata.

As the latest generation of smartphones bring the prospect of ubiquitous location-awareness with network access closer, the virtual annotation of real spaces has become a central theme in current location based social media services such as Yelp, Foursquare, Facebook Places and many more, a connection I will argue in Chapter Three, which is far from coincidental.

Location and Being in the World

LM often focuses on the embodied experience of physically being in the world, questioning how locative technologies can be used to re-frame the everyday experience of the city. Drawing both on the Situationist desire to re-enchant the city through escaping the bound of the habitual, and Michel deCerteau's invocation of walking in the city as the tactical act *par excellence,* LM seeks to alter the nature, quality and intensity of our interaction with familiar urban space. This is achieved with a variety of approaches from alternative navigation techniques, tracking movement, and enriching and augmenting urban space through an overlayering of context sensitive data and media which can be informational, aesthetic or playful. These approaches are designed to better understand the physical environment as lived space, or alternatively to distract and confuse, rendering the familiar strange. Lev Manovich argues (2006) that such augmented spaces are not technological in nature, rather they should be thought of as aesthetic experiences where ephemeral datascapes transform perceptions of real spaces. This impulse to rethink the nature of familiar spaces and re-imagine the phenomenological experience of say walking in the city, harnesses the affordances of locative technologies and in the process insinuates alternative use modes, shifting their meaning.

Examples of this approach include projects such as Christian Nold's Biomapping (2007-) which maps its subjects emotional response to their environment by GPS-tracking their movement through the city while measuring their emotional responses to specific locations with galvanic skin response sensors. Projects which adopt classical Situationist notions of the derive; such as Social Fiction's 2004 ".Walk" (dotWalk) a simple set of instructions to be used to conduct a *dérive*, the real scale Google Maps

pins of Aram Bartholl's "Map",[31] or augmented reality works such as the work of Dutch artist Sander Veenhof which use the Layar AR mobile browser to virtually display art in real locations (notably in MOMA New York[32]), and this author's "NAMAland" augmented reality phone app which reveals NAMA properties in Dublin (see Chapter Four).

Remappings

Digital technology, in particular the growth of online mapping services and the widespread availability of affordable GPS devices, have revolutionised cartography (Goodchild, 2007; Kitchin and Dodge, 2011; Turner, 2006), and in the process opened up mapping to a wider constituency of non-specialists and activists. This 'democratisation' of mapping (I use this term reservedly as I recognise that this new generation of user friendly mapping tools are not without their problems) has opened up the possibility of user centred mapping which embeds local knowledge into the map, creating alternative accounts of the city. from the collective memories of the "Urban Tapestries" project to rendering visible local crime statistics, Wi-Fi density, air quality, the locations of surveillance cameras or even the probability of seeing Bono in Dublin[33]. Other approaches involve using maps to force a re-engagement with familiar place through the overlaying of alternative navigation systems such as "You Are not Here" which superimposed maps of Baghdad over New York City to be used as an alternative tourist map, or this authors "WalkSpace" (see Chapter Four) series which remaps location specific cultural trails and user generated walking routes to any city to be used as the basis of Situationist inspired derives.

It is perhaps the ability of digital mapping tools to overlay real-time location sensitive data over geographic space, to create contextual maps which render the map as mutable as the choice of dataset, which is most of interest in building rich human centred accounts of the territories we live in. The widespread adoption of these new techniques of neogeography (Turner, 2006), from the popular genre of the mashup[34] to the world-

31 http://datenform.de/mapeng.html
32 http://www.sndrv.nl/moma/ accessed Oct 13th 2011
33 See Oakland Crimespotting oakland.crimespotting.org/, Trace Map www.tracemap.net/, Community Sensing www.communitysensing.org, iSee www.appliedautonomy.com/isee.html, Google Bono www.stunned.org/bono/googlebono.htm
34 A mashup refers to the web 2.0 methods of combining data and services from different sources into integrated user services, Google maps mashups created with the Google Maps API and combine data sources with the Google maps interface are a particularly well known example of the genre.

mapping endeavour of the OpenStreetMap project, is significant for the LM artist and for the future of the practice as it is illustrative of how the introduction of new techniques can bring well established technologies in new and sometimes unexpected directions.

LM's adoption of mapping is in the tradition of artists' maps which privilege the subjective experience of being in space over the exigences of Cartesian mapping. This approach finds support in the disciplines of cartography and urban planning from Kevin Lynch's urban mind maps in his influential 1960 book "The Image of the City" to the extensive debunking of the concept of the map as a neutral scientific document by cartographers such as J.B. Harley (1989, 2002) and Denis Woods (1992). Debord's and Jorn's " The Naked City" map is an influential document in this regard, with its reworking of the map of Paris creating a psychogeographic map connecting zones by similarities in ambience irrespective of their geographic location, in effect mapping the psychogeographical exploration of the *dérive* to create an alternative account of the city. An account which counters the logic of cartography as a neutral discipline which renders space transparent, suggesting instead that every map has an internal logic which needs to be decoded.

Alison Sant argues (2006) that as the city itself changes, through its increased mediation through digital technology, a fundamental rethink of the starting point or basemap for maps is called for. Rather than the traditional Cartesian grid of streets and infrastructure she proposes that maps should reflect the city "as a temporal system, characterized by both transitory and enduring spatial events". This approach echoes Michel deCerteau's description of the city as a "practised place" (1984: 117) brought into being through the actions of its inhabitants or Michael Batty's view of the city as driven by spatial events (2002). This approach is reflected in LM projects like the WAAG Society's "Realtime Amsterdam" (2002) which tracked the daily movements of participants in Amsterdam with GPS as they went about their business with the visualised results of a month's worth of journeys creating a map of Amsterdam brought into being through the movements of its inhabitants.

Hybrid Space

The concept of hybrid space[35] (Harrison and Dourish, 1996; Kluitenberg, 2006) is a recognition of the fact that the boundaries between "physical space and informational space" (Kluitenberg, 2006) are collapsing and that it is no longer useful or correct to speak of a separation between the two. Eric Kluitenberg sets hybrid space against Manuel Castells' (2006) influential distinction between the space of place (physical space) and the space of flows (informational space). He argues that unlike Castells' concept of information networks as being global (as opposed to local) a-historical networks they are always rooted in local networks and local histories (Kluitenberg, 2006) and subject to the tactical uses that Michel deCerteau (1984:32) suggests local communities will make of them. As 'smart' mobile devices with network access and location-awareness proliferate it is to be expected that this will only become more pronounced. Hybrid space thus incorporates ideas of Mixed Reality[36] and Augmented Reality and other practices which bring location based contextual data into real space. Kluitenberg also sees tactical practices such as "pirate-modernity", a phrase coined by Ravi Sundaram (2009) of the Sarai New Media Initiative to describe the phenomenon of local communities appropriating local communications networks without permission, to gain access to the global communication network on their own terms, as important to hybrid space. In this regard hybrid space should not be thought about only as the phenomenon of the network leaking into the real world (Russell) but also as the range of practices, some of them tactical and disruptive, which orientate around the new situation. The concept of hybrid space has particular importance as digital networks permeate every aspect of everyday life, hybrid space is increasingly the contemporary condition.

Artistic practices responding to this concept include projects which make visible the hertzian[37] landscape (Dunne, 2006) of the contemporary city like Gordon Savicic's "Constraint City"[38] in which the artist walks through cities wearing a corset which tightens in response to the strength and number of Wi-Fi signals, inflicting real pain on

35 Defined by Harrison and Dourish (1996) as space " which comprises both physical and virtual space, and in action is framed simultaneously by the physical space, the virtual space and the relationship between the two."

36 The condition formed from a combination of the real, augmented reality to virtual reality in varying amounts used by Blast Theory to describe their games.

37 Hertzian landscape refers to the electromagnetic frequencies the product of the electronic devices and systems which permeate all aspects of contemporary life.

38 http://pain.yugo.at/

the artist. The urban games of Blast Theory such as "Can you See me Now" and "Uncle Roy All Around You" which take as given the ubiquity of mobile devices, their enabling supporting infrastructure and their ability to locate the individual in real-time and real space. Community urban sensing projects, such as "Common Sense"[39] which asks "what would happen if every mobile device had an air quality sensor", aim to leverage the potential of the vast number of mobile devices to monitor and report on environmental factors in what has been called "participatory sensing". What unites these and many more projects is their recognition of the hybridity of space as the distinction between physical and informational space collapses, and their desire to explore the ways in which these new conditions change the meaning of space and how we might live in it.

Performing the City

A constant in Locative Media practice is the notion of performative interventions in real space facilitated and enriched through the application of locative technologies. I will restrict the range of these interventions to those of 'Urban Play' and 'Sound in Space'. Obviously I could equally include works which draw explicitly on the Situationist *dérive* here instead of in Chapter Five but I ask that you bear with me and the limitations of this (or any) taxonomic classification of a dynamic practice in the interest of establishing a structure to draw together the disparate strands that form Locative Media art practice.

Urban Play involves using locative technologies to transform the city into game space where the games commonly involve a shifting between real and virtual spaces. Well known and influential examples of the genre are the pervasive games of Blast Theory such as "Uncle Roy all Around" and "Can you See me Now" which take the form of a high-tech game of tag involving portable devices tracking players in real time while being monitored and assisted by virtual players . "Pac-Manhatten" similarly transformed the street grid of Manhattan into the game space of the classic video game Pacman with groups playing Pacman and ghosts being controlled by another group with mobile phones. The notion of urban play has spawned a number of international festivals such as "Conflux" in New York City and "Come Out and Play" in New York,[40] London and Amsterdam and numerous games ranging from the sophisticated technologically rich games of Blast Theory to simple games of hopscotch on city streets. Also commercial

39 http://www.communitysensing.org/
40 www.conflux.org, www.comeoutandplay.org

applications for the iPhone, such as Gigaput,[41] transforming any street into your own personal virtual golf course. What draws these disparate approaches together is the desire for a ludic transformation of city-space, which while it invokes the Situationist call for the "playful-constructive behaviour" (Debord, 1958) of the constructed situation may also reflect what pervasive games designer Jane McGonigal describes as " 'the Pinocchio effect' - the desire for a game to be transformed into real life, or conversely, for everyday life to be transformed into 'a real little game' " (McGonigal, 2003). This appropriation of the city as a site for gameplay, especially when those games are technologically mediated, is not without problems. Mary Flanagan questions the lack of connection to place in such locative games, suggesting that they contain an inherent trend toward an abstraction of space which disavows the embedded meaning of place as understood by its residents and users, through the superimposition of a game space which is meaningless to the uninitiated and uninvited or those without the required access to the necessary equipment to partake (Flanagan, 2007; 2009:199).

Sound in Space similarly transforms urban space into a performative space by linking sound and location through both an over-layering of location specific sound and through building responsive sound environments where the presence and the movement of the audience in effect performs the work. In projects such as "[Murmur]" (2003) or "Tactical Sound Garden" (Shepard, 2007), sounds are virtually placed in the specific locations to which they refer and are experienced by an audience suitably equipped with location-aware portable devices (TSG), or by calling numbers on physically located signs (Murmur) while physically being in that space. In the case of Shepard's work, the work was constructed not only as a sound work to be experienced but also provided a set of tools with which participants could build their own sound garden in response to the specificities of location. The performative aspect is emphasised in projects such as Steve Symons "Aura" (2004) where as participants move through the locative sonic landscape (with the requisite equipment which in the case of this 2004 project needed its own backpack) their physical presence and proximity to other participants modulates the soundscape, in effect performing the work.

Locative Situations

My final category is an overarching one which looks more at the methodology

41 www.giganticmechanic.com/games_gigaputt.html

employed and the role of the participant/audience in Locative Media works. I see locative situations as describing works which offer either a framework for action or a work which can be substantially transformed through participant interaction rather than a discrete 'work'. I will stress in a later chapter that this role goes beyond the role of the audience in site specific work of completing or activating the work (Kwon, 2002) as it cedes a much greater autonomy to the participant to the extent that the work should be considered as having a shared authorship.

I propose that even though the approaches and methodologies developed by Locative Media artists have shaped the form of commercial locative applications, the growing ubiquity of locative awareness, particularly through a proliferation of smartphones,[42] has exhausted the effectiveness of these approaches. I suggest that the future of Locative Media lies not in the paradigm of delivering a relatively static data set locatively[43] but rather in ceding more autonomy to the participant in an enabling framework which I propose can be thought of as 'the construction of locative situations' to be discussed in a later chapter.

1.6 Summary

This chapter sets the stage for this analysis of LM. Through tracing the name 'Locative Media' itself back to its origins, the continued relevance of this term is established even at a time when location-aware technologies are becoming mainstream and Locative Media can be understood to have a wider application beyond the art practice. 'Locative Media' is seen to acknowledge the roots of the practice and establish a continuity between current practices and to these foundational ambitions and desires which lie at the origins of the field.

LM's relationship to GPS is uncovered, with the practice seen as an aleatory product of the GPS system. The relationship between LM and GPS, the subject of much criticism, is counter-intuitively identified as defining the nature of the practice. LM it is acknowledged must operate within the confines of this extensive, complex and closed infrastructure with limited opportunities to modify or hack the system. Whilst this may seem to limit the possibilities of agency, the GPS system and subsequent positioning

42 See Gartner report on the growth of smartphone sales http://www.gartner.com/it/page.jsp?id=1848514
43 What Jeremy Hight calls the bowling alley conundrum (2007)

infrastructures, are seen to be mutable at the level of practice, impacting on our understanding and usage of these technologies which ultimately shifts the meaning of the technology.

The influence of the French spatial philosopher Henri Lefebvre, in particular his theories on the production of space, are demonstrated as fundamental to LM's distinction between position and location. This distinction, it is argued, is key to LM's understanding of, and deployment in, space opening the walled garden of locative technologies to appropriation, which goes beyond tactical intervention operating at a more fundamental, constitutive level.

This positioning of Locative Media is supported by a survey of writing on the practice from Ben Russell, Marc Tuters and Kazys Varnelis, Julian Bleecker and Jeff Knowlton and Drew Hemment which identifies principal approaches and techniques from the early period. I propose a tentative taxonomy of Locative Media which builds on these existing accounts, identifying the key tendencies in the practice, while mindful of the limits of such an enterprise in a rapidly unfolding field.

The proposed categories; Invisible notes in real places, Location and Being in the World, Remappings, Hybrid Space, Performing the City, and Locative Situations, aim to uncover the underpinnings of a framework for considering Locative Media art which will have continued validity and applicability as the technology and its applications evolve. The proposed taxonomic categories are practice led, focusing on the application and understanding of the technology and the user centric practices they permit and enable, which focus attention on the meaning of these technologies for users and the ways in which these are constructed.

Chapter 2 : Location and the Ubicomp City

The modern city exists as a haze of software instructions. Nearly every urban practice is becoming mediated by code.
Amin and Thrift, (2002)

2.0 Introduction

The previous chapter outlined the principal approaches of LM emphasising the transformative nature of their engagement with emergent locative technologies. This chapter now turns to the ways in which location-awareness introduces another dimension into technologically mediated urban space. Mark Weiser's notion of ubiquitous computing and its contemporary versions such as urban and pervasive computing are invoked to paint a spatial picture of the contemporary city as hybrid space.

It is argued that emergent locative technologies are becoming part of the urban everyday and it is questioned what the added factor of ubiquitous location-awareness means in the context of urban space increasingly mediated by code. Rather than consider the technologies, their modes of operation and their (market) positioning, ambitions and capabilities, this chapter focuses on the spatial practices which grow up around these emergent locative technologies, from commercially oriented location based services to LM art works. It is emphasised that it is through user interaction that functions and usage modes come to light and their relative value and importance is revealed.

While extensively predicted and theorised for many years, location-aware mobile devices and a range of accompanying services have only recently become commonplace with the wider acceptance of smartphones. While usage of location based services has seen rapid increase, user numbers are still small and their future is far from assured. The notion of the "proximate future" (Bell and Dourish, 2006) is invoked to argue that locative technologies are still emergent, and as the trajectories of new technologies are notoriously difficult to predict there is still much to play for. The chapter demonstrates with specific examples that emergent usage patterns and practices of locative technologies represent significant advances in the integration of locative technologies into the everyday.

The chapter concludes with an account of the spatial practices of LM highlighting three specific approaches of LM practice; the interventionist practices of augmented reality, the community based public authoring of "Urban Tapestries", and the radical transparency of Hasan Elahi's "Tracking Transience".

2.1 The City as Interface

Ubiquitous Computing (Ubicomp) is a field of research concerned with the increased (and increasing the) integration of computational power into both the urban infrastructure and everyday objects. As microprocessors become smaller, more powerful and less expensive they have become embedded into a vast range of everyday objects from phones, cameras and MP3 players to fridges and electric toothbrushes. The utilities infrastructure of the contemporary city itself is monitored and controlled by a vast network of embedded sensors and computational power ranging from lifts, building management and security systems to monitoring and control systems for the electric, gas and water infrastructures and those of the crucial telecommunications networks. Indeed the contemporary city can be thought of as existing "in a haze of software instructions" where almost all urban practices are "mediated by code" (Thrift and Amin, 2002:125).

The concept of Ubicomp was introduced in a 1991 Scientific American article by the Director of the Xerox PARC Lab, Mark Weiser. In "The Computer for the 21st Century" Weiser declared that "the most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it" (1991). Weiser's vision for Ubicomp was of a post-desktop scenario of quiet computing where computers would recede from view and fade into the background, only to come to our attention when they fail. Central to this vision was that while computers would become more integrated into the everyday, their role would be peripheral, augmenting and aided everyday tasks but not demanding of attention.

Weiser saw this as not only a technological task but also one which must attend to social and cultural practices (Galloway, 2004), moving computing from a paradigm of virtualisation to one which "honors the complexity of human relationships, the fact that we have bodies, are mobile" (Weiser, quoted in Rheingold, 1994). While much of

Weiser's Ubicomp scenario has come to pass, as increasingly considerable computational power is built into everyday objects and into the infrastructural fabric of the contemporary city, in one key aspect it has not, or rather it has in many ways come to pass in an unexpected fashion. Ubiquitous digital devices rather than recede into the background as expected have once more assumed centre-stage as branded objects of desire and display, typified by devices such as the Apple iPhone and iPad. Ubiquity has certainly arrived but not in its anticipated form, illustrating the uncertainty of outcomes associated with new and emergent technologies. Bell and Dourish argue (2006, 2011) that Ubicomp is rooted in a vision of what they call the "proximate future", a future which is always just around the corner, but one which never quite fully arrives, or at least not in its anticipated form. They recognise that while the technologies and systems required are already available and distributed, they suggest that the implementation of Ubicomp is a far messier business than its theorisation. It is, they argue, characterised by contingent "improvisation and appropriation", compromises designed to make it work alongside existing systems and practices. In other words it's a hack which will never exist in a pure form. I emphasis this sense of Ubicomp as a porous, mutable system which is subject to intervention as it points to the tension at the core of Ubicomp, and by extension location-aware technologies and LM, a tension which balances its utopian and dystopian tendencies. In this scenario I suggest it is the nature and the motivations of the emergent usage modes and patterns that have the power to tip this balance. These usage patterns are driven by evolving practices involving multiple strands of engagement with the technologies which crucially include the interventionist practices of LM, itself a subset of ubiquitous computing.

As a field of research, ubiquitous computing has broadened and variants now include pervasive computing, ambient computing, embodied interaction (Dourish, 2001) and urban computing (Greenfield and Shepard, 2007). For our purpose we can consider these as synonymous[1] in that they all attend to the contemporary urban condition as one in which every aspect of the everyday is mediated through software or code (Kitchin and Dodge, 2011). Paul Dourish writing from the perspective of a researcher in Human Computer Interaction (HCI) speaks insightfully of ubiquitous computing and its associated fields as seeking to "capitalize our familiarity, skill, and experience in

1 These variants represent particular disciplinary approaches toward ubiquitous computing, being in effect shifts in terminology rather than substantial departures in understanding or technology.

dealing with the everyday world around us" so that the "world can become an interface to computation, and computation can become an adjunct" (Dourish, 2004). This idea of the city as interface, and spatial practices as embodied interface, holds particular significance in considering the connections between LM practice and the underlying technical systems which enable the practice and will be further developed in Chapter Three. Practice as embodied interface to embedded technological systems has long been a theme for Locative Media artists, typified by a variety of GPS drawing projects (Jeremy Woods, Thorsten Knaub, WAAG Society). Works such as Gordon Savicic's "Constraint City"[2] and Christian Nold's "Biomapping"[3] which stress the embodied nature of the interface, to a plethora of annotative projects from ″Urban Tapestries" (discussed later in this chapter) to "Tactical Sound Garden"[4] revolving around participants using portable devices to interface with location sensitive user generated content.

The (Automatic) Production of Space

What does this increased technological mediation of the city mean? Recent thinking draws out the spatial implications of this increasing penetration of software or code into every aspect of our lives focusing on its effect on the production of urban space (Kitchin and Dodge, 2011; Thrift and Amin, 2002). This concept of spatial production, that is the acknowledgement of space as a social product, has been foregrounded as part of the major reappraisal of the societal role of space of the 'Spatial Turn' (Cosgrove, 1999; Warf and Arias, 2009). This reassertion of the centrality of space in social relationships led to a transformation in human geography and an interdisciplinary "recognition that position and context are centrally and inescapably implicated in all constructions of knowledge" (Cosgrove, 1999:7). Indeed this new spatial awareness can be attributed to, in the words of David Harvey, a recognition that "the geographical imagination is far too pervasive and important a fact of intellectual life to be left alone to geographers" (quoted in Warf and Arias, 2009:1).

A key text in this refocus on space is the French Marxist thinker Henri Lefebvre's "The

2 In Gordon Savicic's "Constraint City (the pain of everyday life)" the artist explicitly connects the body to hertzian space (Dunne, 2006) in a performative work involving urban walks wearing a corset which is electronically tightened in response to the density and strength of Wi-Fi networks.

3 "Biomapping" maps participants' emotional responses to place with GPS tracking and a device which measures galvanic skin response, a measure of users emotional state. (See Nold, 2009)

4 www.tacticalsoundgarden.net (accessed 2/4/2011)

Production of Space" (1973, 1991) whose influence can be seen in writers as diverse as Edward Soja (1989, 1996), Doreen Massey (2005) and Michel deCerteau (1984) who have made significant contributions in the re-insertion of space into the social sciences and humanities (Warf and Arias, 2009). Lefebvre through a short lived but critical involvement with the Situationists[5] also serves to connect current spatial thinking with Situationist thought which is significant in the light of current resurgence of interest in Situationist techniques especially in the field of LM practice (McGarrigle, 2010a), a topic to which I will return in a later chapter.

Lefebvre's "Production of Space" was discussed in more detail in the previous chapter but I will reiterate that its central tenet is that space is not a pre-existing absolute, an empty container to be filled with people and things. Space rather is a social product produced through the actions and practices of its inhabitants. In this account, defined by a complex set of interrelationships, space consists of a multiplicity of interconnected and overlapping spaces which influence, and are influenced by, each other (Lefebvre, 1991:86-87). Space is thus produced by a myriad of spatial practices relating to work, leisure, culture, transport, crime and so forth. With each practice producing its own space which then co-exists, overlaps and interferes with existing spaces.

The contemporary urban condition can be characterised by the dominant influence of an extensive infrastructure of code and computational power connected to sensors and activators embedded in the very fabric of the city. This "haze of software instructions" control and enable the processes and mechanisms which make urban life possible (Kitchin and Dodge, 2011; Thrift and French, 2002). Thrift and French demonstrate that increasingly space is being produced automatically through the action of lines of code embedded into "everyday objects, infrastructures and processes" (Dodge and Kitchin, 2005) which are not readily available to human agency and the result of the expression of poorly understood code based systems and processes. Crang and Graham (2007) suggest that this backdrop of embedded computational processing power forms and "ambient intelligence" can no longer be thought of as a passive background but is in fact an active agent in producing space. Dodge and Kitchin (2005, 2011) distinguish between what they term 'code/space' and 'coded space'. Code/space is space whose

5 Kristin Ross Interview with Henri Lefebvre, 1983 http://www.notbored.org/lefebvre-interview.html accessed March 25 2011

production relies entirely on code (software) with no manual back-up system which can take over the code's function in the event of failure, for example an airport which cannot process travellers when the air traffic or security scanning computer systems fail, or a supermarket which can't sell any goods when the registers' software 'crashes'. Coded space is similarly produced by code but in the event of a software failure can continue to be produced to some degree with manual systems. This situation is accelerating with the increased penetration of code into everyday objects and systems in combination with the ever-increasing computational processing power of these embedded systems (following Moore's Law[6]).

However the sheer pervasiveness of embedded systems and code does not necessarily dictate the extent to which they produce space, this remains a function of effect (Dodge and Kitchin, 2005:169). Drawing on the dual concepts of technicity and transduction (MacKenzie, 2002), Dodge and Kitchin stress that the technicity (a complex concept which can be thought of as the power of a technology to cause effect, see Mackenzie (2002) for a fuller account) of code (software) "is contingent, negotiated, and nuanced; it is realized through its practice by people in relation to historical and geographical context" (2005:170). Even in this scenario of space automatically produced by code, agency still exists as the extent and the mode by which code is expressed (and space produced by its action), and code is always working within "conventions, standards, representations, habits, routines, practices, economic climates, discursive formations, and so on" (Dodge and Kitchin, 2005:170). This understanding of the agency still possible in modulating the expression of embedded code systems is of great significance in understanding the mode of engagement of LM, in a scenario where emerging standards and practices for location-aware technologies are open to appropriation. I will return to this aspect in more detail in Chapter Three.

Hybrid space

Location-aware mobile devices, such as smartphones, possessing formidable processing power and internet access, are a more recent (the first iPhone was introduced in 2007) and rapidly growing addition which expand the scope of everyday mobile computing. They provide an interface to this ubiquitous background of 'software instructions' and can be thought of as shifting the agenda from one of a frictionless, quiet computing

6 Moore's Law states that transistor density on integrated circuits doubles about every two years effectively giving twice the computational power on the same chip

(Weiser, 1991) with hidden sensors embedded in surfaces, walls and clothing (what Adam Greenfield (2006) calls Everyware), to one which is device led. Smartphones leverage a plethora of networks; cellular telephone, Wi-Fi, GPS and internet to provide communication, positioning and location sensitive information, and promote an app architecture through which developers provide applications dedicated to specific tasks, built for the affordances of each mobile device. In effect smartphones have crystallised the fact that it is no longer possible to draw a distinction between the 'virtual' spaces of networked communications and 'real' physical spaces as they fold into the newer conceptualisation of 'hybrid space'. I suggest too that they represent a convergence of many of the requirements for the embodied locative experience promised by LM art but hitherto not delivered and as such are of special interest in any consideration of LM.

In this scenario of ambient intelligence, with space being automatically produced through the expression of code, what possibility is there for agency, for the development of tactical resistance and the production of counter-spaces of resistance? Certainly in the unyielding code/space of the airport (Dodge and Kitchin, 2004) there exists a finite scope for user-centric practices to develop but what of the technologically mediated contemporary city? The concept of 'hybrid space' (Harrison and Dourish, 1996; Kluitenberg, 2006) usefully describes the ways in which communications networks, from telecommunications to the internet, intersect with almost all aspects of the contemporary urban everyday. The condition of hybrid space is when the internet leaks into the street (Russell, 1999) and it is no longer possible to draw a clear line of demarcation between the 'virtual' space of the network and 'real' physical space with each augmenting and interfering with the other. Hybrid space is thus contingent on local conditions and on the materiality of the network, from the ability to access a phone line or broadband connection (Graham, 2004; Kluitenberg, 2006; Sunderman, 2010) to physical failure (Graham, 2010; Thrift and Amin, 2002:128) and social and political events. Examples include local community mobilisation to prevent the installation of a mobile phone mast or failure due to damage to physical cables[7] or political dictat as seen by the disconnection of internet service in Egypt during the January 25th revolution of 2011.

7 As illustrated by the 2011 story of the Georgian woman who cut off internet access to Armenia http://www.guardian.co.uk/world/2011/apr/06/georgian-woman-cuts-web-access)

Kluitenberg positions hybrid space as an alternative to, or updating of, Manuel Castells' influential dichotomy of *space of place* and *space of flows*. That is space which is rooted in local physical locations and tradition, and the space of ahistorical, timeless international networked flow of information (Castells, 1996). Castells sees the space of place as the location of everyday life, where the majority of people live and work with the space of flows as the location of the economic, political and social functions which enable the network society and increasingly determine the conditions of everyday life. A more current view articulated by Kluitenberg and Varnelis (2008) sees this dichotomy between the network and physical space as misleading as it fails to account for the materiality of the network and the ways in which digital networks are interwoven into every aspect of everyday life. Whereas Castells' space of flows is characterised by continuity, the "discontinuity of connectivity" (Kluitenberg, 2006) matters in hybrid space. It is the improvised and ad-hoc nature of the unfolding of these pervasive systems and networks and the interconnectedness of all aspects of life wherein the opportunity for agency exists. If the network is dependent on nodes which are physically located then it is also subject to local practices of appropriation. Practices typified by those of "pirate-modernity" (Sundaram, 2010:12) which enable local communities to illicitly access the network as a form of "parasitic attachment to urban infrastructures". Practices which although rooted in local conditions also have a global reach. In hybrid space the global is local and the local global.

Locative Media: finding the exploit

The approach of Locative Media practitioners can be similarly conceptualised as a practice of "appropriative assimilation" (Zeffiro, 2006), building on the affordances of the various digital communication networks. This approach is typified by projects such as Mark Shepard's "Tactical Sound Garden" (2006) which re-purpose the systems they appropriate but yet are entirely dependent on them for their very existence. The TSG works as a parasitic project piggybacking on the extensive Wi-Fi networks of the contemporary city, using them as a mechanism for locating participants in order to build location based interactive sound environments. It is practices such as these which reveal the contingency of what might be considered all encompassing panoptical systems as they take advantage of the gaps in the system to build something new, producing alternate tactical spaces. Hackers speak of "the exploit" as the flaw or weak point in a computer system through which they gain entry. The exploit in the sense of computer

viruses also contains within it, like the biological virus, the idea of complete dependence on the proper functioning of its host's machinery to function and reproduce (see Galloway and Thacker, 2007:81-97). Galloway and Thacker see the exploit as a tactic of resistance for protocological networks, one which rather than assuming a traditional oppositional stance, which may no longer be available as an option, seeks to turn over the mechanism of its host to its own ends. They see this as the difference between

> thinking socially and thinking informatically, or the difference between thinking in terms of probability and thinking in terms of possibility. Informatic spaces do not bow to political pressure or influence, as social spaces do. But informatic spaces do have bugs and holes, a by-product of high levels of technical complexity, which make them as vulnerable to penetration and change as would a social actor at the hands of more traditional political agitation. (Galloway and Thacker, 2009:81-82)

It is useful to think of the operation of LM in the hybrid space of the contemporary technologically mediated city in this way. Despite its pervasiveness it is still porous, subject to contingency and appropriation. Amin and Thrift argue against the seamless networks of the city, rather they see urban "networks which are longer or shorter but do not reach everywhere and constantly interfere with each other" (2002:128). Thus leaving a key skill of urban life, what deCerteau called "making do" (1984:30), the ability to negotiate failure from breakdowns and gaps, from power cuts to transport strikes (Thrift and Amin, 2002:128).

This is not to understate the pervasiveness of digital networks or the vast potential for surveillance and control mediated by pervasive computing and locative technologies. Hybrid space, as I have argued earlier, is a contested space with the potential to become both control space and enhanced space. As an emergent phenomena there is much to play for. Certainly the history of technology suggests that emergent technologies are rarely seamless and recent accounts of ubiquitous computing emphasise the messiness of urban computing networks and the improvised nature of their unfolding (Amin and Thrift, 2002; Coyne, 2010; Dourish, 2004; Greenfield and Shepard, 2007). LM's mode of operation lies in the introduction of user-centric practices which expose and take

advantage of the exploit, practices which have the potential to shape the emergent technologies, reframing them as tools which enhance and augment space rather than surveil and control. It is these practices and usage modes which drive Locative Media's engagement with the technology and it is my contention that these practices lend LM its agency in shaping emergent locative technologies.

2.2 Spatial Practices

I want to now return to Paul Dourish's concept of everyday actions as computational interface, connecting embodied interaction with digital devices to an invisible or obfuscated backdrop of underlying computational power. This approach has particular significance for Locative Media and unfolds in two ways; firstly through the concept of practices and their role in deciding function and usages for new technologies (Dourish, Coyne), and through the automatic production of space.

As discussed previously, Locative Media sets itself the task of introducing new practices which can be thought of as interfacing with technological assemblages such as GPS, Wi-Fi and cellular telephone networks that enable positioning in location-aware devices. In introducing novel practices, Locative Media is involved in revealing uses and functions (Coyne, 2010:4) and ultimately giving meaning to, or shifting existing meanings for, these technologies. In a period of emergence for locative technologies the practices of Locative Media can thus play a role in rebalancing these technologies toward a more user-centric mode of engagement focused on creation rather than consumption.

What do I mean when I speak of practice? At one level it can be thought of as the ways in which users engage with technology, the usage modes and habits which grow up around new technologies (Agre, 2001:5). On a deeper level it is the ways that the technologies are integrated into everyday life which makes them meaningful and therefore useful. Paul Dourish sees the concept of practice as "one that unites action and meaning" describing "how the world reveals itself to us as one that is meaningful for particular sorts of actions". He continues "part of what people are doing when they adopt and adapt technologies, incorporating them into their own work, is creating and communicating new meanings through those technologies as their working practices

evolve" (Dourish, 2006 :10). This process of making technologies meaningful comes through practice, it is not inherent in the technology, nor can it be inscribed by designers but is rather contingent on real world situations and revealed through practice (Coyne, 2010). The integration of new technologies into the everyday is dependent, according to this account, on a "supervening social necessity" (Winston, 1998:6). Regardless of how innovative they are, technologies will not be adopted if they cannot be made to be meaningful in the context of the everyday. The corollary is that practices which add meaning to a technology have the power to reposition the technology, changing its meaning from the original intent of its creators and hastening its acceptance.

Perhaps the best example of user practices determining and developing usage patterns of new technologies is that of the mobile phone. The classic account of user practice foregrounding and adopting aspects of a technology in an unexpected and unintended way is the story of SMS messaging or texting. Originally designed as a method for operators to inform their customers about things like network problems it was never meant to be used as a communication channel (Stutterheim, 2002). But texting was adopted by users for a myriad of reasons and has become a key practice of mobile usage to the point where there were 6.1 trillion text messages sent worldwide in 2010[8].

As mobile phones have become fully integrated into the everyday, a rich set of practices have grown up around them and evolved with the technology. Examples include the sophisticated tactical use of missed calls for communication of 'beeping' (Donner, 2007) or the time-shifting of 'micro-coordination' (Ling and Yttri, 2002) where there is a move from time as determined by punctuality to time as negotiated and fluid (Urry, 2007:172) as meeting times and places become open to continual renegotiation through mobile communication. Researchers similarly have noted a blurring of boundaries between public and private space (Lee, 2008:42) attributed to the affordances of mobile communication.

As location-awareness is added to mobile devices, a similar process is under way with locative practices. LM practitioners operate within this window establishing practices which are sometimes experimental, and other times eminently practical, and in so doing establish a mode of operating for new location-aware technologies which, if successful,

8 Source ITU: http://www.itu.int/net/pressoffice/press_releases/2010/39.aspx

remain permanently inscribed. In this way the pervasive games of "Pac Manhattan"[9] or Blast Theory[10] establish location-aware mobile devices as tools for transforming the city into a playful space. "Urban Tapestries" introduced a grass roots approach where local communities tell their own stories, locating them in real space to be accessed through Locative Media so that the technology becomes an enabling tool for creation rather than a broadcast channel. This author's "NAMAland" similarly connects augmented reality for smartphones with political critique and opendata[11] visualisation. The emphasis here is on what people actually do rather than what they are expected to do or are instructed to do. This can be described as tactical where "the imposed knowledge and symbolisms become objects manipulated by practitioners who have not produced them" (deCerteau, 1984:32), a form of resistance or subversion or in a less oppositional sense as simply part of a "process by which we can experience the world and our engagement with it as meaningful" (Wenger, 1998:51 quoted in Dourish, 2004). In effect it is to be expected that practices can be both acts of resistance and pragmatic acts of appropriative assimilation.

Locative technologies such as the Global Positioning System (GPS) and ancillary hybrid positioning techniques for finding location, such as trilateration of Wi-Fi signals and calculating position from proximity to mobile phone cell towers, enable a wider range of mobile digital devices to locate themselves accurately and quickly. This locative faculty combined with ubiquitous network access have coalesced in the latest generation of mobile digital devices enabling a new range of spatial practices which hitherto were not possible. This results in a foregrounding of location as the nexus for the future of not only the mobile internet but also for digital devices and services based on real-time positioning. These developments can be considered in terms of what has been called the spatial turn (Arias and Warf, 2009), a "recognition that position and context are centrally and inescapably implicated in all constructions of knowledge" (Cosgrove, 1999:7). This spatial turn has placed a renewed emphasis of the importance of spatiality placing it on a par with temporality and caused a trans-disciplinary rethinking of notions of space which focus on space as something produced rather than received. However this ubiquitous real-time location-awareness, and its associated

9 Pac-Manhatten http://pacmanhattan.com/
10 Blast Theory http://www.blasttheory.co.uk
11 By opendata I specifically refer to Government sponsored open data initiatives responsible for the release of a wide range of mostly city and Government data for public re-use.

ability to access context sensitive information, adds a further dimension, the ability to over-lay real space with contextual layers of data, what has been described as "augmented space" (Manovich, 2006). For this shift to location as the key in making real-time place based connection to enriched augmented layers to become a mainstream everyday activity there must first be an accompanying set of practices which permit and facilitate this usage amongst a plethora of other competing ways of operating. I want now to outline some emergent practices which operate in hybrid space and, in particular, in augmented space.

Augmenting Space

If hybrid space is the condition where the internet leaks into real space (Russell, 1999), augmented space is a subset which combines location-aware devices connected to the network over-layering real space with context sensitive information. The term itself was coined by media theorist Lev Manovich (2006) to describe this phenomenon of "physical space overlaid with dynamically changing information ....localized for each user". Once this ability to locate the individual (or for the individual to be located) in space and to access layers of context sensitive information exists, it opens up the possibility of new spatialities, from the potential for panoptical control space to spaces of radical transparency. It is important to note though that, following Bell and Dourish (2006), future usage modes for emerging new technologies are hard to predict, with new technologies often becoming commonplace in unanticipated forms due to the unexpected form user practices take. As Richard Coyne notes "technologies do not conform politely to predetermined or intended functions" (2010:4).

When augmented reality[12] was first mooted[13] it was thought about in terms of an immersive experience (Manovich 2006: 234) akin to the earlier Virtual Reality (VR). It was associated in the 1990s with virtual reality type headsets with prototypes like the "Touring Machine" (Feiner et al., 1997) and "Map-in-the-Hat" (Thomas et al., 1998) (see figure 2.1) which were accompanied by weighty backpacks carrying the necessary computing, GPS and communication equipment, equipment which now fits in a smartphone. Even today the HUD (Heads Up Display) paradigm still has traction as demonstrated by Google's recent "Project Glass" (Braiker, 2012) announcement,

12 Augmented Reality (AR) is an approach which overlays context sensitive data and information typically over a camera view of real space

13 The term was originally coined by Tom Caudell and David Mizell (1992) for applications in aircraft manufacturing at Boeing

however despite Google's intervention, the HUD as a model of AR still exists in the nostalgia of "yesterday's tomorrows" (Bell and Dourish, 2006). However, as it is actually implemented, AR focuses on delivering dynamic data to mobile handheld devices more commonly in text and list format or as map overlays rather than the immersive VR goggles approach. It is these shifts from the technologists' vision of the technology to the users practice which define the meaning of the technology. They are driven partially by the affordances of the technology, for example VR-type headsets are too expensive for a consumer market, and partially by user practices and preferences, VR-type headsets are cumbersome and the advantages they bestow are far outweighed by their inconvenience.

Figure 2.1: "The Touring Machine" Augmented Reality System (1997).

I argue in more detail in the following chapter that the user practices developed through LM art practice are involved in shaping the technologies through establishing user conventions which are adopted for a broader range of applications. First I want to look at spatial practices which have grown up around this concept of augmented space through reference to specific examples. These examples illustrate emerging usage modes for location based social networking and services that build on the capabilities of smartphones which I argue shape the technology through introducing practices that are

adopted by users and have the potential of becoming widely accepted usage modes for these technologies.

2.3 Location Based Services (LBS)

The most significant application of augmented space has been through smartphone applications (apps) primarily for the iPhone, for phones using the Android OS, and to a lesser extent for the Blackberry and Nokia Symbian platforms. I will focus on two approaches which have established a set of practices or modes of operation which has proved popular enough to be taken up in varied forms by a number of different, often competing, services. These commercial practices address augmented space as a virtual over-layering of real space with a context-sensitive data and informational layer that can be used for decision making and location based social networking. The two sets of practices selected here are chosen as they are models which have crystallised some of the concepts of pervasive computing into popular services which are becoming part of the everyday for their users and are thought to have the best potential for successfully exploiting location based services. As such they are potential influencers in shaping the dominant forms for augmented space applications as they move into the mainstream.

They do however only represent two approaches and I suggest that attempting to predict the potential direction of locative technologies is a difficult, if not impossible, task. Another approach I could have chosen would be proximity applications which represent an active trend with services such as location based social networking and dating apps[14] and recent startups Color[15] and Localmind,[16] both offering services (photo sharing and questions & answers respectively) based solely on proximity.

The first practice is location based user recommendation/review services typified by Yelp[17]. Yelp is a website and mobile service which offers a guide to restaurants, bars, entertainment venues, hotels and other local businesses but which is best known for places to eat, drink and socialise. Yelp is interesting from two aspects; firstly it takes the user's location and maps venues based on their proximity, secondly venues are reviewed

14 The market leader being the social networking app Grindr with 3.5m users and a revenue model, source: http://www.prnewswire.com/news-releases/happy-birthday-grindr-3-years-35-million-users-192-countries-and-growing-144262325.html March 2012
15 color.com/
16 www.localmind.com/
17 www.yelp.com

by other users rather than by professional staff reviewers. The promise of Yelp is that not only does it help you find the nearest suitable restaurant but also, and this is perhaps more significant, that it will bring you to where the locals recommend and that these recommendations are current. While Yelp as a website is useful it really comes into its own as a mobile phone app as it is always ready to hand unlike say a guidebook. Yelp leverages two key aspects of augmented space. It overlays real physical space with a context sensitive information space; if you want to eat it delivers you an extensive up-to-date database of restaurants located on a map with directions provided. Secondly it uses crowd-sourced[18] reviews which are built on the reputational economy of its own social network. This acts a second layer connecting the real world act of looking for a restaurant with a social network of advice and reviews with an inbuilt verification method to judge the quality of these reviews. The Yelp model is primarily an asynchronous network, where reviews are made and uploaded to be consulted later. While it has added *check-in* and *quick tip* features the focus remains on the native Yelp usage conventions. Yelp thus exemplifies a set of practices which have grown up around the affordances of the technology which address a narrow specific area of need building on existing practices (such as Michelen guides) but adding unique features only possible in augmented space. While Yelp is the best known exponent of this model many variants of these practices exist in services such as Dopplr (business travel) Urban Spoon (restaurants) and Trip Advisor (hotels).

The second significant practice that has arisen is the check-in model. Popularised by FourSquare this service revolves around the idea of the location based social network. Users sign up for an account and add friends similar to Facebook, in fact connecting Foursquare to an existing Facebook account is an option. Foursquare works as a free app on iPhone and Android smartphones, when users arrive at a venue they open the app and are presented with a list of venues based on their current location. Upon choosing their venue they can then check-in and are presented with other Foursquare users present and can view tips on the venue from other users or add their own. Foursquare is presented as a location-based game (its co-founder Denis Crowley also created Pac-Manhatten, an early pervasive locative game) where users earn points for each check-in which are added to a leader-board of their friends, win badges and vie to

18 Crowdsourced is the act of outsourcing tasks to an undefined large group of people or community through an open call.

become 'Mayor'[19] (see Lindqvist et al., 2011) of venues. More recently Foursquare has begun to work with businesses to offer discounts and free offers to users, for example when this author checked-in at a cinema I was alerted to a 20% discount on lunch at a nearby hotel. In addition to this ability to locate nearby friends, a great deal of the appeal comes from the 'game' aspects such as Mayorships and their whimsical badges (a popular badge is called *school night,* earned by checking-in after 3am mid week) which introduce the element of friendly competition into the service. Pervasive game designer Jane McGonigal sees Foursquare as augmenting its users' daily life through encouraging them to be more social and do more of the things that they like doing (2011:354). She even credits it with encouraging users to break out of their routine and try new things in order to earn new badges. While this may be overstating the appeal of earning badges, the Foursquare model is undoubtedly popular with a reported 20m users[20] worldwide in April 2012. This success is however relative as Facebook counts 900m members and Twitter over 100m but Foursquare is nonetheless significant and its rate of growth is still increasing, growing from 7.5m users in March 2011 and reporting 2m daily check-ins[21].

The model has been adopted by a number of other services such as Gowalla[22] (since acquired by Facebook and shut down), Loopt[23], Graffiti Geo[24] (acquired by Loopt and shut down) and SCVNGR[25] offering variants on the check-in theme combining location based social networking with game aspects. In 2010 Facebook introduced "Facebook Places" a new feature heavily indebted to the Foursquare model which offered Facebook users the opportunity to check-in. Facebook's approach toward check-ins moved away from the prevalent game model toward creating a location based marketing space where businesses connect directly with consumers in real space through special offers and discounts offered to Facebook users who check-in at their premises. In 2011 Facebook moved away from the check-in model instead offering the option of adding location to all posts similar to Twitter's location option. This was widely seen as a victory for

19 Users become Mayor by checking in at a venue more than anyone else and their profile is displayed to other users who check in at that venue.
20 Source: Sarah Kessler "Foursquare Tops 20 Million Users" http://mashable.com/2012/04/16/foursquare-20-million/
21 source:: http://blog.foursquare.com/
22 See http://www.crunchbase.com/company/gowalla
23 www.loopt.com
24 See http://www.crunchbase.com/company/graffitigeo-inc
25 www.scvngr.com

Foursquare[26] but its subsequent purchase of Gowalla, Foursquare's main competitor, suggests that they still retain an interest in the check-in model.

The check-in model is interesting as a study for how the practice has evolved from its original impulse to use the phone's ability to locate itself to see whether any friends were nearby, expanding along two principal trajectories. One strand has been the incorporation of elements of pervasive gaming practices, presumably influenced by the locative gaming background of Foursquare founder Denis Crowley and the early LM games of Bristol based art collective Blast Theory. The question of influence and the degree to which previous practices, in particular from LM artists, pervade later commercially oriented practices will be dealt with in more detail in the next chapter. The second strand is that of location based or proximity marketing which involves businesses using locative technology to market directly to consumers who are physically close to their premises.

Proximity marketing came to prominence when bluetooth[27] first became widely available for mobile phones. Campaigns typically involving detecting phones' locations and sending advertising messages directly to all bluetooth enabled phones within a certain, normally short, radius. While bluetooth based proximity marketing campaigns are still ongoing they have never become widely accepted and it would seem that they will be eclipsed by social network based check-in models such as Facebook Deals and Foursquare Offers and by location based coupon services such as Shopkick[28] which have the advantage that the consumer initiates the contact through checking in at premises or downloading the app[29]. A tension undoubtedly exists between the impulse for a location-aware service that connects the user to their social network and one which connects to a marketing network, especially if that marketing network can also infiltrate their social network. Indeed much of the development in Facebook has been to centralise a users online experience around Facebook with the "Facebook Connect" universal login and it is a logical, if troubling for privacy advocates, progression to extend this into augmented or hybrid space.

26 See http://techcrunch.com/2011/08/23/facebook-location-tagging/
27 Bluetooth is a wireless method of communicating with mobile phones and other devices over a short distance
28 www.shopkick com a location based coupon service
29 http://www.internetretailer.com/2011/02/22/its-all-about-location

These spatial practices are simply two examples of practices which arise around location-aware technologies and what is at stake in their uncertain development. There is no locative application which stands out as having a clear advantage over the others and adoption is still quite limited. In 2010 which was touted as the year in which location services would make a breakthrough, user numbers remained small with a reported 4% of Americans using an application which shares their location[30]. While some commentators have suggested[31] that locative based services and Locative Media are a spent force I suggest that it is in fact evidence that they are still emergent technologies and that there is still much to play for in determining the final position of Locative Media and location-aware apps and services.

Privacy in the era of augmented space

In early LM (Fusco, 2004; Holmes, 2003; Tuters, 2006) much debate centred around issues of privacy and the attitude of practitioners toward the privacy implications of locative technologies. With the advent of the check-in model, and applications such as Google Latitude,[32] these arguments seem moot as users of these locative services not only voluntarily track their location but share it publicly not only on Foursquare but also on Twitter[33] and Facebook[34]. It has been suggested that concerns over privacy fall on generational lines with younger users seeing it as less important[35]. Nonetheless there is reason to be concerned about the collection of extensive location information linked to individuals and their social networks. It is important however to retain a balance and to avoid a critique that is purely oppositional, a force of resistance rather than an ongoing engagement. Following Geert Lovink's critique of tactical media (2005) the short-termism of such an oppositional stance is no longer sufficient. An approach is required which seeks to take advantage of the positive aspects of these technologies whilst mitigating the threats to privacy, their tendency toward control space or even to become a pervasive source of marketing noise. Digital rights advocacy group Electronic Frontier Foundation (EFF) offer an alternative mode of operation for location based services which they describe as "location services which don't know where you are" (Blumberg

30 Source: Pew Internet http://www.pewinternet.org/Reports/2010/Location-based-services/Overview.aspx

31 Kazys Varnelis End of the Next Big Thing http://varnelis.net/blog/2010_in_review_end_of_the_next_big_thing accessed: March 25 2011

32 A Google service which tracks the users position on a map and allows the user to share their location with friends, google.com/latitude

33 twitter.com

34 facebook.com

35 Source TNS Digital Life Survey http://discoverdigitallife.com/digital-lifestyles/

and Eckersley, 2009), taking advantage of modern cryptography to offer the benefits of locational services without sacrificing privacy. Their approach promotes a shift in practices away from the most obvious to an alternative mode of operation offers a more sustainable model that neutralises privacy concerns, thus removing a significant barrier to widespread acceptance of location based systems.

I propose that practices which may come from a temporary and interventionist position have longer term implications if they can be considered to be part of a wider movement involved in reframing technologies in terms of usage practices. These practices infiltrate their way into public consciousness, becoming associated with the technology and, in effect, rendering the technology meaningful to the user and therefore more valuable. This is the objective of LM which is of most interest.

2.4 The Spatial Practices of Locative Media

I have previously discussed the work done by LM in drawing a distinction between *position* and *location.* I want to now connect location to spatial production in LM art practice. If location is the space of individuals and communities replete with histories, narratives and layers of association which imbue it with meaning, then this space is produced through the application of LM practices. Thus far the focus has been on the ways in which LM engages with location-aware technologies, appropriating them and turning them toward its own ends. At this point I want to bring it down to street level, to the level of spatial practices which engage with the technology, introducing novel usage modes and practices.

Augmented Reality (AR) Art

Augmented Reality (AR) apps are a category of mobile applications which build on Manovich's concept of augmented space while working within a restricted set of conventions to produce applications operating within the technical limitations of the devices available to run them. AR applications are a particularly apt example, illustrating as they do the ways in which technologies are introduced into mainstream use as compromised working models that deliver aspects of the technologists' vision but perhaps fail to inspire due to the practical limitations of the technology.

AR as it is currently applied on smartphones consists of a number of usage conventions.

Camera-view employs the phone's camera, overlaying a location specific data set over its realtime view. AR applications are typically implemented through the framework of a number of augmented reality browser apps downloaded to the user's phone which act as platforms for the delivery of AR works. The best known examples are Layar, Junaio, Wikitude and Acrossair. Typical applications involve displaying nearby services such as restaurants and train stations, social media applications such as nearby tweets, Flickr photographs and Wikipedia entries. Normally icons are displayed over the camera image with an option to click to get further information or receive directions on a map.

Most applications offer a map view version in addition to the camera view and while the camera view is impressive on first viewing, as a practical application, for example finding your way to the nearest train station, it is difficult to view and resorting to the more traditional map view is required to make it a more usable experience. AR is still very much an emergent technology which is operating at the limitations of current smartphone processor speeds and screen capabilities. However these are improving all the time and AR can be considered to be in a period of "interpretative flexibility" (Bijker et al., 1989:40). The technology in effect works, perhaps not as smoothly as users would like but well enough to be usable. What is lagging behind are the applications to make it truly mainstream and ubiquitous.

As an emergent field, new user practices will help to shape the technology and to determine the range of applications and thematics that will enter the mainstream and impact on the ways in which the technology is perceived and used. As practical examples I want to briefly describe two AR art projects which engage with this emergent locative technology, introducing new practices which have had a wider appeal outside of both the media art and AR spheres. The projects are the AR interventions of artists Sander Veenhof and Mark Skwarek and the "NAMAland" app by this author, both of which employ the Layar Augmented Reality Browser framework[36].

Veenhof and Skwarek are best known for the MOMA art intervention carried out in October 2010 at MOMA New York[37] (see figure 2.2). Their AR intervention was billed as a virtual art exhibition within the walls of the prestigious Museum of Modern Art in

36 www.layar.com
37 See http://www.sndrv.nl/moma

New York. The virtual exhibition was preceded by a call for participation in which artists could submit work (in the correct digital format) to the exhibition through a project website. This exhibition was virtually placed within the walls of MOMA and could be viewed only through the Layar Augmented Reality Browser smartphone app in the appropriate locations. The event overlaid a layer of data over the real space of the museum highlighting in a light-hearted way the subversive potential of the technology and its ability to evade control without the institution going to (what has become) the extreme of banning all phones.

Figure 2.2: DIY Augmented Reality Exhibition MoMa, New York, Veenhof and Skwarek 2010.

While the exhibition itself was an innocuous and bland affair it foregrounded the ability of the technology to introduce elements of critique into the museum itself and the impossibility of an institution controlling and limiting such critique in the context of hybrid space with every visitor potentially connected to the network. In this period of emergence of AR applications I suggest that practices introduced now, in particular practices which resonate with their audience, play a role in shifting the meaning of the technology and the ways in which it will be employed as it becomes more integrated in the everyday. This necessitates a negotiation with the platform employed and a critical

stance both toward the technology and the content of the AR interventions.

This author's project "NAMAland" (See Chapter Four) similarly employs the Layar augmented reality browser to identify properties reported to be in the ownership of NAMA the controversial Irish National Assets Management Agency[38]. The app takes the phone's position and compares it to a geo-referenced database of properties reported to be in NAMA[39] to identify relevant properties within a specified range, providing information on the property and its development history. I will discuss "NAMAland" in more detail in a later chapter but at this point I raise it as another example of a practice which through a deft application established the connection between augmented reality and spatialised political critique based on opendata sources. As such "NAMAland" is simply one amongst a myriad of complementary and competing applications which establish practices adding to and shaping the future form of the technology. Its contribution over and above the specific contribution of revealing hidden information is to connect AR technology with its ability to establish location as a site of critique, and AR's ability to render every space a site of contestation, even when access is restricted.

It has been advanced that there exists in every technology an inbuilt logic of control based on the design and affordances of the technology which enables and permits a range of socially acceptable and normalised uses (Manovich, 2001). I propose that in an incremental process, user-centric practices which are established and associated with, particularly emergent, technologies both expand the range of acceptable usages whilst also countering the technologies inherent tendencies. At an everyday level this is the difference between Locative Media enabling a retailer to deliver location-aware special offers and deals to a customer's phone and the ability for the user to interrogate the retailer's history on a range of issues, from health and safety to environmental issues or simply customer satisfaction. This is not to privilege one over the other. Both have their place but what is of prime importance is that multiple options co-exist as aids to informed decision making, where the user can weigh say, a welcome 30% reduction in the price of a cup of coffee earned by checking-in, against the companies anti-union policies. If we consider emergent locative technologies such as AR as we did GPS in a

38 NAMA was set up by the Irish Government in 2010 to acquire toxic property loans from Irish Banks. A controversial measure which has cost the Irish exchequer an estimated €40 billion and is widely deemed to have failed.

39 As there is no official list of NAMA properties the database is assembled from public domain sources.

previous chapter, they can be considered to be in a state of uneasy balance with both the utopian and dystopian aspects held in constant tension.

Urban Tapestries

"Urban tapestries" (UT) was a research project by London based research group Proboscis between 2002 and 2004 which used location-aware mobile devices to allow users to virtually 'annotate' real spaces with text, images, sound and video, which could then be asynchronously accessed by others in the locations to which they referred. UT was designed as a research tool which sought to discover what it is that makes places meaningful to communities and as a tool for local communities that could be employed to annotate space and assist in community development tasks, a kind of "mass observation for the 21st century" (Galloway, 2008:23). The project was a conscious attempt to re-balance what they saw as the prevailing view "that saw tourists as the principal general users of such technology" (Angus et al., 2008). They feared that apart from tourism applications these technologies would then be taken up by proximity marketing and other forms of location based advertising, usages they saw as "unnecessarily impoverished". From the development team's writing (Angus et al., 2008) and very clearly in Anne Galloway's interview with Giles Lane and Alice Angus of the UT team (Galloway, 2008:236-240), it becomes evident that a core goal for the developers was a desire to provide an enabling framework from which a more user-centric set of practices for engagement with locative technologies would develop,

> our solution is to make the superstructure configurable, very configurable, and instead of designers designing the context stuff, allow ordinary people to design the context stuff. But to help them do that, you have to give people examples because these are new technologies. They involve paradigm shifts and you have to give people hooks.
> (Gilles Lane quoted in Galloway, 2008:236)

with the ultimate intention that people will "get involved in negotiating place and their own spatial practices, thus enabling a user-generated articulation of meaningful or interesting behaviours" (Angus et al., 2008).

If the concept of UT seems familiar it is, I suggest, because the core concept has been

recreated in many location based social networking applications, and there exists a direct connection between their approaches and practices and many commercial locative applications. The question is whether this influence extends to the ambitions and goals of UT? This can be considered in a number of ways. UT's concern over whether applications of location based technologies would be impoverished, delivering designer led top-down models of consumption with very little user input or opportunity to create, has not come to pass. My contention is that this can be in some way attributed to the work of projects like UT which developed fully featured modes of operation and user practices. These practices that expanded the perception and the practicalities of engaging with these new locative technologies, shifted the medium away from simply one of location based content delivery to one of content creation and a more nuanced relationship with place. These practices become assimilated along with other practices, such as those of tourism and proximity marketing, for working with the technology. Their influence then persists, establishing a mode of operation for working with these technologies which in effect shapes the technologies, resulting in commercial applications which are different in many respects to what they might have been without their influence.

How should this be considered? Is it simply a recuperation or co-option of an idealistic project concept? Simply an instrumentalised reworking of a research process which involved not only technological development but also incorporated sociological studies on user trials, transforming it into a commercial application tied closely to consumption? I propose that a better way to approach the legacy of a project such as "Urban Tapestries" is to consider it as an artistic research project which established a set of practices for Locative Media which shifted the meaning of these technologies and in this way helped to shape future applications. In the literature of the body of technological studies known as social constructivism, a recurrent theme in considering technological change is that things may not have been as they are, that final outcomes are not predetermined but are the result of complex chains of influence. In the next chapter I will consider what is at work here more closely, proposing that Locative Media as an art practice has agency in the shaping of these emergent locative technologies.

Hasan Elahi:Tracking Transience

Approaching locative technologies from an entirely different perspective is the artist Hasan Elahi's ongoing project "Tracking Transience". Bangladeshi born US citizen Elahi began the project in 2003 when he was arrested on suspicion of terrorism by the FBI after receiving reports of a 'middle eastern looking' man acting suspiciously. A frequent traveller, Elahi was fearful that such a misunderstanding may be repeated and so decided to track his every movement with GPS and constantly document his location, publishing both online. The result is the website trackingtransience.net which includes a realtime map showing Elahi's current position, photographs of every place he has been, every meal he has eaten and all his credit card bills, in fact a full account of his activities, but an account which could also be gleaned from a careful study of his data shadow[40].

Elahi thus broadens the sense of the locative to be more than the GPS device which he carries at all times to include the richer information contained within this 'data shadow', that is, a complete account of transactions and increasingly movements in a digitally mediated everyday. For example purchases made with credit card at specified locations and times, airline flights and train tickets, smartcards used for public transport and toll roads, loyalty cards containing a full history of purchases including their locations, dates and times and a myriad of other computerised transactions which can be data-mined to locate the individual at a certain place and time (see Kitchin and Dodge (2011:81-110) for a detailed treatment of these processes).

Elahi is involved in a program of making visible the invisible, of highlighting the processes of data collection embedded in everyday practices. Although Elahi through tracking transience does not introduce practices which might have broad appeal,[41] he demonstrates a tendency within Locative Media to foreground what has receded into the background. In an interconnected technologically mediated world it may not be possible or desirable to go backwards, but it is imperative to question what the fate of our ever increasing data traces is and to examine the nature of the practices involved in this data collection. In their discussion of code/space and coded space (2004, 2011) Dodge and

40 A Data Shadow is the record of electronic transactions such as credit card payments and transport smartcard usage which can be used to track an individual's activities.

41 Though it is not without precedent in media art as evidenced by the "Life Sharing" (2000-2003) project by Eva and Franco Mattes. http://0100101110101101.org/home/life_sharing/index.html

Kitchin emphasise that space is not produced through code in a deterministic manner but is "embodied through the performances and interactions of the people within the space" (2005:204). In other words practices matter and, as suggested by the EFF (Blumberg and Eckersley, 2009), when privacy is attended to, an alternative set of practices are suggested which offer similar benefits.

2.5 Summary

Chapter Two contextualises location-aware technologies and Locative Media in the context of ubiquitous, pervasive or urban computing and the production of urban space. Mark Weiser's influential concept of "quiet computing" is outlined and examined from a contemporary perspective as emergent technology subject to an uneven deployment. Drawing on the work of Paul Dourish, ubiquitous computing is understood as seeking to provide an embodied interface to the embedded computational systems (and increasingly data) of pervasive computing, where everyday actions are supported and enhanced by ubiquitous systems and infrastructure. This perspective foregrounds the role of practice, a notion already familiar from LM, in shaping the form and enactment of pervasive computing and points toward the role of LM in producing agency. The gap between the theorisation of Ubicomp and its practical enactment is emphasised, with Ubicomp seen to be improvised, messy and unevenly applied, rendering it subject to contingency, negotiation and appropriation.

I paint a picture of the contemporary city as hybrid space, at the convergence of data space and physical space, where space is produced automatically through the expression of poorly understood, often obfuscated software systems. While this raises the question of human agency in the production of urban space, following from the work of Adrian MacKenzie, Dodge and Kitchin and Thrift and Amin, it is demonstrated that the sheer pervasiveness of embedded systems and code do not necessarily dictate the degree to which they produce space, with the possibility of agency still existing in the extent and mode by which the code is expressed. Hybrid space is thus characterised by the improvised nature of its unfolding, subject to the contingency of local conditions, user practices and the materiality of the network. Hybrid space is found to be a contested space with the potential to become both control space and enhanced space. I position the spatial practices of LM as interventionist, with their introduction of user-centric practices which expose and take advantage of the exploit/gaps,

I question what the added aspect of networked location-awareness adds to these scenarios of ubiquitous computing and the chapter concludes with brief case studies of emergent practices from Location Based Services (LBS) and LM art. These build on the affordances of the technology but can be seen to offer a more user-centred understanding of space as Lefebvrian lived space rather than a more Cartesian position. I introduce the practice of crowd sourced location based reviews familiar to LBS such as Yelp and the location check-in practice introduced by Foursquare. These are set alongside three approaches from LM art; the spatial interventions of Augmented Reality, the rich user practices of "Urban Tapestries" and the radical transparency of "Tracking Transience", highlighting the processes of data collection embedded in everyday practices. These accounts foreground the role of user practices of LM in producing agency which will be discussed in more detail in Chapter Three.

Chapter 3: The Agency of Locative Media

The "killer apps" of tomorrow's mobile infocom industry won't be hardware devices or software programmes but social practices

Howard Rheingold (2002: xii)

3.0 Introduction

Chapter Three addresses the agency of LM art practice which I situate in the ways it has shaped emergent location-aware technologies and introduced new spatial practices which produce the space of the city. LM art projects have foreshadowed all of the key categories of current location-aware applications and services. This is not co-incidental but is rather the result of an intentional desire and associated actions to shift the meaning of location-aware technologies. As location-awareness moves into the everyday I advance that the forms it takes and the ways in which it is employed are co-constructed by LM art practice. With location-awareness assuming a pivotal role in developments in mobile media and the mobile internet, this influence has far reaching consequences in the unfolding of these technologies.

Drawing on Krzysztof Ziarek's treatment of avant-garde art and technology in "The Force of Art" , STS[1] concepts on the shaping of technology and software studies, this chapter builds an argument for the agency of LM and explores the mechanism for this influence. This argument is constructed on Ziarek's notion of technological art as 'Forcework', which acquires agency through operating outside of power, causing a fundamental rethinking of the meaning of the technology. I develop a case for the forcework of LM which overcomes weaknesses in Ziarek's stance toward the role of practice in the agency of technological art. This positions the artist as an 'augmented-user', developing LM as an interface layer which, in connecting the user to the underlying functionality of locative technologies, offers alternative interpretations, introduces new usage modes and ultimately shifts the meaning of the technology.

I detail the limitations to agency embedded in technological artifacts and emergent code based platforms, arguing that the activist engagement of LM's augmented-user with the technology works toward overcoming the limits and restraints on agency configured

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into the technology itself. This is achieved at the level of practices and I outline the way in which LM art practices have shaped emergent usage conventions for locative technologies and applications, which serve to recode and evade embedded systems of constraint. The chapter concludes with the example of the OpenStreetMap's Haiti Crisis Mapping project as illustrative of the agency of LM in real world situations.

If LM Art has agency then how is it exercised? It is two-fold; firstly it shapes location-aware technologies which in turn causes them to produce space differently. Put in another way, as location-aware technologies become available to a wider constituency through mobile devices and as everyday applications, they assume forms which are different to what they might have been. This is the effect of LM, it changes the ways in which location-aware technologies are used through changing our understanding of them.

In their classic study of the social construction of technologies, Bijker and Law examine the trajectory of technologies as they pass from new technology to ubiquity and conclude that "things might have been otherwise" (Bijker and Law, 1992:3). That is there exist multiple possibilities for technologies and the final outcome of the stable technology is subject to shaping by a myriad of processes including user practices. I extend this with my formulation of LM's activist "augmented-user" who actively seeks to shape the technology in an effort to fulfil a different vision of the potential of the technology. This is the first aspect of LM's agency.

The second aspect arises through the spatial action of location-aware devices and context sensitive applications. The new spatial practices associated with these devices produce a hybrid space, a lived space where the internet leaks onto the street (Lefebvre, 1991; Russell, 1999) and which owes its character to the nature of the production process. This double effect constitutes the agency of LM, a shifting or re-purposing of the technologies which, in turn, through the action of their associated spatial practices, produce space.

3.1 The Force of Art

Literary critic Krzysztof Ziarek in "The Force of Art" (2004) proposes an alternative way of thinking about art which is useful in thinking about the agency of technological

art. His approach emphasises the role of technological art in critical art practice, positioning it as radical critique in a time when art is considered to have lost its relevance. Building on Adorno's concept of "negativity" and Heidegger's radical revision of the idea of "poiesis" he outlines a re-articulation of "art's transformative potential with regard to technological forms of power" (2004:6). This he proposes "offer(s) a new way of understanding art's intimate yet critical relation to the very modalities and operations of power in today's society". Ziarek considers art as a "force field" (2004:7) where "forces drawn from historical and social reality come to be formed into an alternate relationship" with the "forcework" of art as this transformative event, or the *work* that art does. According to Ziarek the *work* (the work that art does rather than the art object) of art occurs in "an almost subterranean fashion, beyond the threshold of perception and representation" (28), is typically overlooked by an aesthetic reaction to art yet "reworks the very parameters within which we make judgements" (29). Considering art as forcework thus means that

> artworks take on a social relevance without explicitly having to deal explicitly with a social problematic, for their importance is for praxis is not in thematic critique or even in formal subversiveness but rather on the level of force relations, where artworks not only intervene and interrupt but also recode relationships - rewire the connections so to speak. (2004:60)

Following Heidegger, Ziarek sees the current "information age" as the most recent incarnation of technicity with " an increasing capability, desire to digitize everything, and thus to turn being into a global, continuously modifiable and expandable data bank"(2004:63). This is equivalent to Heidegger's "standing-reserve" (1977:298) where the very essence of being is reduced through technology to the role of raw material. Technicity (or digitality) is thus characterised by a relentless drive toward the intensification of power (65) and art's complicity and participation in this intensification is called into question. Art according to Ziarek can be made "to conform to aesthetic standards - including the historically changing precepts for aesthetic radicalism and subversiveness" (2004:124). Even radical and subversive artworks are "always already prescribed as aesthetic objects and commodities" acting as "conduits for inscribing art (into) ... the power matrix of contemporary society".

However as "society becomes more and more technological" (2004:65) with technology increasingly ubiquitous and invisible he sees the traditional fascination of the avant-garde with technology[2] as having an increased relevance and importance, positioning technological art as a contemporary avant-garde art at a time when it is considered to be a spent force. The question of whether avant-garde art is a "form of technowork, an extension of technopower" or a questioning of technicity (a debate familiar to LM and discussed in Chapter One) he considers as central to its importance as it "allows us to keep thinking of technicity *as* a question and therefore to keep it *in* question" (2004:65-66).

Forcework and Practice

The problem for Ziarek is that resistance, subversion or even powerlessness are complicit in the logic of power as they are defined by power, and as such contribute to its intensification. The forcework of art he considers evades this intensification through acting outside of power not as a form of resistance but as 'nonpower', a refusal to participate in power "without ever being reducible to powerlessness or inaction" (2004:145).

In this sense Ziarek attributes a specific agency (though he would not use the term) to technological art. He sees it as operating outside of the logic of technological power, keeping technology in question and causing a rethinking and recoding of its meaning whilst operating outside of, or beyond, aesthetic or social critique. While not disavowing their role in total he considers that critique and resistance "tend to play into the hands of power" by, in effect, obeying the rules (of critique and resistance) (2004: 174).

This is a problematic stance from a practitioner's standpoint. For while there exists a need for caution to avoid co-option or assimilation into safe institutionalised critique, there is a greater danger of entering the dead-end of Situationist thought where anything short of total revolution is recuperated as part of the spectacle (Sadler, 1999; McGarrigle, 2009c). Ziarek characterises forcework as an "alternative to practice" (2004:145), that is, not just another better form of practice but "a radical (non)practice" (145) but fails to adequately articulate what this might be. After all, a theorisation of an

2 Citing the Russian Constructivists and the Italian Futurists as examples

alternative to practice must, for practitioners, take some form. The forcework of art thus must be exercised through practice and co-exist to some extent with critique and resistance. While Ziarek correctly identifies the need to avoid a stance rooted in opposition he is reluctant to commit to a practice-based forcework. This reluctance impedes his articulation of the forcework of art moving from a theoretical framework to one which can inform and drive practice. It also opens an inconsistency in the argument as his discussions of Viola (2004:100-102), Kac (2004:95-98) and Wodiczko (2004:132-39) are resolutely practice based. For forcework to cause a rethinking or recoding of the meaning of a technology, this must be enacted through practices and, more specifically, through the introduction of alternative user practices.

The real value of Ziarek's theorisation of art as forcework for LM is its sense of the work that art does in working outside of the logic of the technology. Technological art works in calling technology into question and evading scripting-type mechanisms (Woolgar, 1991; Akrich, 1992) or embedded logic immanent in artifacts, not through disavowal, critique or opposition but in a recoding and re-positioning of the technology. The agency of LM lies therefore not only in addressing and critiquing the technology and its application but more importantly by causing us to think differently about their meaning and application. In effect shaping the technologies and their everyday application. Without the interventions of LM and its introduction of practices that shift the ways in which we understand and apply the technologies, things would indeed have been otherwise.

3.2 The Forcework of Locative Media

The agency of LM then can be thought of as emanating from forcework, causing a recoding and re-positioning of the technology, whilst operating outside of the logic of that technology. The work done by LM in shaping location-aware technologies operates at two levels; firstly it has established a set of practices for engaging with location-aware technologies such as GPS and other positioning systems, and with the networked devices that are enabled by them, secondly it causes us to think about location differently. This double effect has influenced the ways in which these technologies are articulated as devices, applications and services. In turn this changes the ways in which they are used and their action in society, the modes of engagement of their users, and the nature and quality of the spaces they produce. As location-aware technologies are

incorporated into services and applications, and have just begun to emerge into everyday use, the forms they are taking and the ways in which they are being used "might have been otherwise" (Bijker and Law, 1992:3). That is, from the multiple potential outcomes, those favoured by LM practitioners have achieved prominence. These modes of operation emphasise their potential as tools of creation while ameliorating their potential as tools of surveillance and control (assertions which will be substantiated later in the chapter when I detail the connections between LM projects and current LBS.) LM, it will be demonstrated, is playing a significant role in an ongoing process as these location-aware technologies move into everyday use.

The emergence of locative technologies is an area of contestation, one which Anthony Townsend describes as taking place in the "contested-aware city" where a struggle between the top-down context-aware systems and bottom-up systems of LM is played out, with artists "playing an unprecedented role in interpreting context-aware technologies" (Townsend, 2006:346). Katherine Hayles sees the information intensive environments of ubiquitous and pervasive computing, formed from networks of sensors, location-aware devices and relational databases, as challenging us to use them in "constructive and life-enhancing ways without capitulating to [their] coercive and exploitive aspects" (Hayles, 2009:48). LM has engaged in this attempt to re-interpret the technology and use them, as Hayles challenges, in "constructive and life-enhancing ways". What set it apart is that not only did artists become involved unprecedentedly early in the unfolding of these new technologies, but did so in order to shape its future.

Central to this process of shaping the technology is the role of the locative artist as a user of the technology. Studies of the relationships between technology and its users orientate around varying conceptualisations of the user, and her role in constructing and shaping technologies, which attributes agency in greater or lesser degrees. This body of literature is extensive ranging from social constructivist approaches, (Pinch and Bijker, Wajcman and MacKenzie), systems theory approaches focused on the development of large industrial systems (Hughes), to Actor-Network Theory (Akrich ,Callon and Law, Latour) addressed socio-technical assemblages which come together to construct technologies. Building on Ziarek's notion of the force of art I introduce a rethinking of the LM artist as an augmented-user of location-aware technologies which accounts for her activist engagement with the technology.

The Augmented-User

Locative Media practice is in essence a user practice. Its practitioners are not developing the core location-aware systems or technologies. Their engagement in one respect falls within the confines of the end user of a black box technology. They, for example, employ the GPS system to locate devices using the inbuilt hardware and software tools which have been designed and made available for that purpose. In this sense they do not, and cannot, intervene in the essential operation of a closed precision system which is not open to user modification. In another respect LM practice clearly goes beyond a straightforward instrumentalised consumer or prosumer[3] engagement with the technology with its implications of a user using a technology within certain preordained constraints (Bruns, 2007). The LM artist is clearly going further, typically developing custom software applications and practices which interface with the core black box technologies, or working with software APIs. Examples of this mode of engagement include projects such as "Walking Tools" (Stalbaum and Cicero, 2009) which consists of a set of software tools which can be used to reprogram low cost mobile phones for artistic purposes. "Walking Tools", while not producing artworks itself, acts as an API which enables LM projects such as "The Transborder Immigrant Tool" (Dominguez et al., 2009) project which reprograms low cost mobile phones to be used as aids to (illegal) border crossings from Mexico to the USA. Neither project transforms the core technologies of GPS or the operations of the cellular network, rather they re-interface the technology, that is, add a software (Walking Tools) and practice (Transborder Immigrant Tool) interface which substantially transforms the usage of the technologies. The LM artist, therefore, while a user of the technology can be thought of as a super-user who goes beyond the expected parameters of what a user does[4].

This is what I term the augmented-user. A user who while not designing the technology from first principles, or even accessing the core functionality of the system, augments the technology with an interface layer which interprets the underlying technology. This mode of engagement is characterised by the development of custom software applications, by creating novel applications using APIs, hacking, and modifying and through creating practice-based interfaces, all of which frame the core technologies of location-awareness. This framing then offers a re-interpretation of the technology to the

3 The prosumer is a combination of professional-consumer or less often the producer-consumer
4 See Silverstone (1992)

user which emphasises certain aspects while constraining others. It is through this mechanism that LM practices can re-interpret the technology by shifting the emphasis through providing an interface to its underlying affordances.

Interface

When considering LM practices as interfaces it is important that we expand the concept beyond its interpretation as physical user interface or "hardware that connects users to hardware" (Cramer and Fuller, 2008:164). Equally, Cramer and Fuller stress that discussion of interface needs to go beyond what is commonly thought of as user interfaces, that is the "symbolic handles, which...make software accessible to users" (164). The familiar conventions of software program menus, the graphical user interfaces (GUI) of operating systems and the touch screens of mobile devices, that provide the interfaces through which we can interact with the processing power of the computational device. The GUIs we think of as interfaces, act as interfaces to the underlying code of the operating system, which in turn interface to the hardware with its embedded software processes. It is important to note that the software processes that we are provided with interfaces to are a fraction of those embedded in everyday objects, often not thought of as containing computing power, to which we have no access. Kitchin and Dodge point out that "in 2005 less than a quarter of the microprocessors made by Intel were for desktop and laptop computers" (2011:217) with the remainder employed in the embedded processes of ubiquitous computing (see Chapter Two). As software increasingly produces urban space (Thrift and Amin, 2002) and structures everyday life (Berry, 2011; Bogost and Montfort, 2009; Fuller, 2008; Kitchin and Dodge, 2011), there is a need to understand "what it is (ontology), where it has come from (through media archaeology and genealogy) but also what it is doing " (Berry, 2011:4). My conceptualisation of LM's augmented-user as producing interfaces to underlying location-aware software and hardware processes is thus central to understanding their agency and the mechanisms of their subterranean influence (Ziarek,2004:28).

An essential process of a software interface is to constrain the possible "total possible uses of hardware" (Cramer and Fuller, 2008:149) and act as an "interface to the universal machine by behaving as a specialized machine, breaking the former down to a subset of itself" (149). For example the word processor delivers a tiny subset of the

computational power available in a modern computer to focus attention effectively on writing a document. Interface thus, in focusing attention on the task at hand, necessarily limits other options and possibilities. In thinking about software and practices as interface we must therefore attend to the processes by which options are limited and others made available, and the consequences of these decisions. Adrian MacKenzie speaks of code (software) as being a distribution of agency, "a set of permutable distributions of agency between people, machines and contemporary symbolic environments carried as code" (2006:19). This takes place in complex extended assemblages of interdependent software and hardware processes and "works in ways which are not clear and visible", producing outcomes which are "not easily accounted for by people's everyday experiences" (Kitchin and Dodge, 2011:9). Mark Hansen speaks of new media as mediating "for human experience the non - (or proto) phenomenological, fine-scale temporal computational processes that increasingly make up the infrastructure conditioning all experience in our world today" (2010, 180). LM then can be thought of as being involved in a redistribution of MacKenzie's distributed agency, shifting agency back to the user from the device through its introduction of an interface layer of code and practice, and in a process of mediating the computational processes of location for human experience.

We can consider LM's augmented-user as creating custom interfaces for the software and hardware of location-aware technologies. These practice led interfaces focus attention on certain aspects of the technology while obfuscating others, offering a re-interpretation of the meaning of the technology. For example, shifting focus onto the ability of GPS to augment the safety of illegal border crossings from Mexico to the USA, rather than GPS as a tool of the border patrol to aid in the detection and prevention of border crossing (Dominguez at al.). In a similar fashion locative mapping tools were an integral element in the Dublin property boom with key property websites such as MyHome.ie and Daft.ie habitually mapping property locations and offering location-aware smartphone apps. In a shift in emphasis these tools are now being used to document the housing collapse with projects as diverse as this author's "NAMAland"[5] augmented reality smartphone application, locating NAMA properties, and the A.I.R.O.[6] initiative of The National Institute for Regional and Spatial Analysis (NIRSA), mapping

5 www.walkspace.org/namaland
6 All Ireland Research Observatory www.airo,ie

the consequences of the property bubble.

3.3 Software

In considering LM's augmented-user as creator of interfaces which re-interpret the underlying core technology we must also consider the other layers of software and code implicated. This is necessary as any interface of necessity constrains the user which calls into question the degree of agency available to the artist when working with locative technologies. Developing locative applications is typically executed using APIs, specialist development platforms and programming environments. These provide accessible methods for interfacing with complex systems for which creating native applications would be time consuming, expensive, and often beyond the technical skills of the artist. Developing for other platforms, such as Apple's iPhone and iPad, require working with proprietary programming environments. These present a special case, the implications of which have only recently begun to be studied (Berry, 2011; Bogost and Montfort, 2009; Fuller, 2008). The platform studies approach[7] led by Ian Bogost and Nick Montfort emphasises the potential for creativity that the programmable flexibility of a platform affords, defining a platform as:

> a system that can be reprogrammed and therefore customized by outside developers -users- and in that way, adapted to countless needs and niches that the platform's original developers could not have possibly contemplated, much less had time to accommodate
>
> (Marc Andreessen quoted in Bogost and Montfort, 2009)

Each platform has however layers of potential control embedded in the processes that, while enabling the creation of novel applications, are also implicated in imposing limitations and controls on the user, which restrict potential outcomes. Developing applications for the Apple iPhone platform presents a case in point. Applications are developed using the Apple Cocoa API[8], within the Xcode[9] programming environment, and written in the proprietary programming language Objective C. Xcode runs on Apple Mac computers running the latest OS version (upgrades are compulsory). Once the app is developed it can only be published and distributed through the Apple Appstore[10] after

7 www.platformstudies.org
8 http://developer.apple.com/technologies/mac/cocoa.html
9 http://developer.apple.com/xcode/
10 There is also a possibility of distributing a limited number of up to 100 directly to specified devices through services such as Testflight https://testflightapp.com/

passing through the restrictive Appstore submission process. Even after the app is published a paid membership to the Apple iOS Developer Program is required to retain the app in the appstore.

The iPhone platform therefore is multi-layered with each layer enabling certain actions and ways of working whilst constraining others. Development must contend with working within these confines with multiple levels of control encoded into the process, from the design of the MAC computer, its OSX operating system, the proprietary Objective C programming language, the Cocoa API, and Xcode programming environment all before considering the affordances (Gaver, 1991; Norman, 1988) of the mobile device itself. The final step is the Appstore publishing process itself which has over time raised concerns over its tight control of app content. This extends to disallowed apps with political content[11], its consistent banning of apps which they perceive to compete directly with any Apple service actual or planned[12], and most recently banning apps which critique Apple's production process[13]. The iPhone and its app production process, which is tightly bound to the device, represents a complex and powerful assemblage of software carefully designed and planned to produce apps which augment the iPhone as the "universal machine". This has been proved to be a very successful strategy[14] for Apple. One which has made the iPhone the first mass market device to deliver seamless location-aware technology to the user, and arguably the first true LM device.

However this level of control built into the app production and publishing system is problematic as a platform for LM art. The system serves to enhance the role of the system designers in determining usage of the device while seemingly restricting the agency of LM's augmented-user. While the iPhone may be the ideal device for LM, it is notable that there has not been an upsurge of LM art for the platform. Indeed the adoption of this and similar platforms has not happened to any great extent. Kazys

11 In 2010 Apple banned an app by a Pulitzer prize winning US political cartoonist, on the grounds that it made fun of public figures, and a graphic novel app of Joyce's Ulysses, on the grounds that the content was of an adult nature, both bans were overturned after being widely criticised in the media

12 For example http://www.techdirt.com/blog/wireless/articles/20110608/23333314630/music-service-simfy-files-complaint-over-apple-blocking-its-ipad-app.shtml

13 In September 2011 Molleindustria's "Phone Story" an iPhone game which raised issues about conditions of workers in the Apple supply chain was banned from the Appstore. See http://www.guardian.co.uk/technology/appsblog/2011/sep/14/apple-phone-story-rejection

14 Apple announced in 2011 that over 15billion apps had been downloaded from the Appstore http://www.apple.com/pr/library/2011/07/07Apples-App-Store-Downloads-Top-15-Billion.html

Varnelis notes that "paradoxically, the mass realization of Locative Media seems to have taken the wind out of its sails as an art form." (2011). The reasons for this are the subject of ongoing debate. At ISEA 2011 the "Beyond Locative Media"[15] panel chaired by Marc Tuters was host to a lively debate raising similar questions as to the lack of LM work developed for mobile devices. This raises the possibility that the restrictions embedded in the complex production process of the iPhone platform are so restrictive that they exclude the possibility of agency. It is necessary then to examine the degree to which system designers and software can produce the user experience through scripting (Akrich and Latour) or configuring (Woolgar) the ways in which a device is used. Before I attend to these concerns I need to turn attention toward the role of the Application Programming Interface (API) in LM as it presents yet another field of potential restriction.

APIs

APIs go some way to address the problems of the high level of technical skills required to work on complex platforms through their provision of an 'easy to use' interface for programming of applications. However, APIs present another concern as they fall into the pattern of what has been termed the "reflexive user" (Bardini and Horvath, 1995), a term originating from a study of design of PCs in Stanford and Xerox Parc in the 1970s. Designers were found to employ a "user representation", to model the putative user for whom the technology is designed. Bardini and Horvath found that the user representation, "the reflexive user", was modelled by the engineers in their own likeness. In effect an extension of themselves with a resulting design logic where features were designed (whilst others were curtailed) based on their own desires. The relationship between engineers and the APIs they design is a similar one. Many web 2.0 APIs are kept in beta never becoming fully fledged products, with the additional requirements that implies. They offer developers access to a subset of the features of the original service which can be used to develop applications within strictly defined constraints. The objective is for users to extend the product through developing alternative uses and applications built on the affordances of the system. The API is also a cornerstone of what is known as Web 2.0 (Berry, 2011:56-61; Manovich, 2008:233), which envisages the web as an open platform with a blurring of distinction between user and producer (the 'produser' (Bruns, 2007) as it were). Google Maps API, for example,

15 http://isea2011.sabanciuniv.edu/panel/beyond-locative-media-arts-after-spatial-turn other speakers were Mark Shepard and Michiel de Lange

facilitates Google Maps mashups which have successfully extended the Maps product with a wide variety of special interest and art mappings built on the platform. There exists a tension between the real benefits of the API, particularly for the artist/hacker[16] whose technical skills only go so far, and the API as mechanism for the production of user-generated content (UGC) to extend the product (see Dijck, 2009). This requires an attention to the structure of the API and an awareness of what it permits, what it restricts, and the reasons driving these limitations.

The configuration of the feature set available in an API and the methods through which they are accessed are a strong determining factor in the range of users who may access them and in the nature of the applications to which they can be put. These will then tend to follow from the engineer's vision of the technology and the range of its appropriate application, taking into account the potential markets they hope to access. For example, if estate agents are a desired market for a mapping product then the API will contain tools to geocode street addresses and place them on a map, so the imagined user drives the options available within the API. With APIs acting as a tool to determine future extensions of the product based on such user applications, the ensuing applications will, in such a tightly controlled scenario, tend toward applications which fit neatly within the engineer's vision of the technology.

While this scenario needs attending to, and in such a dynamic field must form part of an ongoing process, it is nonetheless troubling only if the user remains static. As Christina Lindsay demonstrates in her study of users of the TRS-80[17] (2003:32), users rarely do. She demonstrates that an engaged user group can play a significant role in the trajectory of a technology even to the extent, as with the TRS-80, of extending the technologies life decades after it has become obsolete (Lindsay, 2003).

Can it be then expected that LM's augmented-user has a heightened awareness of the factors at play, and at stake, in her employment of these technologies? I have positioned LM as generating an interface layer through which its users access the core technology. This interface builds on layers of software and is dependent on, and defined by, these

16 For example my two projects JoyceWalks and GoogleBono would not have been possible without the Google API.

17 The TRS-80 was one of the first personal computers introduced in the US by Radio Shack in 1977 and discontinued in 1984 yet still has an active community of users and developers.

layers (such as APIs, development environments, programming languages) to varying degrees. For LM to have agency in shaping these technologies we must address the degree to which control embedded in the technology has the ability to confine and direct the user, limiting the possibility for agency, and the potential for LM to evade such restraint.

In addressing LM user practices and their agency in shaping location-aware technologies, a question arises as to the extent to which embedded processes can confine user agency within a predefined range of acceptable configurations for a technology or artifact. To what extent can such processes limit the scope for reframing these technologies and what mechanisms can be found to overcome these restraints?

In considering these issues I will employ theories of technological change as a tool to analyse the mechanisms by which locative technologies have been re-framed and shaped. While studies of technological change tend toward historical accounts of technologies moving toward ubiquity they can be (cautiously) applied to emergent technology where outcomes are still uncertain. Despite this uncertainty of outcomes there is much to be gained from considering these active ongoing processes through this lens to reveal the processes at work in shaping locative technologies. Of course in any consideration of LM and its role in shaping these technologies it is important to delineate between LM art practice and studies of the "relevant social groups" (Bijker and Pinch, 1989:34) from the Social Construction of Technology (SCOT) approach and other user studies. Studies typically account for a user who acquires a technology to meet some perceived need and appropriates it through usage (for example through the stages of domestication; imagination, appropriation, objectification, incorporation, and conversion (Silverstone, cited in Ling 2004:29).

While this partially accounts for LM I propose that it differs, or represents a special case, in two ways. Firstly LM represents a type of user engagement where the user is also developing applications to be used on the platform. This positions the LM artist as an augmented-user or artist-programmer (Cox, 2007) who can't be considered as a typical end user as the level of engagement is significantly higher. Secondly it assumes an activist stance of engagement, appropriating the technology with the objective of changing it. This represents a self conscious attempt to deflect the technology from what

it has perceived as a probable trajectory (Angus et al., 2008; Russell, 2004; Townsend, 2006), one characterised by surveillance and control, operating (Hayles, 2009) as top down broadcast medium, and setting itself the task to act as a counter force to this momentum.

3.4 Co-construction of technology

Theories of the social construction of technology marked a shift from a consideration of the user as a passive consumer of technologies (Bijker, Law, Pinch, McKenzie and Wajcman), as with technological determinist theories, to having an active role in the construction and shaping of technology as "agents of technological change" (Kline and Pinch, 1996). To discuss the agency of LM in shaping locative technologies I focus on more recent contributions to the literature of the shaping of technology which address the role and agency of the user rather than the designer, engineer or system builder. These writings have arisen in part to address gaps and shortcomings in the theories of social constructivism (Oudshoorn and Pinch, 2003) which were perceived to have neglected the role of the user and her agency in shaping both emergent and stabilised technologies. They also explore limitations to user agency designed into the technology itself (Akrich, Latour, Woolgar). Following Oudshoorn and Pinch (2003) co-construction assigns an enhanced role to the user in the construction of technologies while recognising that actual agency is dependent on the user group and the specific circumstances, leaving it open to tremendous variation. In this respect it is useful for considering LM's augmented-user.

Configuring the user

The concept of interpretative flexibility (Bijker et al., 1989 :40), introduced in SCOT, holds that new and emergent technologies can have radical different interpretations according to differing relevant social groups. These differing interpretations compete in a period of interpretative flexibility where the outcome is uncertain. Technologies go through a process of closure after which the technology is stabilised and takes on an accepted dominant interpretation. It is outside of the scope of this document to go into a detailed analysis of the shortcomings and subsequent modifications to the theory to take account of these, however, by any interpretation of the theory it can be said that locative technologies are currently in a period of interpretive flexibility. Rather I want to address the notion that there exists a limited range of available interpretations of technologies

inculcated in the design and production phase.

Steve Woolgar extended the SCOT approach (1991) by suggesting that technologies could be read like texts with differing 'readings' of a technology available. He theorised that limits to the degree of interpretive flexibility available to users are designed into technologies. Users could still construct technologies but within specific, tightly defined limits. This he attributed to a process of "configuring the user", that is to say "defining the identity of putative users, and setting constraints upon their likely future actions" (1991:59), thus limiting them to a defined range of acceptable interpretations of a technology.

Coming from an actor-network position, Akrich and Latour forward the concept of "scripting" to describe user-technology interaction. Modelled on a film script where "technical objects define a framework of action together with the actors and the space in which they are supposed to act" (Akrich, 1992), the notion of script again restrains the user within a predefined field of possible actions. Though Akrich and Latour propose mechanisms for agency within these constraints, such as inscription, de-inscription, and anti-program (Akrich and Latour, 1992: 261), they leave little room for agency beyond the script. Both approaches confer most agency on the designer of the technology.

Media theorist Lev Manovich follows a similar line. In considering software he warns of an in-built "logic of selection" (2001:123) designed into software which favours certain ways of working. While not necessarily proscriptive, the logic of selection needs to be actively overcome. The suggestion is that the average user follows the logic that the favoured mode of operation around which the software has been designed will also be the most productive. This idea of a range of potential uses of the technology being in essence hard-designed into the technical objects is associated with the concepts of the "projected user" (Akrich, 1992) and the "reflexive user" (Bardini and Horvath, 1995) where technologies are designed and scripted for an imagined user or for a user assumed to have the same motivations, interests and desires as the designers (Bardini and Horvath).

3.5 Influence

So far this discussion of the agency of Locative Media has focused on theoretical

considerations of the nature and mechanism of this agency, and the obstacles to be overcome in order for it to be exercised. However, this is a practice led enquiry and it is therefore imperative to demonstrate that this agency is, in fact, exercised. This will be done with a tracing and consideration of the influence that LM art practices have exerted and continue to exert on current Location Based Services (LBS) and applications. This is seen in the articulations of location-awareness that are emerging in LBS orientating around location, proximity and practice.

Location-aware devices with ubiquitous network access allow, not only the locating of the individual with her mobile device, but also the cross-referencing of context and location sensitive geotagged relational databases. This ability to deliver context and location sensitive data in real time is widely anticipated[18] to be central to future developments in mobile media. From the grand schemes of the internet of things[19] to the more prosaic LBS and applications, the varying articulations of location will be central to these developments.

LM practitioners operate within this window developing practices, sometimes experimental and other times eminently practical. These user practices establish a mode of operation for location-aware technologies which, if successful, remain permanently inscribed. Through augmenting space with location specific narratives and personal annotation, revealing hidden histories, ludically transforming everyday space into digitally mediated game-space and developing proximity based social networking, it can be said that Locative Media projects have foreshadowed all of the key areas of current location-aware applications and services. I propose that his is not co-incidental and represents the agency of Locative Media.

Location

As location-awareness becomes a feature of the everyday, employed in an expanding range of location based services and applications, the conceptualisation of location and the meaning of location-awareness have assumed an added importance. This has led to the distinction between the twin articulations of location, that of position, the point on a Cartesian grid, and location, the locus of lived experience, gaining added importance.

18 O'Reilly Media who first coined the term Web 2.0 now run an annual Where2.0 conference dedicated to LBS

19 see www.theinternetofthings.eu/

Location as Lefevrian lived space (see Chapter One for an expanded discussion of Lefebvre's concept of lived space) lies at the heart of LM's ambitions for the technology. This concept of lived space as applied to location-aware technologies amounts to a rethinking of how they might be used. One which addresses location as conceptualised by a range of contemporary thinkers influenced by Lefevrian thought, as part of what has been termed the spatial turn (Cosgrove , 1999; Massey, 2005; Warf and Arias 2009).

When I speak of location-aware technologies in the early period from the year 2000 on, I'm speaking of commercial GPS devices, rather than today's smartphones and location-aware devices. GPS, as previously discussed, was primarily a military technology with limited commercial use prior to the lifting of selective availability (SA)[20]. The main area of commercial product development in the period after the lifting of SA (in 2000) was the satellite receiver business model, primarily as in-car satnav. This model however has proved to be an intermediary phase as satnav expands beyond the stand-alone unit into apps for smartphones (available at a fraction of the cost of traditional satnav units and increasingly for free), and sophisticated mobile mapping services such as Google's map directions. Satnav applications were a direct descendent of their military antecedents in their approach to position. They orientate around position as points on the Cartesian grid identified by coordinates of longitude and latitude with the connection between the satnav unit and GPS satellites orbiting above ever-present. Of course this makes sense in an application designed for navigation, up to a point. As satnav gained a wider user base and became part of everyday situations, so to did the anecdotal and media reports of its shortcomings. The familiar accounts of mishaps (discussed in Chapter One) attributed variously to an over reliance on fallible technology but more cogently to an inability of the practices of the technology to account for real local conditions, and to deal with contingency. It is not sufficient to route from position A to position B based on the shortest driving distance, even incorporating (as the most up to date versions do) live traffic data, without considering local knowledge and conditions. Positional knowledge alone leads to situations such as the much cited case of the Norwegian tourists in Rio de Janeiro shot when their GPS, using the most direct route, led them through a gang controlled favela on their way to the airport[21]. This lack of relational knowledge points to the shortcomings of a purely Cartesian approach in complex urban

20 A in-built inaccuracy which limited the accuracy of GPS for non-military users
21 http://www.smh.com.au/travel/GPS-guides-norwegian-tourists-into-trouble-in-rio-20081126-6inc.html

space characterised by contingency (Thrift and Amin, 2002).

In contrast if we consider the articulation of location evident in "Urban Tapestries" (UT) (discussed in the previous chapter), we see location as a relational 'lived' space which allows for local knowledge, rather than a top-down model where location is conceived as a standard data-set to be applied. Rather than revisit it in detail I want to outline aspects of the project which still have repercussions in location based applications. UT had at its core a "pervasive computing platform developed specifically to support public authoring in its many expressions" (Angus et al., 2008). An objective of UT was to counter what they perceived as a reductionist view of the potential of emerging location-aware technologies which saw them as a broadcast medium with limited opportunity for user involvement (Angus et al., 2008; Galloway, 2008). When the project was initiated in 2002 they consciously adopted a counter-position to the prevailing view of potential applications that saw tourism, heritage applications and proximity marketing as the potential users, seeking to instead find out

> what it was about local places that mattered to people as they went about their daily routines. True daily life is richer and more complex than the traditional view, relying as much on social networks, personal experiences, and chance interactions and connections, so pervasive computing applications should attempt to reflect this (Angus et al., 2008)

This is not only a succinct iteration of the ambitions of LM, it could be the mission statement for so many recent and popular location-aware mobile applications. Consider a range of smartphone apps; Color, Local Mind, Ditto, Whatser, Weddar, Foursquare, Gowalla, SCVNGR, Yelp and Dopplr, among many more. While these are a disparate group of products they share this concept of location as a social space defined by relationships and communities of interest, and attempt to build on this through providing user tools for virtually annotating space and generating ad-hoc communities of interest. Each builds on the facility to quickly and accurately locate the user's mobile device. With a focus on location as lived space, they employ a myriad of approaches and exhibit an ambition to enhance space through fostering and building location based connections between individuals. This connection between the ambitions of UT and current trends in LBS is not coincidental but is indicative of UT's persistent influence on

location-aware applications. The question arises whether this is an influence which goes no further then an appropriation of certain engaging aspects of the model, but without a more profound commitment to their underlying ideas. Alternatively, this influence arises from the values inculcated into the practices pervading the emergent usage modes and shaping the emerging technology.

LM identified the ability to overlay locations with context specific information which would enhance space through revealing hidden histories and narratives of place, rendering them accessible through location-aware technology. LM projects, such as "Trace" (Rueb, 1999), "Murmur" (Sahwney et al., 2003), "34n118w" (Knowlton et al., 2004) and "Media Portrait of the Liberties" (Nisi, 2004), have established this as a significant genre of its own. The influence of the genre is now to be seen in a plethora of heritage applications offering historical, architectural, and cultural guides, typified by Berlin's Mauer Guide[22] and the SoundWalks[23] alternative walking tours of cities.

Similarly influential are the articulations of location enmeshed in the urban games of LM, involving the ludic transformation of urban space mediated by mobile devices, with aspects of the game simultaneously taking place on the streets and on the network. The concept of city as gamespace, notably introduced in LM projects such as "Pac-Manhatten" (2003) and Blast Theory's mixed-reality games such as "Uncle Roy all Around You" (2003) and "Can you See Me Now"[24] (2004), now pervade LBS. LM itself was influenced by the "playful-constructive behavior" (Debord, 1958) of the Situationist *dérive* and the 'striving for playful creativity' (Debord, 1957) of the constructed situation (see McGarrigle, 2009c). The urban play of LM is itself an appropriation of Situationist ideas of play (with varying degrees of legitimacy as I discuss in the final chapter) which call for a blurring of distinction between play and real life. These in turn have filtered through to LBS and the 'gamification' of location. Location based social networks such as Foursquare[25] and SCVNGR[26] describe themselves as games and incorporate gaming elements, however tenuously (Bogost, 2011), to increase user motivation and involvement in the check-in process (Lindqvist et al., 2011; McKenzie, 2011; Solis, 2010). Location based play is also to be seen more straightforwardly in location-based

22 www.mauerguide.com/
23 www.soundwalk.com
24 Other examples include Dodgeball , Asphalt Games, Noderunner, Mogi Game and Botfighters
25 www.foursqaure.com
26 www.scvngr.com

games such as Gbanga[27] and Grey Area's Shadow Cities[28] where the game arena is the city itself. While the validity of the game aspects active in LBS are undoubtedly questionable, the concept of the location based game and the ludic transformation of urban space has been imported wholesale into LBS from LM, and is further evidence of its influence.

Proximities

Proximity sensing as location-awareness, that is the practice of detecting proximity to other users rather than absolute position, has become one of the fastest growing areas for LBS. The dating/contact apps of Gaydar, Grindr, Skout and Whoshere[29] achieving commercial success whilst others are developing novel user-centric approaches. Proximity as a location strategy is familiar from LM works such as "Umbrella.net"[30] (Brucker-Cohen and Morakawi, 2004) and "Aura" (Symons, 2004)[31]. A key practice of pervasive gaming is proximity, that is employing the ability to locate each individual player in relation to other nearby players. It's not enough to locate oneself, you also have to be able to locate your opponents and other players. To kill, be killed, catch, or be caught, and the ability to detect proximity is crucial (see Licoppe and Inada, 2010; Montola et al., 2009; Souza e Silva, 2009). Proximity is about the physical locatedness of being in a place and in this sense is a phenomenological experience. It also acts as an ad-hoc transformation of a specific location with a recoding of the space as relational gamespace, emphasising the space as one where social interactions are enacted. A transformation which approximates Lefebvre's view of the city as a "place of encounter, assembly, simultaneity" (2003:118). In this sense proximity is essential to the spatially enacted social aspects of the game. The specific enactment of proximity in pervasive games calls on the affordances of locative technologies in combination with ubiquitous network access to bring around a re-interpretation of location, not as absolute position but as relational space.

Proximity was also central to bluetooth technology, and to the aspirations of an earlier pre-smartphone iteration of proximity marketing, which sought to employ the technology as a direct marketing tool to convey offers directly to customers phones

27 www.gbanga.com
28 www.shadowcities.com
29 see http://www.siliconrepublic.com/new-media/item/22159-gay-dating-app-grindr-hits
30 http://www.undertheumbrella.net/
31 http://stevesymons.net/aura1

when detected to be proximate to a business premises. As a practice this form of direct marketing lacked a social dimension, it failed to connect its targets to others or to provide any means of interacting, sharing or otherwise engaging with the information received. While this "Minority Report" scenario[32] has become a *cliché* in discussions of LBS it failed to become commonplace. This can be attributed in part to the severe limitations of bluetooth technology, its short range and limited capability for action other than sending alerts, which restrict the range of actions possible. However the success of location based gaming which also worked within the limitations of emergent technology (see Benford et al., 2006; Montola et al., 2009) demonstrates that it was also a result of poor user practices which failed to employ the technology, however limited, in a way meaningful to its users. The ways in which pervasive gaming was able to turn the technology, working within its limitations, into rich engaging practices is exemplified by the 2006 game "It's easy to believe in ghosts because they are invisible" (Area Code, 2006). The game created a subtle articulation of proximity in which players have to avoid being 'touched' by an invisible ghost. Players used a mobile phone with a display showing their position in relation to the position of a computer generated 'ghost' which sweeps over the game area 'chasing' players with the game objective being to flee the virtual ghost in physical space. When a ghost crossed a player's position an alert was generated on the players phone signifying game death. Proximity in this context is a crossover moment, it is the embodiment of Russell's internet leaking into the street where the virtual becomes entangled in the real. Proximity here is also articulated as a location based sociality with the player becoming part of a game community (this is true for all pervasive games) acting within a recoding of space as gamespace.

Proximity in this context has a dual function; that of a set of practices hinging on the concept, providing a plethora of ways of incorporating proximity into gameplay and into a wider field of locative artworks, and collaterally a novel way of thinking about location as relational. This is location not as a point on a grid but as connectivity to location-based self organising networks (Rossiter, 2006) which are leveraged on specific interests, from gaming to activism and locative social networking.

While the fastest expanding category of proximity based apps are contact/dating apps designed to meet people solely based on their proximity, there is also a more diffuse

32 From the 2002 Speilberg film Minority Report based on the short story by Philip K Dick

range of apps relying on proximity which seek to generate ad-hoc communities of interest or of place. These offer a wider scope for user interpretation as opposed to the more focused efforts of the dating apps. Apps like the photo sharing app Color and Localmind, a location based variant of Quora, the popular question and answer web community. Apps which foster communities of interest such as Mobli, Whatser and Broadcastr[33] (among many others[34]) build on notions of proximity which have emanated from Locative Media practice and if they are to succeed rely on users to appropriate them to build communities of interest based on proximity. A notion which has powerful implications in the wake of the role of social media and mobile devices as an organisational and communication tool in the Arab Spring revolts of 2011 (see El Hamamsy , 2011; Ghannam, 2011).

3.6 Practices

In identifying the influence of LM on current LBS it is necessary to trace the trajectory of location based technologies and their public acceptance, from the early GPS-centric satnav to today's smartphone apps. If location-awareness is to be the nexus of the mobile internet and the geospatial web then it assumes a pivotal role in the unfolding of these technologies and their integration into the everyday. It follows then (after Berry, Coyne, Cramer and Fuller, Dourish, Rheingold) that user practices which grow up around location-awareness are a critical contested space as they have the power to focus and shift the users understanding of the technology.

The practices employed by LBS as they reach a wider audience are the agents involved in shifting the balance of these technologies (after Coyne, 2010; Dourish, 2006) from control space (Deleuze, 1992) to enhanced space (Manovich, 2006). As we follow the short trajectory of locative technologies we find a commensurate shift in the meaning of location-awareness. This shift can be accounted for by a shift in user practices and attributed to the influence of the rich practices of LM.

Pervasive Games

To trace these connections further it is worth examining in more detail what have been termed Pervasive Games (Benford et al., 2006) or Pervasive Computer Games (PCG)

33 See mobli.com, whatser.com, broadcastr.com

34 Again this is an area where there are new additions almost weekly each with a slightly different take on similar themes

(Lemos, 2009). These are games which use mobile location-aware devices and technologies (such as GPS and Wi-Fi networks) to enact games simultaneously in physical space and electronic space, with a symbiotic connection between the two. While these games (in the early 2000s) used locative technologies this was often quite rudimentary and had to negotiate the limitations of GPS in urban situations and the unreliability of early GPS equipment. The first pervasive game "Botfighters" was created in 2000 and was based around SMS messaging (Sotamaa, 2002: Souza e Silva, 2006). Blast Theory abandoned GPS for their game "Uncle Roy" (after using it for their first mixed reality game "Can You See Me Now") in favour of "self-reported positioning ... a low-tech 'system' in which street players report their own positions to the game" as it was deemed too unreliable in an urban situation and that a low tech "I am here" approach would provide a smoother game experience to the player (Benford at al, 2006). There is a sense that, while these games were undoubtedly technology rich and perhaps even technology driven, they assumed a pragmatic stance toward employing emergent technology at its limits. This echoes Thrift and Amin's account (2002) of the improvised nature of the unfolding of technology in the city, emphasising their ambition to create practices that work, even with evolving technologies.

The action of pervasive games are of interest because as suggested by Andre Lemos (2009) they are natural producers of social space. Games, after all (after Huzinger), take place in a 'Magic Circle', a temporal ludic space produced for the purpose of the game with a defined lifespan. As Lemos points out, pervasive games take place both in physical space and in cyberspace. Real world activities are mediated through networked digital activities with information passed between players, mobile devices, and networked control centres, thus extending the magic circle into a hybrid network/physical space. The game experience of these early games could be described as that of the internet leaking onto the street, foreshadowing what has transformed into "hybrid space" (Dourish and Harrison, 1996; Kluitenberg, 2006) where the distinction between virtual and physical space is blurred. Mobile location based games have also been identified as drivers of location based services (Lonthoff and Ortner, 2007), with a role of introducing users to the concept of LBS through engaging location gaming practices. I will extend this by proposing that they not only drive uptake of the technology but shape it as well.

Two well known examples of early pervasive games which used location-aware technologies are "Pac-Manhatten" (2004) and "Uncle Roy All Around You" (Blast Theory, 2004) (See Montolo et al., 2009 for a comprehensive account of pervasive games). "Pac-Manhatten", which transformed the streets of Manhattan into the grid of the 1980s video game PacMan, involved two groups of players, one on the streets assuming the characters of the game's protagonists, the ghosts and Pacman, and the other group of controllers tracking player positions and guiding players toward each others positions. The game was created by a team from NYU's graduate program in Interactive Telecommunications[35] which included Denis Crowley, co-founder of Foursquare. Uncle Roy was created by Blast Theory in collaboration with the University of Nottingham's Mixed Reality Lab. Both games are of interest, for our purposes, for the ways in which they use the emergent locative technology to essentially do something simple, i.e. play a game of tag on the streets. Accounts of the game design of "Uncle Roy" (Benford et al., 2004, 2006) emphasise the ways in which the research team were operating at the edge of the available technology and constantly having to improvise and find alternate solutions for its shortcomings. There is also present a self conscious sense of designing practices, of establishing location-aware devices as tools for augmentating urban space into game space and improvised social spaces. These are not necessarily the spaces of encounter desired by the Situationists (Sadler, 1999:106). Even though they are enacted in public space. They can also be thought of as a pseudo-privatisation of spaces as they are comprehensible only to the initiated with participation depending on access to specialist equipment. Mary Flanagan critiques (2007) this approach as an overlayering of a space of privilege over real space, a co-option of sorts where the game takes precedence over the everyday activities of the uninitiated. However there is a sense, that albeit problems of accessibility in these works, that there is at work a project which aspires through a process of early engagement to make these technologies open to as wide a constituency as possible. While this may necessitate employing technologies which are exclusive (due to cost and availability) now, experience shows that the barrier to entry will fall rapidly as it has with mobile telephony.

If we trace the influence of pervasive games on current locative practices, it is noteworthy that pervasive games still exist and do so in a form remarkably similar to

35 See http://www.pacmanhattan.com/about.php

their early cousins, but presumably with a smoother user experience. The pervasive game *per se*, I suggest follows its own trajectory with advances in technology enhancing the game experience. Tracking is easier with improved GPS performance and using tools such as the Skyhook location SDK.[36] Smartphone app architecture removes the requirement for portable computers with custom software, and 3G connections are more commonplace so many of the problems encountered in Blast Theory's "Uncle Roy" (Benford et al., 2006), are of lesser significance[37]. There is a sense with these early pervasive games though that they acted as a "test category" (Benford et al., 2004), developing modes of operating for a time when there would be ubiquitous location-awareness combined with network access. In accounts of these games, the technical aspects therefore assume a greater role as the technology was of necessity more overt, but they presaged a more ubiquitous technology such as contemporary smartphones.

Public Authoring

The practices of "Urban Tapestries" orientated around users enhancing space with their own narratives, overlayering real space with a dynamic augmentation which was community based. This form of public authoring effectively counters the top-down character of locative technologies through supplying a framework through which communities can augment and annotate their own space. The practice thus shifts the technology towards the user as generator of content and away from the technologist and system builder (in this case UT), successfully countering the tendency to hardcode a normalised range of activity. This shifting toward a user generated model, while confining the role of the technologist to providing a sufficiently open set of tools in order to be be appropriated by the users, reconfigures the technology. This occurs not in an oppositional sense but through a process of going beyond a strict sense of affordances (Gaver, 1991) to not only expand the possibilities of the technology but concomitantly to expand the users agency.

This concept of public authoring, of providing an enabling framework rather than content, has proved a particularly influential one. UT provided a set of practices through which users could augment their own space with layers of context sensitive data, reflecting and enhancing their own lived experience of space rather than a generic or

36 Skyhook is a publicly available SDK based on Wi-Fi network positions which developers can use to add location services to devices

37 Though not eliminated as evidenced in my experience with "WalkSpace:Beirut-Venice", see Chapter Four.

intrusive data layer serving to distract and disrupt. This public authoring model has assumed a central role in the business model of some of the most successful LBS which use crowd sourced recommendations to offer location based advice and recommendations. Examples include established services such as Yelp, Foursquare, Facebook Places and Dopplr, new apps garnering attention such as Ditto - location based information on what your friends are doing, Weddar - crowd sourced local weather reports, and The Hotlist - location based advice on popular destinations and events based on Twitter and Facebook user recommendations - as well as many more[38] .

The Practice of GPS

While using GPS, focused as it is on finding position as coordinates of longitude and latitude, may seem to leave small opportunity for developing practices built on this raw data, the practices of Geocaching and OSM mapping exemplify the ways in which this data is folded into rich relational practices. Geocaching[39] is a worldwide game where players use GPS devices to find 'hidden treasure' or geocaches hidden at specific coordinates of longitude and latitude with over 350,000 registered players (Source: Willis et al., 2010:299) worldwide. Geocachers typically play in teams and the game has evolved a rich set of practices, rules and hierarchies (Farman, 2009; O'Hara, 2008) with a strong social emphasis. While the game revolves around finding a geocache at a specific position, it simultaneously highlights the disparity of the abstract data of a GPS co-ordinate with the local contingent information required to navigate to and successfully retrieve the geocache. Geocaching as a LM practice thus builds a community of location based gamers whose participation lets them discover new places and see everyday places in a new light (O'Hara 2008), highlighting the rich lived experience of place through the affordances of GPS. Geocaching has in turn become sufficiently significant for GPS device manufacturers that all handheld GPS units now offer specific geocaching functions, an example of a user created practice driving the development and sales of GPS equipment.

GPS has similarly come to play an important role in the practices of OpenStreetMap mapping. OpenStreetMap (OSM) is an opensource crowdsourced digital map of the world being created by over 400,000[40] volunteers. Established in 2004, the map now

38 I have counted over 200 LBS which I don't believe is a complete list
39 See www.geocaching.com
40 Source: Openstreetmap Foundation June 2011

offers substantial coverage of the world, particularly in cities in Europe and the USA where its maps rival and even exceed[41] those of commercial mapping services. GPS is a core technology for OSM with data being collected by volunteers carrying GPS units as they travel and go about their everyday business, in effect mapping out roads and footpaths as they are used. These tracklogs[42] are then uploaded to the OSM servers where they form the raw data of the map to be used by mapping volunteers in creating the maps. OSM differs from commercial maps in that its mappers tend to focus on their neighbourhoods using their local knowledge to ensure that the map data is complete and up to date (Goodchild, 2007). For example in Dublin when the Samuel Beckett Bridge opened in December 2009 it appeared in OSM the same day but it took almost a year for the changes to be reflected in Google Maps. As the data is opensource, developers can use it to build their own applications[43] and to develop special interest versions of the OSM such as the Open Cycle Map[44] focused on the needs of cyclists. In the case of OSM, the GPS data is incorporated into a socio-technical assemblage of which these GPS tracklogs created and donated by hundreds of thousands users worldwide form a part. As with geocaching, OSM folds GPS into a richer set of user-centric practices which extend and shift the meaning of the technology, but which would not be possible without GPS.

The above influences are indicative of what I identify as LM's agency in shaping emergent technologies through the introduction of the practices which have persisted and evolved as LBS enter the everyday. In the previous chapter I discussed the ways in which practices give meaning to technologies. In this sense LM has introduced and developed practices which have expanded the field and brought about what Krzysztof Ziarek describes as a "recoding of relationships" (2004:60). A constitutive shifting of the meaning of the technology, which goes beyond critique and interventionist subversion to re-frame the technologies meanings and their mode of operation. LM art practices have thus assumed a role in the co-construction of locative technologies (Oudshoorn and Pinch, 2003) which has resulted in a more user-centric articulation of the technologies.

41 In active areas of mapping OpenStreetMap data is continually updated making its data more current than that of commercial services.
42 Tracklogs are a record of GPS positions recorded by the unit, OSM recommend users to set their GPS device to record position every second for optimum accuracy.
43 under the terms of a Creative Commons Attribution-ShareAlike 2.0 licence (CC-BY-SA)
44 See http://www.opencyclemap.org/

3.7 Agency

Central to the question of the agency of LM is that of intentionality. What were the intentions of the practice and have they come to be as anticipated? Once it can be shown that the current state of location-aware services and applications reflect the foundational ambitions LM had for the technology, then it follows that LM has shaped the technology.

A central LM text is Ben Russell's "Headmap Manifesto". Written in 1999 before SA was ended it laid out, what was in many ways a plan of action for LM by identifying the potential for the technology and the opportunities it presented. It is worth restating a few of its aphorisms to highlight the ways in which they effectively and presciently describe the current landscape for location based devices and their applications:

> there are notes in boxes that are empty
>
> every room has an accessible history
>
> every place has emotional attachments you can open and save
>
> you can search for sadness in New York[45]
>
> people within a mile of each other who have never met stop what they are doing and organise spontaneously to help with some task or other.
>
> paths compete to offer themselves to you
>
> everything in the world, animate and inanimate, abstract and concrete, has thoughts attached
> (Russell,1999).

Russell identifies the potential of the convergence of high bandwidth mobile internet

45 In June 2011 Foursquare released a map of happiness on Foursquare in New York City http://blog.foursquare.com/2011/06/20/holysmokes10millionpeople/

and location-awareness in mobile devices to overlay 'real' space with a geographically referenced layer of annotation and context sensitive information. His interest mirrors that of the Ubicomp community of researchers, but his concerns focus on the privileging of user-centric practices. Their full potential, according to Russell, could only be revealed by transforming the technologies into tools for creation, but to do so, in a constructive spirit of engagement rather than assuming the oppositional stance of tactical media.

> New forms of collective, network organised dissent are emerging. Collectively constructive rather than oppositional. Now capable of augmenting, reorganising, and colonising real spaces without altering what is already there or notifying those being colonised. The internet has already started leaking into the real world. Headmap argues that when it gets truly loose the world will be new again (Russell, 1999).

Russell also identifies the significant opportunity for shaping locative technologies arising from a commercial imperative. That is, as GPS equipment made the transition from closed military system to consumer product, manufacturers were making devices as open as possible

> perhaps in the hope that users can tell them what the devices are for. In this sense, they seek grassroots and consumer level interpretation of what these devices are as surely as they seek an answer from corporate users.
> (Russell, 2003).

It is this sense of a military technology in search of an expanded role[46], seeking user interpretation to re-purpose the technology as a consumer technology that LM responds to. This can be also considered as "the exploit" (Galloway and Thacker, 2007), though one which is intentional, one that opens a window for an artistic engagement with location-aware technologies, operating in parallel certainly with a commercial engagement and with a certain amount of cross fertilisation.

46 The GPS industry was active in lobbying for the end of selective availability, see http://clinton6.nara.gov/2000/05/2000-05-01-press-briefing-on-the-global-positioning-system.html

OSM Crisis Mapping

I want now to conclude the chapter with a discussion of the consequences in real situations of these sometimes abstract ideas and to deal with the power of these ideas to effect change. This is most clearly illustrated with the case of the OSM Haiti crisis mapping.

OSM is in effect a large scale public authoring project based on the affordances of GPS and sharing the ambitions of Locative Media. Since its inception, OSM has established a comprehensive system of digital tools[47] and practices designed to enable an ongoing large scale mapping effort which has produced extensive open source maps and map data for substantial parts of the world. This has enabled it to produce maps for non-standard users, or more correctly, for non-standard users to produce their own maps using the open source data. These have ranged from cycle maps (OpenCycleMap), to community generated maps of squatter camps and informal settlements (such as the Map Kibera project[48] in Kenya where Kibera residents produced their own maps with assistance from OSM), where settlements of up to 800,000 people[49] cannot appear in official maps because they are unsanctioned. OSM Haiti was an extension of these practices which would not have been possible without the practices established by the OSM community.

The power of the OSM was perhaps most clearly illustrated in the aftermath of the 2010 Haitian earthquake. When search and rescue and relief workers arrived on the scene of the disaster they were hampered by a lack of accurate detailed street level maps both of the pre and post-earthquake situation. An appeal went out to the OSM community (at that time numbering 200,000 registered members) to provide post-earthquake digital maps. Using daily satellite imagery provided by GeoEye, DigitalGlobe, Spot, ErosB, and Google and city street maps from the New York Public Library, UN, US Government, and European Commission, OSM mappers were able to quickly create complete digital maps detailing non-standard information such as which roads were still passable, locations of refugee camps, collapsed buildings and other information vital to the search, rescue and recovery effort. Maps were made available for downloading and

47 http://wiki.openstreetmap.org/wiki/About
48 http://mapkibera.org/
49 Mike Davis' estimate of Kibera's population from Planet of Slums (2006:94)

printing and crucially as digital files for GPS devices. Data sets were updated hourly as information became available and aid workers had the opportunity to contact the OSM Haiti team directly by email to assist in setting priorities for mappers (source OSM[50]).

The OSM response was able to quickly deliver[51] detailed up to date digital maps in a variety of standard accessible formats which could include non-standard features such as refugee camps designed to meet the specific needs of the situation and the requests of workers on the ground. Existing digital maps such as those available from Google, Bing and Yahoo had very limited coverage of Haiti[52], coverage in general on these mapping services being very uneven and weighted to major cities and the Global North. Even if money was no object (which in relief efforts is rarely true) it is doubtful whether any commercial or Governmental agency could have created the maps with the requisite detail and distributed them freely (without copyright issues), in such a short timespan. OSM, through the rich set of practices it has established, is thus able to provide a service hitherto not possible. It has expanded the uses of GPS through its particular formulation of crowd sourced GPS based surveying, transforming it into a core activity in the creation of a digital world map which makes possible the Haiti mapping effort.

In January 2012 Google introduced a new fee structure for large volume users of their maps API[53], this has caused many large users including Foursquare[54], Wikimedia, Geocaching.com, Mapquest and even Apple for its iPhoto app[55], to switch from Google Maps to OSM. These high profile defections have served to bring OSM to mainstream attention and cemented its position as the most significant challenger to Google in web mapping, bringing "commons-based peer production" (Benkler, 2006:59) center stage in mapping.

OSM represents a particularly robust example of user practices conferring agency. While it is difficult to speak of a core practice for OSM, as it has grown into a rich

50 http://wiki.openstreetmap.org/wiki/Haiti
51 The first detailed maps were available in ten days and were continually updated in ever increasing scope and detail
52 See Sitwayen Ayiti - Citizen Haiti http://citizenhaiti.com/2011/04/osm-versus-google-mapsits-no-contest-in-haiti.html for a comparison of the coverage
53 At a rate of $4 per 1000 visitors over 25,000
54 See Foursquare announcement http://blog.foursquare.com/2012/02/29/foursquare-is-joining-the-openstreetmap-movement-say-hi-to-pretty-new-maps/
55 See http://idealab.talkingpointsmemo.com/2012/05/how-openstreetmap-got-apple-to-give-it-due-credit.php

complex organisation, its crowd sourced GPS surveying still contributes its core data set (though as it has grown contributions of GIS data sets have become more significant such as the 2007 donation of map data[56] from the Netherlands, China and India). OSM's employment of GPS demonstrates the ways in which locative technologies are folded into a richer set of user-centric practices which extend and shift the meaning of the technology. The usage modes which have grown up around OSM's deployment of GPS are thus at the core of the agency of OSM. It is these practices which have enabled it to become a significant force in digital mapping (Dodge et al., 2009; Gartner, 2009) and to effect real change in crisis situations.

3.8 Summary

This chapter builds an argument for the agency of Locative Media art. I begin by locating this agency in two aspects of the practice; through user practices which shape the form that locative technologies take as they become part of the everyday, and secondly in their associated spatial practices which produce space and which, following Lefebvre, cause new space, in turn, to be produced. This twofold effect, a shifting or re-purposing of the technologies which, in turn, through the action of their associated spatial practices, produce space, constitutes the agency of LM.

I turn to Krzysztof Ziarek's writing on the agency of technological art to uncover the mechanism for this agency. Ziarek positions technological art as radical critique at a time when art is considered to have lost its relevance. Central to this is his notion of the forcework of art, he positions art as a "force field" (2004:7) where "forces drawn from historical and social reality come to be formed into an alternate relationship" with the "forcework" of art as this transformative event, or the *work* that art does. The forcework of art operates in a subterranean fashion "beyond the threshold of perception and representation" going beyond thematic critique or formal subversiveness at the level of "force relations", recoding relationships and rewiring the connections to cause a rethinking of technology.

I draw attention to Ziarek's treatment of the forcework of art as acting outside of the

56 In 2007 mapping company AND Automotive Navigation Data donated data sets to support the work of the OSM foundation, these data sets were integrated into the OSM data and made available under the same license terms. Donations such as these from commercial mapping companies are indicative of the growing importance of OSM in cartography. Source http://wiki.openstreetmap.org/wiki/AND_Data

logic of power which he identifies as being technological in nature. Whereas Ziarek sees resistance, subversion, or even powerlessness as being complicit in the logic of power, as they are themselves defined by power and as such contribute to its intensification, he considers that the forcework of art evades this intensification through acting outside of power, not as a form of resistance but as 'nonpower', a refusal to participate in power. In this sense Ziarek attributes a specific agency to technological art as operating outside of the logic of technological power, keeping technology in question and causing a rethinking and recoding of its meaning, but doing so without assuming a traditional oppositional stance which he asserts plays into the hands of power by assuming the prescribed roles of critique and resistance. I address inconsistency in his arguments with respect to his reluctance to incorporate practice in this articulation of forcework whilst offering practice-based case studies of Viola, Kac and Wodiczko.

I advance an account of the Locative Media artist as "augmented-user", who while not designing the technology from first principles, or even accessing the core functionality of the system, augments the technology with an interface layer which interprets the underlying technology. Drawing on a software studies approach (Berry, Cramer and Fuller, Adrian MacKenzie) I present the work of LM as developing an interface layer which offers a re-interpretation of the core technicity of the system (or space). This is accompanied by a consideration of the role of embedded systems of scripting and control and LM's role in evading and operating outside of the logic of these limits to agency.

I discuss the role of LM as co-constructor (Oudshoorn and Pinch) of locative technologies. Several levels of influence are detailed connecting LM practices and approaches which have become assimilated into usage modes and applications as they emerge as mainstream everyday technologies. I identify the intentionality of LM practice, and the degree to which its ambitions for the future form of location-aware technologies and their application has come to pass, as demonstrative of the agency of LM.

The argument is completed with a brief case study of Open Street Map's Haiti crisis mapping as an example of the real world agency of LM, an agency I attribute to the rich set of user practices developed by OSM, practices which have achieved a major shift in

the practice of digital mapping which would have seemed improbable when OSM began in 2004.

Chapter 4 : WalkSpace

Where are we at all? and whenabouts in the name of space?
James Joyce, Finnegan's Wake (1939:558.33)

Introduction

The focus thus far has been on Locative Media in a quasi-historical sense, drawing out the connections and influence of early post-Karosta period LM on the current mainstream articulations of location-aware technologies. However, if the agency of LM is an evolving process it must have continued relevance and not only exist as an historical phenomena. This chapter treats of the practice component of this thesis, a series of art works and projects I have created as an integral part of this process. These projects have been created throughout the period of research, they have informed and been informed by the research, and are presented here as an essential part of this thesis which have shaped the research outcomes.

I have previously detailed the role of LM as a process of engagement with emergent technology. The five "WalkSpace" projects, which form the practice component of the thesis, represent such a sustained art practice engagement with locative technologies which I argue is central to the agency of Locative Media. This work has supported the findings of the research, suggested further paths of enquiry and ultimately advanced the field of LM through their introduction of new approaches, themes and methodologies. These "WalkSpace" projects have, alongside other LM artworks, formed part of the processes described here and ultimately contributing to the agency of Locative Media.

The first part of the chapter, Walking in the City, explores the projects as walking art, connected with the established tradition of walking in art, and as LM where walking has typically assumed a central role. This section addresses the action of locative technology in mediating the walking experience and the role of the participant/user engaging with the mediated walking process.

The second part addresses the work as interface drawing on previous discussion of the agency of LM. The projects are analysed as technical interface where they are seen to provide interface layers to their core underlying locative technologies. This section details the ways in which they negotiate and shape the multiple layers of influence and

scripting embedded in their component platforms.

The chapter concludes by proposing that the action of the "WalkSpace" projects can be considered as constructing "locative situations" a contemporary location-aware rethinking of the Situationist's constructed situation, a proposal which is elaborated on in the final chapter.

4.1 The WalkSpace series

Thomas McDonough described the Situationists as being engaged in "an attempt to change the meaning of the city through changing the way it was inhabited" (1994:77). So it is with LM, which is engaged in an attempt to change the meaning of locative technologies through changing the ways in which they are employed. These projects continue this process as part of a broader artistic and activist engagement.

"WalkSpace" is an ongoing body of my work consisting of a number of related projects which collectively form a practice-based enquiry into LM as art practice and the interwoven notions of urban space and technology implicated in these projects. "WalkSpace" projects are connected by their use of location-aware technologies to mediate urban interventions, overlay space with augmented layers of data, and through a recoding of space. These works are involved in the process of creating spatial practices both at the street level and in creating new user practices for the technologies they employ.

The associated works utilise a range of technology platforms and approaches, while sharing a methodology which seeks to overlay a conceptual data layer over physical space that offers a re-interpretation of that space. They are Locative Media, being involved in the artistic application of locative technologies and they will be considered in the frame of the previous chapter's discussion of the agency of LM.

Each of these projects are fully documented in the website accompanying this dissertation, the key works to be considered are:

"JoyceWalks" (JW), a long-term project originally from 2008 but still active. JW is a web based project built on the Google Maps platform which facilitates urban walking

interventions and allows their documentation. JW informs recent projects and will be explored as a precursor and template from which current projects evolved, providing a useful paradigm for technological evolution for projects as technologies shift and evolve from platform to platform.

"WalkSpace" (WS), a walking art iPhone app released in 2010,

"NAMAland" (NL), an Augmented Reality (AR) app working on the Layar platform, available for a range of Android, iPhone, Blackberry and Nokia devices, originally released in October 2010.

"WalkSpace: Beirut-Venice" (WBV), an intervention updating the classic Situationist *dérive* which took place simultaneously in Venice and Beirut as part of the Lebanese Pavilion at the 54th Venice Biennale of Art 2011. The project employed live video streaming and GPS based tracking.

"Walking Stories" (W-S), a Public Art commission for Dún Laoghaire Rathdown County Council in 2011 which used the Layar AR platform, QR codes, and printed maps to physically and virtually tag space with an augmented layer of place based narratives.

These projects will be considered in terms of approach, their relationship with the technology employed, and as test-beds for the concepts advanced earlier in this document. We have previously established that technological art acts through calling technology into question and evading mechanisms for scripting and control (see Chapter Three) or embedded logic immanent to artifacts, not through disavowal, critique or opposition but in a recoding and re-positioning of the technology.

These projects then need to be considered through their action as interventions and interruptions which cause a shift in thinking about the technology, and through their introduction of practices which persist, become associated with the technology ultimately causing a shift in the ways we understand and apply the technologies.

Viewing Documentary Material

To accompany the following discussion of the "WalkSpace" projects I refer the reader to the accompanying website, found at www.conormcgarrigle.com/locative/, a copy of which is found on the accompanying CD. This website documents each of these projects individually and includes a guide to viewing material for each project. In addition the website contains information on downloading, installing and use of the mobile applications and their requirements including location requirements when applicable. When possible this is recommended.

4.2 Walking in the City

> They will discover out of ordinary things the meaning of ordinariness. They will not try to make them extraordinary but will only state their real meaning. But out of nothing they will devise the extraordinary
> Kaprow 1958, quoted in Solnit (2001:276)

Walking is a central practice in LM art, as it is in the "WalkSpace" series of work. I want to briefly situate these practices within the context of walking as contemporary art practice, a practice which is predominately urban focused. Walking as contemporary art practice can be traced back to the Dadaist 'excursions' notably their 1921 visit to the church of Saint-Julien-le-Pauvre in Paris, and the early Surrealist *dérive* characterised by Guy Debord as "the famous aimless wandering attempted in 1923" (Debord, 1958) which both influenced the development of the Situationist *dérive,* itself a significant influence on subsequent manifestations of walking art. Walking emerged as a persistent avant-garde technique with the event scores of Fluxus, offering short instruction sequences to be carried out as the performer saw fit, with scores such as Georges Brecht's "Direction" (1961)

> Arrange to observe a sign indicating direction of travel.
> Travel in the indicated direction.
> Travel in another direction.
> (Friedman, 2002:24)

or Bengt af Klintberg's "Forest Event Number 6" (1966)

Walk out of your house.

Walk to the forest.

Walk into the forest

(Friedman, 2002:62)

among the many scores which proposed a (mostly) urban walking engagement.

Figure 4.1 Richard Long (1967) "A line Made by Walking"

Both works are ephemeral events which in the words of Kaprow "discover out of ordinary things the meaning of ordinariness" and are transformed into art works through their reporting. 1967 saw two important walking art works whose influence is still felt; Richard Long's "A Line Made by Walking" (Figure 4.1), consisting of a single photograph of a line worn into grass presumably by the artist in a ritualistic walking

performance, and Robert Smithson's "A Tour of the Monuments of Passaic, New Jersey" which introduced the urban periphery into the repertoire of the walking artist.

Walking art as method for urban interventions and for interrogating the space of the city has had a continued presence in contemporary art following works such as Vito Acconi's "Following Piece" (1969)[1], in which for every day for a month he followed a stranger in New York City until they entered a private location (a piece reworked by Sophie Calle as "Suite Venitienne" in 1979), and the performative works of Adrian Piper ("Catalysis", 1970-1971) and Krzysztof Wodiczko ("Vehicle", 1973) (see Kinga (2004) for a detailed analysis of these works). Another influential source of walking art has been the works of 1970s Eastern Europe conceptual artists which started to filter through to the West in the 1990s.

Figure 4.2 Neša Paripović "NP 1977" (1977) Super 8 Film Still

Artists like the Prague actionist Jiri Kovanda whose minimal performances might go unnoticed save for their documentation, and works such as Neša Paripović's Situationist inspired "NP 1977" (1977) (Figure 4.2), in which the artist walks undeviating along a straight line arbitrarily drawn across the map of Belgrade, served to re-enforce the

1 http://www.metmuseum.org/Collections/search-the-collections/190036953

notion of walking as an act of resistance, a point already familiar from deCerteau.

In contemporary art, walking continues to have a place in the mainstream with artists such as Francis Alÿs, whose entire oeuvre involves walking and the Italian Stalker group whose "Transurbances" have been circumnavigating cities since 1995 (Careri, 2007). Artists such as Janet Cardiff and Hamish Fulton continue the tradition of walking as art whilst other artists such as Gabriel Orozco[2], Christian Mueller[3] and Erwin Wurm[4] incorporate walking into their practice.

Walking with JoyceWalks and the WalkSpace App

JW and WS are both walking projects which use location-aware technologies to generate walking routes based on the Situationist *dérive.* They are connected through a shared approach to remapping culturally significant routes, to locations where they have no direct significance, as methods for generating randomised navigation suitable for exploring the city. They both incorporate algorithmic methods which guarantee the routes randomness avoiding what Guy Debord saw as the dangers of the *dérive* relying on chance

> the action of chance is naturally conservative and in a new setting tends to reduce everything to habit or to an alternation between a limited number of variants. Progress means breaking through fields where chance holds sway by creating new conditions more favorable to our purposes
> (Debord, 1958)

They differ in technique, JW is a web based project, which uses paper maps as navigational devices while the "WalkSpace" app is a location-aware app for the iPhone that builds on the original project, developing the concept for the affordances of the iPhone.

2 For example "Yielding Stone" (2007) http://www.moma.org/explore/multimedia/audios/174/1915
3 See Green Border (1993) http://www.christianphilippmueller.net/e/index.php?option=com_content&task=view&id=14&Itemid=68
4 See "Morning Walk" (2001) http://www.e-flux.com/projects/do_it/manuals/artists/w/W002/W002A_text.html

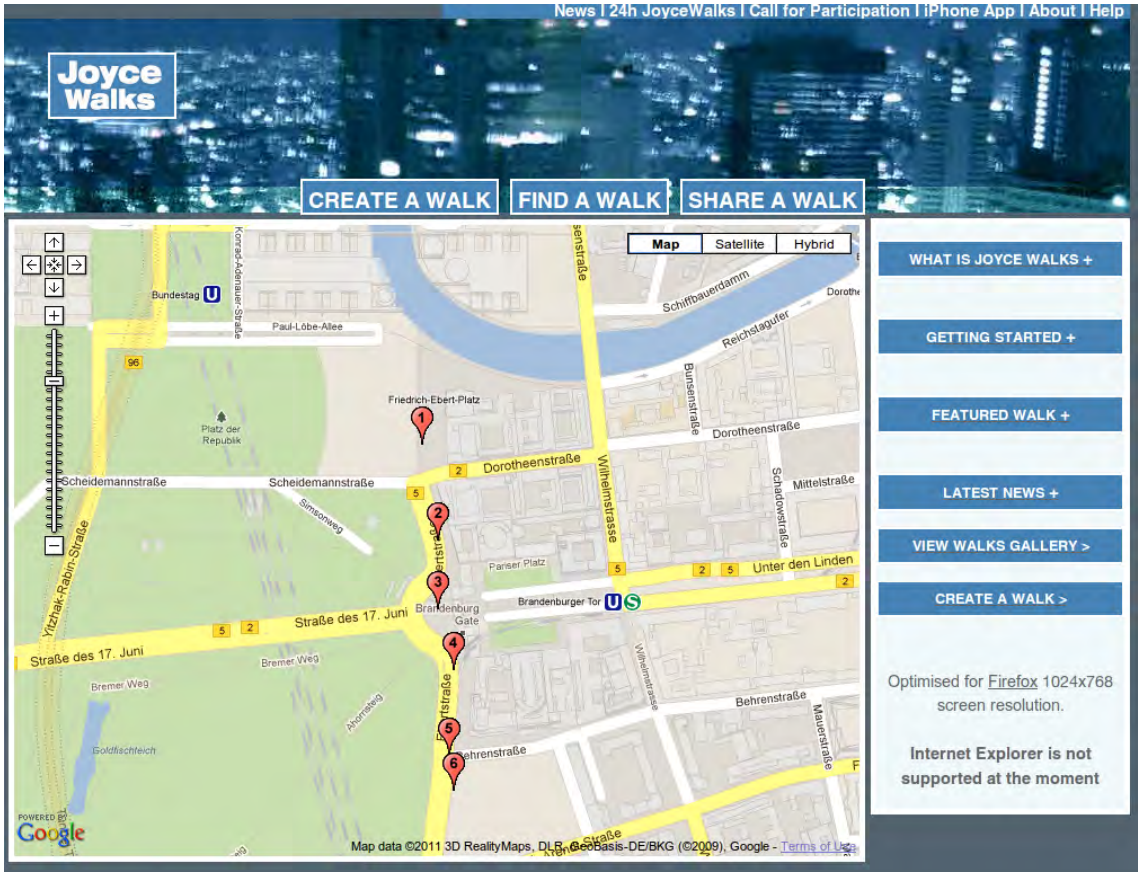

Figure 4.3 JoyceWalks website screen capture showing a mashup of a JoyceWalk in Berlin.

"JoyceWalks" is a long-term project, ongoing since 2008, which was built on the Google Maps platform and employs the Google Maps API (see Figure 4.3). The original project has also spawned subsidiary projects such as the "O'Connell Bridge" series of photographic works since 2008, "24h JoyceWalks" events which took place in 39 countries on June 16th 2008 and the "5 Walks: 5 Cities" installation at the 2008 St. Etienne Biennale.

Figure 4.4 Route of a JoyceWalk along the route of the Lestrygonians episode of Ulysses undertaken in Rotterdam, creator unknown, from the "JoyceWalks" database.

I introduce and discuss it here as a precursor which informs recent projects, acting as a template from which current projects have evolved. The relationship between JW and WS also provides a useful model for the technological evolution of projects as technology shifts and new platforms become available.

On a functional level the project is a mashup which employs global Google Maps data to overlayer routes from Ulysses to any city in the world[5] (I refer the reader to the following publications McGarrigle 2009a, 2009b and 2011c for a more detailed treatment of the logic of the project). The user/participant generates a walking map for any city in the world which enables her to retrace or re-enact the journeys detailed in specific chapters of James Joyce's "Ulysses". The JW website produces a printed walking map which facilitates walking the "JoyceWalks" routes in any city in the world. Each walk generated is saved to a searchable database of all walks created (Figure 4.4 and 4.5) with participants having the option of documenting their walk with photos or video which are added to their walk. The resulting maps mashup documents both the route of the walk, any additional information the walk's creator chooses to add, and images and video documenting the walk.

Figure 4.5 Route of a JoyceWalk along the route of the Lestrygonians episode of Ulysses undertaken in New York City, creator unknown, from the "JoyceWalks" database.

In one sense "JoyceWalks", the 'work', exists in database form[6] with over 600 walks recorded in over 70 cities worldwide. Each walk record contains information on location, the city in which the walk took place, the coordinates of longitude and latitude

5 To any city with Google Maps Coverage, in 2008 this excluded China with very poor coverage in Africa and smaller European and Asian cities. UK cities, although covered in Google Maps, were excluded from the API version during 2008 for copyright reasons.

6 See Manovich (2007), Stalbaum (2004) Vesna (2007) for accounts of the database as art form

of every waypoint on the walk, the time and date of the walk and records of any documentation of the walk such as text, images or video. However these records remain simply that, records, accounts of a series of contingent events which have taken place in cities throughout the world. "JoyceWalks" principally acts as a *dérive* generator, following the Situationists experimental technique, with the element of chance delegated to a series of user decisions made in the mapping process. These decisions effectively randomise each journey whilst staying true to the integrity of the route.

Rather than mapping a data set in order to render an information set visible or clearer by expressing it spatially, or as an aid to navigation, JW employs the technology to drift through the streets without a particular destination or objective. In this sense it runs contrary to, and gently subverts, common usages of mapping services with a privileging of the act of passage rather than the destination (see McGarrigle, 2009a, 2009b, 2011c) but one for which the API, with its ability to algorithmically generate routes, is particularly well suited. With the capability to interact with and annotate digital maps, characterised as Maps 2.0 (Crampton, 2009:25-39; Gartner, 2009), the user has the opportunity to add to the map (and as Crampton notes add value to the service), but to do so within what have emerged as quite tightly defined conventions. JW as an interventionist practice adds to these conventions, expanding the range of appropriate applications and, as I will argue later, re-energising Situationist techniques with locative technology.

As LM, JW adopts a fluid approach to location (Degger, 2008), one which is not confined to a fixed set of coordinates, but which provides a set of procedures or practices through which participants generate alternative locations drawing on a universal narrative. JW departs from LM practice in its attempt to move from a static (non generative) relationship with location to a fluid or generative one. This moves beyond the traditional approach of LM work, utilising a fixed and defined relationship with a location for which there will be a discrete set of data associated with specific locations. The project moves beyond this approach in two important directions; firstly it develops a LM model which algorithmically generates locations, while retaining a meaningful relationship with site through methods which cause a rethinking of the site. Secondly it introduces a capability to expand the work beyond its original intent, acting as an artistic toolkit as it were. JW in its methodology, of a fixed application interface

which imports a changeable external data source, foreshadows current and future models of LM where the database assumes an ever greater role.

As LM, JW employed the locative technologies of Google Maps which were not location-aware in any real time sense. It operated as a digital mapping technology with a facility for user-annotation which differs from the true location-awareness of projects such as "Urban Tapestries" (see Section 2.4). Location was asynchronously reported by users through their documentation of locations visited while following the routes mapped by JW. This approach however addressed Google Maps as a locative technology which has a broad appeal. It is easily available, in common usage, and mashups created with it were familiar even if the techniques for developing them were not. For our purpose here JW acts a precursor to subsequent practice-based enquiry and established a template which would inform further projects as they engaged with advances in location-aware technology.

JW acts by overlaying a conceptual interface over its underlying technology (Google Maps) which applies its own logic to walking in the city, providing a set of procedures for a participatory interventionist artwork. As a working participatory project, my experience (as its creator) of the ways in which it is used is limited to these database records. That is a record of GPS coordinates which show the precise location of the walk and any additional (optional) information its creators choose to add to document it. In this sense "JoyceWalks" operates both as a spatial interface, in the tradition of conceptual walking art, and as a technical interface, connecting the user to the core technicity of Google Maps through the API, but one which has the potential to be extended beyond the ambitions of its creator.

The "WalkSpace App" (WS) is a walking art iPhone app (see Figure 4.6) developed during the latter half of 2010 and published in the App Store in October 2010, with a significant update in May 2011. WS drew on the JW project with a central concept of remapping defined routes to its user's location to be used as the basis of a generated Situationist inspired *dérive.* WS expanded the concept in terms of technology employed, real time location-awareness, the nature and number of the walks available and in its approach to user participation.

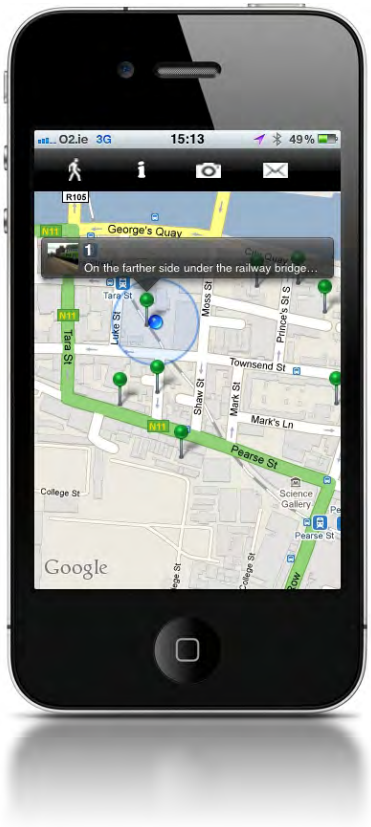

Figure 4.6 WalkSpace App screen

WS uses the iPhone positioning system to remap a selection of walks ranging from cultural trails, classic conceptual art walks and daily routes to the user's current position[7]. Each walk is remapped to a map interface which tracks the phone's position and prompts the user to take a photograph at numbered waypoints on the walk. Images are then added to the map creating a mashup documenting each individual walk which can then be shared by email and through social media.

WS is then essentially a method of generating a location-aware *dérive* in real time based on an expandable range of templates. I will discuss the Situationist idea of the *dérive* and its importance in thinking about LM in more detail in the next chapter, but at this stage it is sufficient to claim that WS can be thought of as constructing a situation (which I will subsequently expand on). WS routes are generated from the user's current location. This is then augmented with various conceptual overlayerings based on generated remappings of, for example, the Lestrygonians episode from Joyce's "Ulysses" to a re-enactment of Richard Long's celebrated 1969 conceptual art piece "A Line Made by Walking" (Careri, 2002:22-23) (see Figure 4.7).

7 At the moment there are seven routes available with the option for users to add their own route

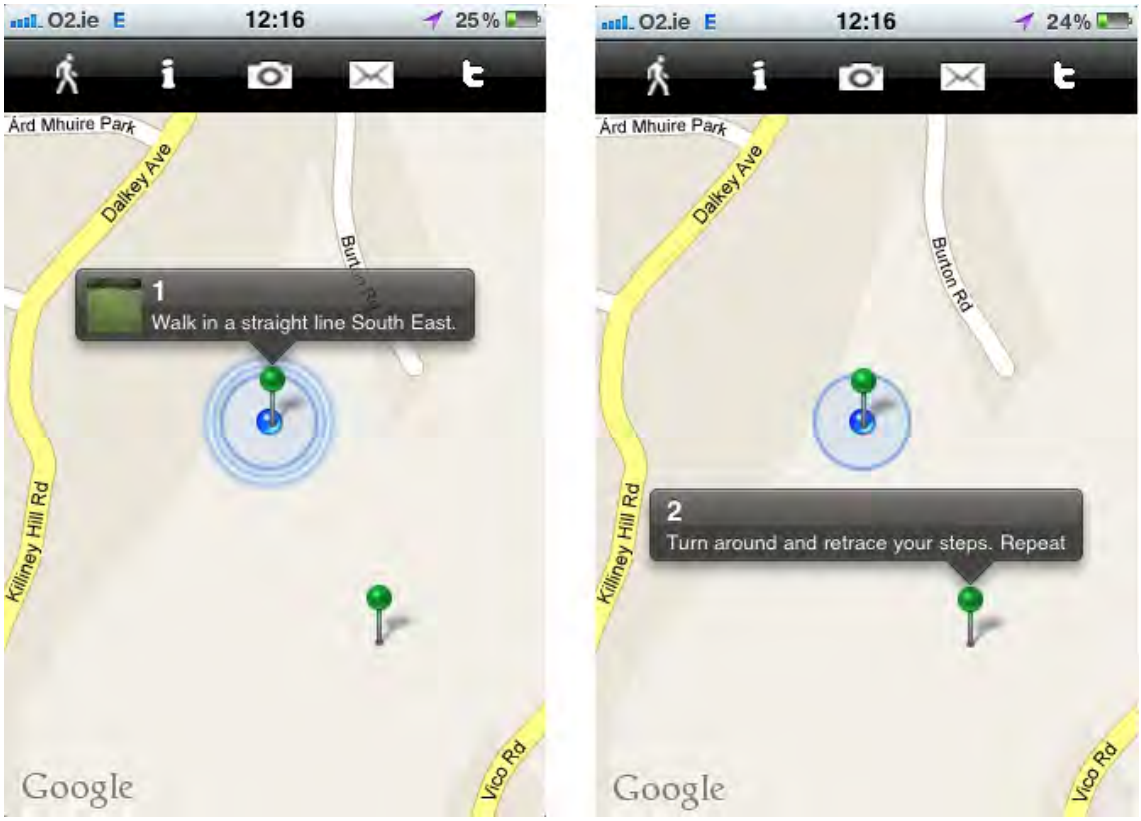

Figure 4.7 WalkSpace: A line Made by Walking Screens from iPhone app.

WS thus reclaims location as a notional space, a space of potential and beginning rather than as a positioning point on a grid. I have previously emphasised LM's focus on location as lived space and on the potential of locative technologies to augment and enhance space through provision of context specific data sets and user annotation. WS is involved in such a process of enhancing space but it is what I consider a user-led ephemeral enhancement which, while it can be documented as images, remains primarily a temporal experience. As with JW, WS doesn't overlay location specific data sets, choosing to instead apply a process of remapping to generate a route which facilitates exploration. Lefebvre speaks of the city as a space of encounter (2003:118) and WS acts as a tool to facilitate such encounter, a tool to "take you places you mightn't otherwise, to see familiar things in a new light opening a window to chance encounters and experiences" (McGarrigle, 2011c). Richard Long describes the documentation of his walks as a "distillation of experience, one which can never compete with that experience"[8]. His 1969 work " A Line Made by Walking", which

8 Text carried on his website richardlong.org

features as a re-enacted route in WS, is represented by a black and white photograph of a field with a line of grass worn down presumably by the repetitive footsteps of the artist. These documents of experiences, to paraphrase deCerteau (1984:97), can only ever refer to the absence of what has passed but miss the act of passing itself. So it is with WS, while one can document or share a walk the experience of the walk, of the situation as constructed by its users, is central.

NAMAland: peripatetic activism

Figure 4.8 NAMAland screenshot

"NAMAland" (NL) is a augmented reality application (see Figure 4.8) which overlays Dublin with a database driven data layer which identifies properties reported to be in NAMA (The National Assets Management Agency[9]). The application was built in November 2010 and has been updated on a regular basis since. It employs the Layar[10] platform which provides a development environment and software platform to create augmented reality applications that run on the Layar App for the iPhone and iPad, Android devices and selected Nokia and Blackberry smartphones. Layar provides a standardised user interface with limited options for modification and supplies a set of

9 The National Assets Management Agency is an Irish Government Agency established in 2009 to acquire bad property loans from Irish banks with the objective of removing them from the banks' balance sheet as a bailout mechanism, see http://www.nama.ie/about-us/.

10 www.layar.com

standard AR methods upon which Layers can be built.

It is necessary to distinguish the version of Augmented Reality (AR) available to mobile devices from the more conceptual augmented space as described by Lev Manovich (2006). AR as available to mobile devices is still an emergent technology, designed as a device led experience offering a limited set of procedures involving the overlayering of dynamic, context specific data over a live 'camera-view' of physical space. Typically, this information is scraped from a geo-tagged database and serves information such as proximity of train stations, cinemas, nearby tweets and so forth. More recent developments include the display of 3D models and the ability to trigger actions, such as playing an advertising video, through image recognition leading a push to monetise the technology through AR advertisers tie-ins. While it is augmenting space it does so in a very limited way, whereas Augmented Reality as articulated by Lev Manovich and others is a richer experience of which this is but one aspect.

NAMAland originated from an attempt to obtain information on properties under the control of NAMA in order to build an opendata application. However, NAMA is exempted from Freedom of Information requirements and there was no data on NAMA properties available. Although NAMA was a major political issue of the day it was not possible to obtain information on the number, nature of the properties, or individuals involved. I was able to identify an alternative source of information on NAMA properties being maintained by the anonymous website "NAMA Wine Lake"[11]. This list is based on published public sources of information connecting property developers known to be in NAMA and the properties they owned. Each entry is well documented with published sources in the public domain. Much of this data was locationally vague, a typical example is "Lands at Kinsealy", lacking specific addresses or geotagged information (information with coordinates of longitude and latitude attached), necessary for it to be used in location-aware application such as Layar. With further research it was possible to geotag approximately 120 properties from this list in Dublin. These were largely manually located using handheld GPS and Google streetview, when it went live in Ireland on October 1st 2010 during the research, and confined to properties

11 NAMAwinelake is an anonymous blog dedicated to the affairs of the National Assets management Agency found at http://namawinelake.wordpress.com/, the Google Docs spreadsheet can be found at http://spreadsheets.google.com/ccc?key=0AlV6jFjykyK6dHdKR0kwY2FkcEtQT19NQ2p6NkwwRkE&hl=en (accessed 20 November 2011)

which could be located with a high degree of certainty. This data was then used to create a geotagged mySQL database, which is the data source for the NAMAland Layar.

The NAMAland layar in operation takes the location of the user's phone and compares it to this database of geotagged properties "reported to be in NAMA"[12] within certain defined ranges[13]. An overlay of properties within range is then created which can be further interrogated for details of the developer associated with each property. To signify the location of each response the app overlays a cartoon figure of the "Monopoly Man" (see Figure 4.8) over NAMA properties on the camera-view of the user's device. It also generates a real time map of localised NAMA properties along with a list of nearby properties and their location. NAMAland thus visualises the extent of NAMA property ownership, allows users to identify nearby properties and interrogate specific regions of the city for NAMA connections. One year after its creation it was still the only available mapping of NAMA properties available in Dublin. It has received a great deal of attention in the National and International media and the term 'NAMAland' has entered common usage as a descriptor for the aftermath of the property market collapse.

On one level it operated as a mobile app, a ready to hand source of information locating NAMA properties, as a myriad of other apps locate coffee shops and restaurants, gaining 45,000 users in the process. However as an intervention, particularly one with political aspirations, it wasn't sufficient to remain as a 'virtual intervention', it needed to operate in conjunction with physical actions to be effective. In this respect it was vital that the project was expanded to include real world events such as walking tours, situated public discussion forums, public speaking engagements, media coverage and individual interventions with the work itself being an amalgam of all its constituent components. These were all supported and enabled through the data layer made visible through the application of AR technology, which offered multiple points of entry and modes of engagement with the project which were not technologically dependent remaining open to as broad a constituency as possible.

At another level it acted as a catalyst, facilitating a range of conversations, debates and

12 The formula of words I was advised to use to avoid potential legal difficulties as the data employed was unofficial

13 Layar contains settings which can limit the search radius from 100m to 5km. In practice in certain NAMA rich areas in Dublin the range needs to be set to between 100 and 150m or the display becomes overly cluttered with NAMAed properties.

activities as part of a wide ranging critique of NAMA and the sequence of events which led to it. The project crossed boundaries from art to geography, urbanism, activism, opendata, economics and politics as one would expect from work which engages critically with the space of the city and international finance. As the project became known through publicity and word of mouth, the diversity of the discussions, from the Occupy Dublin camp[14] one day to city-sponsored seminars on opendata and the smart economy the next, revealed another side of the project. This was its ability to function as a conduit reconnected NAMA with the space of the city, a connection which had been deliberately severed to preserve the idea of NAMA as a by-product of obscure international financial dealings which lay outside of Governmental control. "NAMAland's" contribution was to open up previously unavailable data, and to re-connect this data with the fabric of the city itself. This served to add specificity in place of generalisation, fuelling debate through the provision of an infrastructure on which specific spatial critiques could be structured, supplying a point of entry hitherto unavailable.

The project was accompanied by a series of walks informed by the mobile application which took place in Dublin City Centre and in Tallaght, two areas characterised by a high concentration of NAMA properties. These were participatory, as with the "NAMA-Rama" walk in conjunction with Market Studios (see Figure 4.9), the "In These Troubled Times" walk with RuaRed Arts Centre and "Ireland after NAMA" with The Exchange Arts Centre, and guided walks such as those for RTE News and Channel Four News TV crews. In this way the project bridged the gap between the abstract dataset hosted in an online database and the real space of the city. "NAMAland" is essentially a walking project, it is necessary to deploy it on the street for it to operate at all. The guided walks, through careful selection of routes, were able to maximise this impact by proceeding through areas of the highest concentration of landmark buildings and, as participatory events, functioned as walking forums, facilitating participants in discussing the issues represented by NAMA and its property portfolio. NAMA represents a complex system of abstract financial dealings, transactions which have become so disconnected from everyday understanding but yet have significant and very real consequences. The project and its walks attempt to counter this growing abstraction of space, they operate in hybrid space, that is "a convergence of geographic space and

14 See http://occupyuniversitydublin.tumblr.com/post/12854358386/events-21st-25th-november

data space" (Hemment, 2006) where the distinctions between Castell's (2000) space of place (physical space) and the space of flows (informational space) collapses with the overlayering of context sensitive data. Whereas the narrative of NAMA was the narrative of the (now defunct) property market, international finance and IMF bailouts, NAMAland reconnects this to real spaces in order to expose their interconnectedness and real consequences.

The project followed in the footsteps of "JoyceWalks" and "WalkSpace" as, apart from the guided walks led by the artist, a great deal of discretion is left to the user and with in excess of 45,000 users it can be said that ultimately the use and meaning of the work is decided by the user.

Figure 4.9 Participants in the NAMA-rama tour at a NAMA site on Dublin's O'Connell St

"Walking Stories" augmented place with place based narratives

"Walking Stories" (W-S) was a location-aware Augmented Reality soundwalk implemented on the Layar platform for mobile devices with physically located QR tags connected to internet hosted sound files in conjunction with a printed map and information leaflet. The project was commissioned as a public art project by Dún

Laoghaire Rathdown County Council for the "Unfolding Narratives" Exhibition in November 2011 (see Figure 4.10). Dundrum is a village in a residential suburb of Dublin which is home to Dundrum Town Centre, the largest shopping centre in Ireland. Since the town centre opened in 2005 Dundrum Village has undergone extensive changes and "Unfolding Narratives" sought artistic responses to ideas of "identity, belonging and change"[15] in the community. Through a process of consultation and research, conducted primarily through community based theatre groups (at the request of the Council Arts Office), a number of stories related to specific locations were collected from a diverse group of individuals with connections to the locality.

Figure 4.10 Walking Stories Project Image

These ranged from long time residents recounting stories from their childhood to young people whose sole experience of Dundrum was visiting the new shopping centre. The stories were recorded and attached to specific locations with three methods of accessing them. The primary method was using the Layar app for smartphones, with stories accessed in the locations to which they referred via the user's phone. Secondly there were locally applied QR code stickers (see figure 4.11) which, once scanned, linked

15 Curators Text online at http://www.dlrcoco.ie/arts/unfolding_narratives.htm

directly to internet hosted sound files of the stories. The locations of each of these codes were included on a printed map. Finally, numbered sound files were hosted on the project website which could be downloaded and preloaded onto an MP3 player and played at each numbered location as indicated on the map. As a public art work the intent was to make it available to as wide a constituency as possible, while still preserving the authenticity of the work by providing multiple options for hearing the stories in the locations to which they referred.

Figure 4.11 QR code sticker in Dundrum

"Walking Stories" was in many ways a traditional LM work in that it overlayered physical space with a location-aware narrative which addressed location as sites of memory, providing a contested narrative. In the case of Dundrum this was the narrative of Dundrum as a community, a village rather than an out-of-town shopping destination. "Walking Stories" differs from other works discussed in that it delivers a static data set and, certainly in this iteration, offers no way in which local communities can expand or add to the work.

This is, I acknowledge, a shortcoming, one that was partly due to the conditions of its commissioning; working within a constrained timescale with a limited budget and with restricted access to local communities (community groups were divided among the three commissioned artists). These were all reasonable and natural constraints to be expected when working in such a defined public art context. In a final public meeting to discuss the exhibition and the commissioned projects, which took place in the Mill Theatre in Dundrum, many residents while appreciative of the work clearly expressed the desire that it would continue and that local community groups would have the ability to add to it[16].

The community reaction confirmed what my research has indicated, that of the need for an open-endedness in LM applications, to include an ability for users to be able to take ownership of the application and shape it to their needs. This ambition, evident in early influential projects such as "Urban Tapestries", continues to be a central goal for LM. "Walking Stories" as a WalkSpace project differs from the other works in the series as a static work which presents a fixed narrative. A narrative which has been developed in consultation with the local community, the local arts officers and community theatre groups, one which speaks to issues of identity, belonging and change so central to the local communities. However as a process which responds to place and addresses community concerns, its limitations were that, unlike other projects such as JW and WS, there was no possibility of local communities extending the project. These limitations emanated from the conditions of the commission, and were unavoidable in the context of "Unfolding Narratives". However the experience re-enforced the desirability of moving beyond the model of LM as delivering a static data set.

"WalkSpace:Beirut-Venice"

"WalkSpace:Beirut-Venice" (WBV) was a project initiated for the Pavilion of Lebanon at the 54th Venice Biennale of Art in 2011. It was designed as a simultaneous spatial intervention in Venice and Beirut during the preview of the Biennale. The project took the form of two classical Situationist *dérives* taking place in both cities with two groups of walkers, one in Venice and the other in Beirut. Each group carried GPS enabled smartphones running Google Latitude a location tracking and sharing service which

16 "Indoor Picnic" closing event curated by Deirdre Morrissey and Catherine Ryan , November 19th 2011.

enabled them to see in real time the location of the other group on a Google Maps interface. Each group was also equipped with the Bambuser[17] mobile application (see Figure 4.12) which enables real-time live video streaming allowing each group to see the other's location. Each group navigated their city following instructions from their counterparts in the other city.

Figure 4.12 Live video streaming from Venice using the Bambuser app on the iPhone for WalkSpace: Beirut-Venice

The project was subject to the contingency and limitations of the technology with GPS signal frequently dropping in the narrows alleyways of Venice and with uneven 3G network coverage in both Beirut and Venice. At times live video streaming between the groups was reduced to instructions being received via SMS which in practice was equally effective. The project references the SI projects planned for Amsterdam's Stedelijk Museum (Sadler, 1998:116) in 1959 when simultaneous *dérives* were to be carried out with groups drifting while receiving instruction via walkie talkie from their counterparts in another part of the city, recasting it in a contemporary light which builds on the affordances of location-aware networked mobile devices. Venice was notably the

17 www.bambuser.com

site of one of the few psychogeographical reports documenting *dérives* with Ralph Rumney's 1956 report for "Potlach" (Sadler, 79), which resulted in his expulsion from the SI, and for Francis Alÿs' psychogeographically inspired 1999 intervention, "Duett" (Godfrey, 2010:98-99).

The project embraced the ability of the location-aware smartphone to track and locate the subject in conjunction with Bambuser's live video streaming technology which broadcasts and remotely stores video footage as it is recorded (echoing its role in the Arab Spring revolts of 2011 as a tool of instantaneous reportage and documentation of protests). In this way the project highlights the dual character of these technologies, as tools of surveillance, tracking and control, and as tools to be employed for creative interventions and for enabling activists to evade governmental control and censorship. It also demonstrates that location-aware, networked mobile devices lend themselves to a re-interpretation of psychogeography, a connection that has been persistently evident in LM work and which will be explored fully in my next chapter.

4.3 WalkSpace as Interface

In Chapter Three we spoke of LM's 'augmented-user' augmenting locative technology with an interface layer which interprets the underlying core functionality (see section 3.2). Following from this we will advance this discussion of the WalkSpace projects as interface, through their generation of a practice-based interface layer, which offers a re-interpretation of the meaning of the technology derived from practice and as a spatial interface through which the participant encounters the city. If we consider these projects then through the lens of practice derived interfaces we must also consider their multi-layered nature, as interfaces built on interfaces, and account for the ways in which they navigate the complexity of the chain of software and hardware processes whilst retaining the requisite clarity and simplicity to function as an artwork.

The WalkSpace projects act as interface both to the underlying enabling technology, that is a set of practices which connect the user or participant to the underlying technology, and act as a spatial interface through which she encounters the city. The projects unfold as situations through which the users' experiences are filtered and which frame and enable their actions.

As the title indicates, WalkSpace as a body of work doesn't foreground the technology employed but rather chooses to emphasise the position of the participant enacting the work through, for example, the act of walking as a phenomenological experience of being in the city. Even though technology underpins and enables each of the WalkSpace projects the experience of the work may belie this fact, nonetheless even seemingly technology free moments, of say walking in the city, have been mediated through the technological layers of the project structure. As such, the work reflects the urban experience of existing in code/space (Kitchin and Dodge, 2011) or the sentient city (Crang and Graham, 2007; Shepard, 2011) and it would be remiss to disavow this close connection with complex, obfuscated and often inflexible layers of code and interface.

To foreground this crucial connection then I will step away from the more obvious form of the work as conceptual structure for navigating and experiencing the city in alternative ways and frame the discussion of WalkSpace as interface, that is a set of procedures which connects the user to the underlying functionality or technicity (MacKenzie, 2002) of the technology. I have previously discussed the agency of LM as emanating from its "forcework" (section 3.2) "causing a recoding and re-positioning of the technology, whilst operating outside of the logic of that technology". Cramer and Fuller (2008:149) identify a key function of interface as that of limiting the uses of the hardware. This limiting of the appropriate uses can act as a control, constraining the user, but equally, as in the case of LM, as a recoding of the technology through the introduction of alternative uses, through generating different meanings or a re-scripting of the technology which opens up an expanded range of possible and appropriate uses.

It is necessary to consider the ways in which WalkSpace as a body of practice navigates the layers of technology with which it operates. Stemming from this we will develop a mechanism based on the Situationist constructed situation which accounts for the agency of Locative Media offering a mode of operation which promises a continued agency which can be interpreted as a new form of interface.

Neocartography as interface

JW is a mashup (Batty et al., 2010; Crampton, 2009; Gartner, 2009) which must be addressed in relation to other mashups, the conventions of the genre, and its commercial logic (Gartner, 2009; Scholz, 2008). JW as interface leverages the affordances of

Google Maps, location maps and navigational aids, to produce generative psychogeographical experiences. Rather than using maps to navigate to your destination, their normative function, JW disrupts this convention to produce a randomised method of navigating, one which privileges the experiential quality of the walk, what Michel deCerteau referred to as the "act itself of passing by" (1984:97). JW operates as a fully featured interface which facilitates wandering with purpose, in effect reframing the Google Maps system with all its complexity into a tool for getting lost.

As a LM project, JW is a parasitical work which, as with any such activity (see section 1.2), must however work within the window of opportunity presented to it, which in the case of Google Maps is the API. Most importantly for any code based project, it must actually work, which adds a further requirement that it operate within the methods and procedures contained within the API. In this scenario with web 2.0 techniques the deCertian ideal of appropriating the technology for uses other than that which are intended for is not quite so straightforward. To adopt a Situationist stance, web 2.0 tools are the ultimate machines for recuperating any content; the system is set up to facilitate, and accrue value from, user generated content so it is important to consider the layers which comprise the system and to establish the degree to which these platforms are open for shaping.

On a technical level JW is a web based project which uses the Google Maps JavaScript API[18] and a mySQL database. Following from our discussion of software in the previous chapter (see section 3.3) JW is thus built on three interconnected software platforms, each a potential agent of control acting to constrain and direct the user. The principal platform is Google Maps, itself an assemblage of data sources and code platforms, which is accessed through the Google Maps JavaScript API. JW currently uses the deprecated v2 API which needs to be updated to the current v3 to ensure its continued operation. It was originally built on v1 which, when superseded by v2, replaced many key software functions. These changes had the effect of rendering the existing code obsolete which meant the project stopped working and the code required extensive rewriting before it would work in the updated version. This experience emphasises the precarity of basing work on third party APIs which often, as with Google Maps, are in

18 See http://code.google.com/apis/maps/

perpetual beta with no service level agreement[19] guaranteeing continuity and backward compatibility. APIs are by nature restrictive, and developers can expect to be confined to the methods the supplier chooses to offer and be subject to other usage and copyright restrictions. For example, in the first year of the project the API method of searching for cities (which allows geocoding of addresses, an essential element for "JoyceWalks") in the UK and China was unavailable due to local licensing difficulties with Google[20].

The second platform is that of mySQL,[21] an opensource relational database used to store data on walks generated and documentation from the "JoyceWalks" website. The third element being the web based interface which acts as the visible interface of the project allowing users to generate walks, print their maps, to document completed walks and access previously created walks. The web interface or platform connects users to the underlying maps API, the mySQL database and crucially connects the Google Maps Javascript API to the database. The web platform is written in a combination of PHP, Javascript and HTML These can be thought of as additional layers of interface which allow the user to interact with the underlying functionality of the code platforms without which the work would not be possible. I draw attention to the layers of code which underpin JW not to highlight them as examples worthy of special attention or as software art (see Cox 2006:16) but to highlight the degree to which JW is embedded in systems of code over which it can exercise little control. For JW to function it must operate strictly within the parameters of these platforms. Yet it manages to provide an alternative mode of operation through a process of building an interface which shifts the normalised usage of these navigation and mapping platforms. In this way the WalkSpace projects cause a recoding of the technology as they operate outside of its logic, contributing to its agency.

Simply put the project could not have been created without the availability of the Google Maps API and was specifically created to take advantage of the affordances of the maps platform. This obviously raises questions of determinism, whether the technology determined the work or whether the work was created as an engagement

19 Google Maps offer a SLA for business customers with packages that start at $10,000 p.a. http://www.google.com/enterprise/earthmaps/maps-faq.html

20 In order to be able to type a city name in search and have the maps API center on that city the API must geocode the address. While this functionality was available on the Google Maps site geocoding in the API was covered by a different licensing agreement.

21 http://www.mysql.com/

with an emergent technology, one with the potential to become a powerful tool for user generated mapping but which had already established a mode of operation which tended toward conventional cartographic ends. Indeed the genesis of "JoyceWalks" is a complex one combining a desire to create a tool which could generate Situationist inspired *dérives* and disrupt emerging usage norms for Google Maps, while working within the confines of the API to make a functioning project. These conditions typify LM works and their agency depends on the degree to which the work can negotiate these constraints and turn them to their advantage through a repositioning and recoding of their logic.

Google Maps API

Working with the Google Maps API, one is certainly aware of the affordances (Gaver, 1991) of the API in the sense that the methods and tools available afford certain actions in a mashup as surely as Gavers' handles afford opening (1991:82). As noted previously the actions of the user are therefore configured or scripted (see section 3.4) within the limitations both of the methods made available in the API, and within the conventions of usage suggested by previous applications of the API. JW seeks to disrupt these conventions and evade the embedded scripting through the construction of an experience centred on the experiential qualities of the journey. Rather than assisting the user in wayfinding JW delivers a route which goes nowhere, in effect, an elaborate procedure for getting lost, a purpose which it turns out the Google Maps API manages very effectively. The result is an interface which employs the Google Maps API as an engine to drive the generation of a randomised navigation based on the Situationist *dérive* (see Figure 4.13).

JW thus presents an alternative form of navigation which establishes the mashup as an ideal tool for experimental navigation, alongside its traditional mapping role. The project still works within the API, and indeed has little option other than to. My role as an artist in creating the work is that of the augmented-user discussed previously, working within the confines of the platforms available to produce an additional interface layer which returns results different to might be expected through a process of selecting, connecting and configuring the available methods. This process effectively evades scripting-type processes embedded in the technology and, in the multi-layered interfaces of hardware and software, works to achieve a mode of engagement which is different to

what might have been expected.

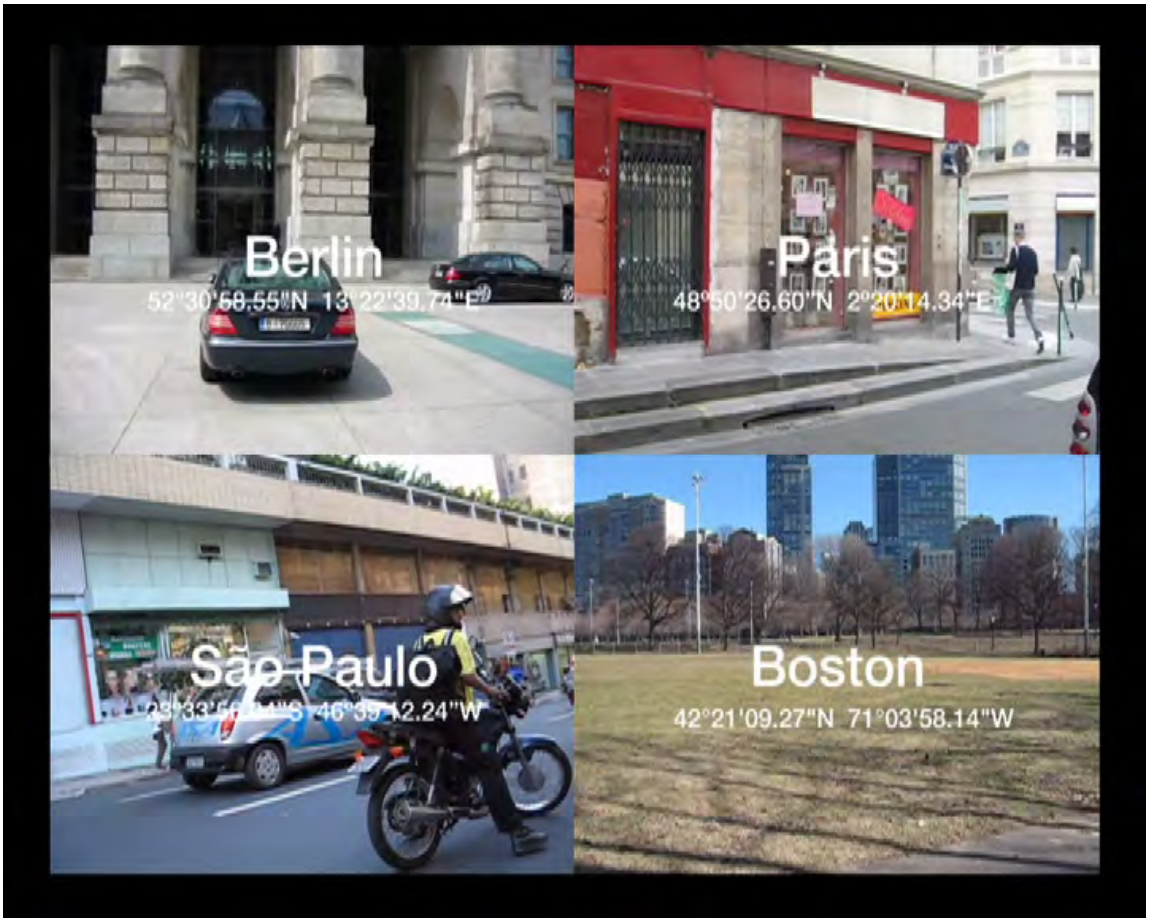

Figure 4.13 Screen capture from the video "JoyceWalks: Four Cities" documenting walks undertaken in Berlin, Paris, Boston and São Paulo.

This has aspects of tactical appropriation, but manages to go beyond a temporal intervention which fails to do more than "point out the problem, and then run away" (Lovink, 2005). Its engagement with the technology is recognisant of the limits which are imposed on it through the API, but it finds a workaround. Rita Raley in a counter to Lovink's criticism (Raley, 2010:29) correlates tactical media with Virno's virtuosic performance[22], that is "an activity without an end product" (Virno, 2004:52). JW and the other WalkSpace projects can be considered in this sense as activities which are not dependent on "settling into a "finished product," or into an object which would survive the performance" (Virno, 2004:52). What survives the performance of "JoyceWalks" are the traces on the map, the route saved in the database and documentation in the form of

22 Virno describes the virtuosic performance as "an activity which finds its own fulfillment (that is, its own purpose) in itself, without objectifying itself into an end product, without settling into a "finished product," or into an object which would survive the performance" (2004:52)

Google Maps mashups which give an account of the journey, but an account which is necessarily lacking and cannot be considered as the 'work' itself, the essence of the work being embedded in the temporality of the event.

The work of the 'augmented-user' as typified by "JoyceWalks" and the WalkSpace App is seen in this virtuosistic manipulation of the API, in working within preset boundaries to disrupt them and produce an outcome different to what is intended. The engagement with the platform is thus a subterranean intervention (Ziarek's Forcework) which occurs in the layers of code which form the interface between the art practice, the urban interventions of the WalkSpace projects, and the core technology. The projects themselves are not the "finished product", instead they act as another layer of interface which require an audience of users to engage and to co-produce the work. Ultimately, as discussed in the previous chapter, the agency of LM emanates partly from its ability to shift the meaning of the technology through its re-purposing. As the possibilities for agency can be curtailed through levels of control embedded within the processes of the technologies employed and, especially as we are dealing with technologies for which platform access is through authorised interfaces, it therefore follows that it is this ability to evade control and re-purpose the available tools which is key to continued agency.

Negotiating the iPhone and the App Store

Working with the iPhone platform also addresses issues of the degree to which a tightly controlled platform such as Apple's app production process can determine and shape the applications which run on its platform. As detailed in the previous chapter (see section 3.3) developing an app is a multi-step process which involves a chain of Apple software running on Mac computers with the most recent software and OS versions. To what extent can the embedded processes configure, shape or otherwise restrict (Akrich, 1992; Akrich and Latour, 1992; Bardini and Horvath, 1995; Woolgar, 1991) the users agency in such a tightly controlled software environment? An additional layer of control is added by the iPhone's distribution channel, the Apple App Store. All apps for use on Apple devices must be distributed through the App Store[23] with the exception of a cumbersome ad-hoc distribution option which allows up to 100 copies to be distributed directly to devices.[24]

23 It is also possible to 'jailbreak' the iPhone to install non official apps but this voids the Apple warranty
24 See http://developer.apple.com/programs/ios/distribute.html (accessed 18/11/11)

The WalkSpace App (WS) continues the approach of JW in the richer, and more rigidly defined, platform of the Apple iPhone. WS extends the theme of remapping spatially expressed cultural themes to the remapping of any route, from everyday walks to conceptual art walks, Fluxus inspired routes and user added routes.

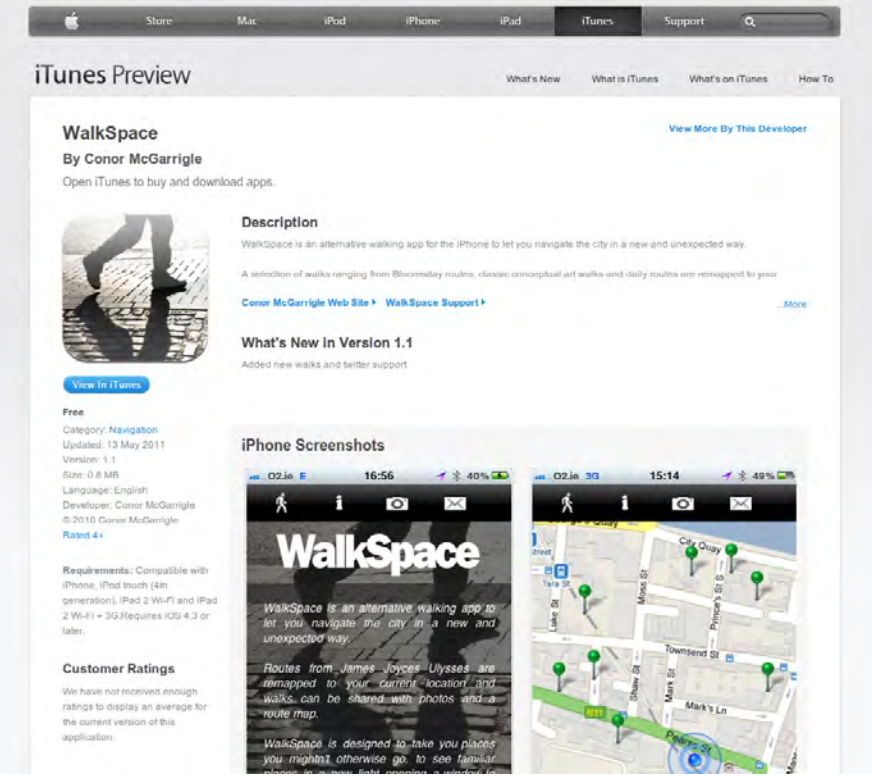

Figure 4.14 WalkSpace page on the Apple App Store

The iPhone is arguably the embodiment of the ideal LM device, location-aware and ready to hand, and one in which the navigational logic is more urgent than a printed map. Mapping on an iPhone is a subjective experience, centered, as it is, on the phone's location with a subject orientated navigation experience similar to that of satnav. WS builds on this mode of operation in its remapping, incorporating the user's physical location as the start point of every walk with each walk unfolding from the user's position.

WS originated in a desire to build on the success of JW as a walking project but to advance it to a more current platform, one which better represented the ideal LM device than the printed map. One objective for JW was to demonstrate that LM was more than a technology-fetishistic practice orientated around expensive devices and complex technology and was designed to be available to the broadest audience possible, in this

case those with access to the internet and a printer. Conversely WS was envisaged from the start as an iPhone app. This was because of the strong correlation between mobile apps, available for many platforms including the more open Android platform,[25] and Apple's App Store (see Figure 4.14). Apple at his time (July 2010) had the mindshare and publicity which associated mobile apps with the iPhone. As a device the iPhone represented everything that LM artists had aspired to in terms of functionality and as a ubiquitous, location-aware, intimate device. As a top of the range device[26] this necessarily meant that the majority of mobile phone owners would be excluded from the work. This was necessary as the cost of engaging with the technology and not an elitist gesture.

Apple offered a well featured development environment with the option to develop native apps (apps written in Objective C with functions executed locally on the iPhone with advantages of speed and a broader spectrum of capabilities) and web based apps (where the app interfaces to web based applications such as API based mapping applications with the advantage that much of the programming can be done more familiar and less exacting web programming tools but without taking advantage of more advanced features of the device). The downside was that the barrier to entry to develop an iPhone app is high and beyond the skills of many LM's augmented-users or artist-programmers (Cox, 2007). WS began as a web based app with the mapping functionality created using the Google Maps V3 API[27]. This project had to be abandoned as the more advanced functionality the work required was not available in the API[28] and the project was restarted as a native application written in ObjectiveC. For this part of the project I worked with an experienced programmer who could effortlessly navigate the intricacies of ObjectiveC, the Cocoa API, and the Xcode programming environment. Without such a level of programming support, developing an app for the iPhone platform is beyond the capabilities and resources for a great deal of LM artists. To a limited extent this demand is met by interdisciplinary hybrid arts centres such as V2 Institute for the Unstable Media in Rotterdam, New York's Eyebeam and the Ars

25 the degree of openness can be debated but in comparison to Apple Android is very open

26 Typical costs for an iPhone at this time were €200 for the device plus a €40/month 18 month contract. In Q3 of 2010 of 419m mobile phones sold 80m were smartphones and the iPhone represented 16.7% of this market or 3.2% of all mobile phones (Source Gartner)

27 See http://code.google.com/apis/maps/documentation/javascript/

28 in fact most of the problems came from inability to call certain functions of the maps API from within the app environment

Electronica Centre in Linz which offer artists the opportunity to work with an interdisciplinary team of technologists and programmers. The drawback being that these centres have a very limited capacity. Other opportunities for artists to work with interdisciplinary teams to develop for Apple's mobile device platforms would tend to favour applications with a more commercial appeal rather than more esoteric apps such as WS.

Augmenting Reality with DATA

The term Augmented Reality (AR) is a problematic one from the point of view of LM practice. AR has connotations of virtuality, the insertion of the virtual into the real through the application of locative technologies and image overlays. The problem is a recurrence of one for which LM was previously criticised for (Flanagan 2007, 2009; Fusco, 2004): a lack of consideration of the site in which the work is located and a cyber-utopianian belief that the application of technology in itself ameliorates any situation. An approach perhaps typified by the "AR Occupy Wall Street" augmented reality occupation event[29] which overlaid Wall Street in New York City with virtual protest signs, rather spectacularly missing the point of the Occupy movement.

AR however, particularly in its recent incarnation as data overlay over the camera-view in smartphone apps (see Figure 4.8), has huge potential as an activist tool, a tool for critique and more importantly for a critique which is data based, an approach I suggest, which is not compatible with the notion of augmented virtuality contained within the AR term. In considering AR art and data it is important to locate the discussion within an artistic tradition of using data (open or otherwise) within an art context and build on this tradition.

"NAMAland" in its use of opendata (or more correctly liberated data as the data on which it's based was never officially released) points toward this important direction for LM. Opendata is a term applied to (mostly) Governmental organisations and city authorities making operational data available[30] in accessible formats to interested parties. The logic driving opendata is broadly threefold. It aims to improve democratic accountability by making the process of Government and decision making open to

29 http://aroccupywallstreet.wordpress.com/ accessed Jan 10th 2012

30 Typically it is free but in certain circumstances there are charges and usage restrictions on certain data types.

public scrutiny in an unfiltered way through the publication of data[31]. Secondly it is designed to foster the smart economy through providing the raw material for digital entrepreneurs to which they can add value through providing commercial services and applications. Finally it increases access to Government and city services through the provision of information in easy to access formats.

Dublinked, the Dublin City OpenData initiative[32] launched in November 2011, gives as its mission "to encourage the next generation of jobs and companies in the area of urban solutions, by enabling data-driven innovation and promoting Dublin as a world-leader in developing and trialing new urban solutions",[33] and aims to position Dublin to share in the estimated €27 billion[34] European opendata market. The opendata movement is global in scope with notable examples being the London DataStore[35], Kenya's opendata initiative[36] and the US State of Oregon[37]. While there is much to recommend the many opendata initiatives the rhetoric of opendata demands further exploration. While this is beyond the scope of this document it is worth noting the opportunities opendata presents for LM practitioners and the potential role that location sensitive data will play in future directions.

"NAMAland" follows in an artistic tradition of using data (open or otherwise) as a tool of political critique with projects such as Josh On's "They Rule"[38], the data based drawings of Mark Lombardi[39] and Hans Haacke's seminal "Shapolsky et al. Manhattan Real Estate Holdings, A Real Time Social System, as of May 1, 1971". The case of Shapolsky et al. is of particular interest as it was a data rich installation detailing ownership of 142 (mostly tenement) properties and sites in New York City in the ownership or effective control of the Shapolsky Family (Deutsche, 1996:168-181). The work was based on data derived from publicly available records, assembled and refined, in the case of obfuscated records designed to conceal effective ownership, by the artist.

31 See the UK Governments introduction to their opendata website http://data.gov.uk/about
32 www.dublinked.ie
33 http://www.dublinked.ie/?q=aboutus accessed November 30th 2011
34 2009 EC Report “Re-use of Public Sector Information – Review of Directive 2003/98/EC [online] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0212:FIN:EN:PDF accessed November 30 2011
35 http://data.london.gov.uk/
36 http://opendata.go.ke/
37 http://data.oregon.gov/
38 theyrule.net
39 see Cabinet Magazine Issue 2 Mapping Conversations Spring 2001

The work reveals the city as a real estate system, uncovering its complex structure and demonstrating the ways in which the physical fabric of the city, and the arcane financial dealings designed to maximise the value of real estate holdings, are imbricated. It expands the idea of site beyond physical location to include its associated data space. This serves to activate these sites through providing a socio-political narrative, transforming individual buildings through augmenting them with data situating them within a complex network of property and financial transactions, with far reaching repercussions for the space of the city and the everyday lives of the people living in these slums. The piece was to be exhibited in the Guggenheim Museum but the exhibition was controversially cancelled before its opening in April 1971 with the specificity of the work cited as the principal reason. The museum Director held that social issues should be addressed "artistically only through symbolism, generalization and metaphor" (quoted in Deutsche, 1996:179). What caused the work to be suppressed was the specificity of the critique, which data supplied, whereas a generalized artistic critique would have been acceptable, demonstrating the power of the data-based critique.

The artist Mark Lombardi is known for his large scale data based drawings or "narrative structures" which detail the networks of power and money involved in various political financial scandals such as the collapse of the Bank of Credit and Commerce International detailed in "BCCI-ICIC-FAB, c. 1972-1991, (4th Version), 1996-2000". For each drawing Mark Lombardi built a custom database culled from published information sources assembled onto cross referenced index cards, according to his gallerist Deven Golden, he had around 14,000 of them (Golden, 2003), which were then condensed to create his drawings. Lombardi considered these as a method of "reprocessing and rearranging" freely available information as a way of mapping the political and social terrain (Wegener, 2012). The painter Greg Stone recounts the reaction of a friend, a reporter at the Wall St Journal, on seeing Lombardi's "George W. Bush, Harken Energy and Jackson Stephens" drawing, although he was familiar with the characters in the narrative, said he "hadn't fully understood the implications until he saw it all laid out that way" (Richard, 2002).

These projects illustrate that the power of data art lies in its ability to re-present information in ways which make the connections evident, presenting the information as

narrative and in ways which reveal the underlying structures and patterns. Location-aware technologies have the potential to add another dimension to this tradition with their ability to overlayer every space with a context sensitive data layer which is ever-present and exceedingly difficult to silence. The opportunity for LM is, with the increasing pace of the release of opendata associated with its perceived role in a 'smart economy', to combine these new data sources with locative technologies and a critical art practice to build practices which persist and which foreground opendata as a critical tool. NL is an intentional effort to place the data at the heart of the work and works as an example of the ability of LM artworks to increase the value of the data through effective visualisation and localisation.

As a LM work "NAMAland" therefore successfully exemplifies key characteristics and ambitions of the genre while pointing to an important future direction. NL represents what Drew Hemment described as "a convergence of geographic space and data space" (2004) producing a hybrid space (Dourish and Harrison, 1996; Kluitenberg, 2006) where the distinctions between Castell's (2006) space of place (physical space) and the space of flows (informational space) collapses with the overlayering of context sensitive data. The success of the project came from its ability to transform abstract data about NAMA into a concrete visualisation, through locating it in the places to which it refers and associating it with physical buildings. It associates the ability of locative technologies to interrogate proximate locations with a critical narrative built on an overlayering of its NAMA dataset. As the data layer of "NAMAland" is unsanctioned (in the absence of a sanctioned database), it is fitting that it takes the form of an invisible ephemeral layer which is revealed only through the action of the application, at once hidden and in plain view. While access to NAMA data may be denied it can still be revealed through the action of AR.

As the project disseminated it became clear that many of the people who spoke to me of the project knew of it but were not actually users, as they didn't have a phone capable of running the application. Their experience of the project was second hand, passed to them as a story which resonated as a tale of resistance. Somebody had used mobile technology to reveal a list of NAMA property which had been kept secret from the public. It wasn't necessary to see it in operation, it seemed to be enough to know that it had been done. The walking artist Francis Alÿs speaks of his work as myth making and

tries to "keep the plot of a project as simple as possible so that it can be told as a story, an anecdote, something that can be transmitted orally without the need to have access to images" (Godfrey, 2010). "NAMAland" similarly has a simple narrative that can be told as a story which means that even without access to the requisite technology the project still succeeds at some level. Not only does "NAMAland" recount a story about NAMA and its consequences but from the point of view of LM it speaks of the technology and its uses. For the emergent technology of AR this is significant for, as discussed in Chapter Two, it is through practices that functions and usage modes of technologies come to light and their relative value and importance is revealed (Agre, 2001; Coyne, 2010; Dourish, 2006). "NAMAland" is an application of AR technology which has reached a wide audience both through usage (the app has in excess of 45,000 users), through mainstream media accounts and, anecdotally, through word of mouth. This success establishes AR as a tool of political critique which can reveal and situate information and data of political significance. This assumes a greater importance when connected to the burgeoning opendata movement. As new sources of data become available there are opportunities for LM artists to go beyond the rhetoric of opendata and develop critical narratives based on this newly liberated data.

4.4 Constructing Situations

The WalkSpace projects are distinguished by their street level enactment. As walking art, albeit mediated through location-aware technologies, the articulation of the work is a contingent experience with a multiplicity of factors interacting and interfering with each other to produce a unique locative experience. In short they construct a situation.

In considering the agency of LM and the factors at play in granting agency we have focused on existing projects and an after-the-fact analysis. What then of future work? Is it possible to identify a framework, appropriately flexible, to act as a guideline for future work, to ensure the possibility of a continued engagement with location-aware technologies and a continued agency as they evolve and change? I propose that within Locative Media there exists a tendency, which amounts to a contemporary practice-based articulation of the principles of the Situationist constructed situation (Debord, 1957), which points to future directions for LM. In Chapter Five I advance a consideration of LM as being involved in what I term the "construction of locative situations" and develop a speculative practice-based framework which enacts these

locative situations. This framework builds on the Situationist concept of the constructed situation, suggesting that ubiquitous location-aware networked devices provide the ideal tools for a rethinking of the constructed situation. The constructed situation, as theorised by the Situationists, has acted as guiding principle in the WalkSpace series and the final chapter develops the locative situation as a framework, which calls on this Situationist legacy as a resource, providing a necessary set of procedures and conceptual approaches through which LM shifts the meaning of these technologies enabling an expanded range of uses, approaches and applications.

4.5 Summary

This chapter focuses on the practice component of this dissertation, the ongoing WalkSpace series of works. It is accompanied by extensive documentation of the component projects; "JoyceWalks", "WalkSpace" iPhone App, "NAMAland", "WalkSpace: Beirut-Venice" and "Walking Stories" which is, appropriately, hosted online.

After a brief introduction of the component projects of the WalkSpace series the chapter begins with an account of walking in art which acknowledges the influence of these peripatetic fine art traditions on Locative Media and WalkSpace. I establish the WalkSpace projects as following in an established tradition of walking art, positioning them as extending this tradition with their active engagement with emergent locative technologies.

Rather than address the projects through the lens of the technologies they employ, the chapter approaches the work through their user practices and through their action as interface. I begin with a discussion of the works as walking art connecting them to the Situationists, detailing their spatial practice and the ways in which they offer alternative interpretations and usage modes for the technologies they employ. This argument identifies the key user and spatial practices of the work; from the digitally mediated Situationist inspired walking practices of "JoyceWalks" and the "WalkSpace" app to the data-driven augmented activism of "NAMAland", the AR place based narratives of "Walking Stories", and the networked *dérive* of "WalkSpace:Beirut-Venice".

In this discussion of the WalkSpace projects I have deliberately foregrounded the user

experience of engaging with and enacting the work rather than the technology employed. However as these are technologically mediated works operating within complex and obfuscated infrastructure it is also necessary to discuss their role as interface to these socio-technological collectives. Following from the discussion of LM as interface in Chapter Three I expand on this concept with reference to the specific WalkSpace projects. I argued in the previous chapter, LM's agency is embedded in its role as interface, in interpreting a technology for its users and advancing specific meanings for technologies which become assimilated into the technology and its usage. It is then necessary to account for the degree of agency available in deploying these technologies with their embedded levels of scripted control.

The chapter treats of the ways in which the WalkSpace projects navigate the affordances of the Google Maps API, drawing on Virno's notion of the virtuosic performance to highlight the role of user practices in successfully operating within the confines of the tightly scripted API and re-purpose these available tools. The issues arising in producing work for the walled garden of Apple's appstore are unpacked in considering the "WalkSpace" app. The combination of opendata and Augmented Reality is explored in the "NAMAland" project as a powerful example of the potential of LM user practices to broaden the range of acceptable uses for the technologies.

The chapter concludes by proposing a framework, building from the body of practice, for the consideration of Locative Media art which is appropriately flexible, to act as a guideline for future work and ensure the possibility of a continued engagement with location-aware technologies and a continued agency as they evolve and change. This framework is elaborated on in the next chapter.

Chapter Five: The Construction of Locative Situations

Situationist: Relating to the theory or practical activity of constructing situations. One who engages in the construction of situations. A member of the Situationist International.
Definitions, Internationale Situationniste #1, 1958.

Introduction

The WalkSpace projects are distinguished by their street level enactment, as walking art mediated through location-aware technologies. The articulation of the work is a contingent experience with a multiplicity of factors interacting and interfering with each other to produce a unique locative experience. In short they construct a situation.

In considering the agency of Locative Media and the factors at play in granting this agency, we have focused on existing projects and an after-the-fact analysis. What then of future work? Is it possible to identify a framework, appropriately flexible, to act as a guideline for future developments which can ensure the possibility of a continued engagement with location-aware technologies and a continued agency as they evolve and change? This is the question at the heart of this chapter.

This chapter is largely based on my 2009 Digital Art and Creativity conference paper; "The Construction of Locative Situations: Locative Media and the Situationist International, recuperation or redux?" (McGarrigle, 2009c) and a reworked version of the paper, which took into account feedback from DAC and developed the arguments, published in the journal "Digital Creativity" (McGarrigle, 2010a).

The chapter discusses the Situationist International (SI) and the central role of the constructed situation as a theoretical underpinning of their praxis but one which, unlike their techniques of *détournement* and the *dérive*, remained unrealised after their demise. I detail the connections between Locative Media and the Situationists at a level of practice, common approaches and shared concerns, demonstrating that these connections go beyond superficial similarities and name-checking. Rather than promoting a revisionist reading of these techniques I invoke this idea of the SI as a

theoretical and practical resource to be drawn upon, an activist resource which empowers and informs actions but which refrains from guiding them.

Following from the previous chapter's discussion of "WalkSpace", which discusses an existing body of practice, this chapter seeks to distil patterns from Locative Media artworks and use them to build this speculative framework, one that will point to future directions for LM and ensure a continued agency in the light of a changing locative landscape. To achieve this I identify a tendency within LM which I assert amounts to a contemporary practice-based articulation of the principles of the Situationist Construction Of Situations (Debord, 1958). This, I propose, acts as a framework pointing toward future directions for LM, with LM being involved in what I term the "construction of locative situations". This framework builds on the Situationist concept of the constructed situation and suggests that ubiquitous location-aware networked devices provide the ideal tools for a rethinking of this Situationist construct. The situation as theorised by the Situationists has acted as a guiding principle in the "WalkSpace" series, with each work in its individual fashion constructing a situation “designed to be lived by it's constructors" (Debord, 1958). I identify this influence, both implicit and acknowledged, in a range of other LM works.

I develop a speculative, practice-based framework which sees LM as being involved in the construction of locative situations. Following from the Situationist constructed situation, LM's locative situations act as interface serving to both interpret the underlying technologies of location and introduce spatial practices which produce space in a Lefebvrian sense. LM's appropriation or re-application of the constructed situation works as an activation of a resource, a resource which is simultaneously a mode of operation and a conceptual approach. I propose that this re-application of the SI's Constructed Situation, as LM's Locative Situation, provides a necessary set of procedures and conceptual approaches through which LM shifts the meaning of the technologies, enabling an expanded range of uses, approaches, and applications.

5.1 The Situationist International

The Situationist International (SI) were a small avant-garde group active between 1957 and 1972. Formed from an amalgamation of the Lettrist International (of which Guy

Debord was a member), the International Movement for an Imaginist Bauhaus (consisting of ex-CoBrA members), and the London Psychogeographic Association's sole member, Ralph Rumney. In the early period the SI was truly international with active groups in Scandinavia, Netherlands, Germany and Italy which were self organising with their own publications. Prominent members included Asger Jorn, Pinot Gallizio, Constant (Constant Nieuwenhuys), Raoul Vaneigem, Guy Debord, Michelle Bernstein, Gil Wolman and Ralph Rumney. Over time exclusions took their toll, Debord's influence increased, with the SI effectively becoming the Franco-Belgian group around Debord and Bernstein in Paris[1]. A Second Situationist International was declared by the Scandinavian Drakabygget group (disparagingly called the Nashists after their leader Jorgen Nash[2]) after their exclusion in 1962[3] (McKenzie Wark, 2011:109-125; Rasmussen and Jakobsen, 2011:32-33,132). The expulsions, which have been seen as a schism between the artists (Gallizio, Gruppe Spur, Jorn, Nash), and the theorists (Bernstein, Debord, Kotanyi, Vaneigem) served to shift the SI from an organisation in which art and architecture played a significant role to one in which theory supplanted art praxis. Debord saw the practice of art and the art market as a vector of recuperation which co-opted Situationist thought as "Situationism"[4], an art movement, as Sadie Plant puts it, "only by the suppression of art as a category in its own right could the realisation and integration of the artistic and poetic into everyday experience for which Dada and surrealism had longed be achieved" (1992:56).

The influence exerted by the Situationists through their history, their reputation, and their writing belies their numbers and the fact that, unlike many of their contemporaries, they eschewed positions of influence in the academy (Kaufmann, 2006). In total the SI had only 70 members during its existence, of whom 49 were expelled, and when the group was disbanded only 4 remained. They rose to prominence for their role in the

1 The history of the excluded Situationist groups and their claim on the mantle of the Situationists is a convoluted and contested one which tends to be divided into pro and anti Debord camps. See Stewart Home's assertion in "The Assault on Culture" (1991) that the Scandanavian Second Situationist International has more claim to the name Situationist than the Debord Group (the Specto-Situationists) and Rasmussen and Jakobsen's account of the Scandanavian Situationists in "Expect Anything, Fear Nothing" (2011).

2 See "The Counter Situationist Campaign" (Knabb, 2006:145) for the SI denouncement of the "Nashist Traitors" which conveys the flavour of the SI exclusions and the ensuing debates.

3 The expulsion was declared in "Proclamation from the [First] Internationale Situationniste!" dated March 23 1962, found at http://www.notbored.org/first-SI.html

4 The SI define it as "A meaningless term improperly derived from the above (Situationist). There is no such thing as situationism, which would mean a doctrine for interpreting existing conditions. The notion of situationism is obviously devised by antisituationists." (Knabb, 2006:51)

May 1968 events in France[5] and since their demise have been brought back to popular attention by the likes of Greil Marcus (1989), Malcolm McLaren,[6] and through the major 1989 Pompidou retrospective[7]. The continued relevance, or persistence, of the Situationists is of interest and a matter of debate but one which is unfortunately beyond the confines of this document.

I will, however, identify two key aspects which account for their resonance with LM practitioners. Firstly their focus on the city, influenced by Lefebvre's writing on the everyday, as lived space and as a site of contestation which has fuelled their concentration on an activist and engaged program of producing space as an antidote to passive consumption. This identification of the space of the city and its appropriation and transformation as a means of revolutionising everyday life has assumed a renewed and enhanced relevance in the light of developments in location-aware technologies operating in code/space (Kitchin and Dodge, 2011). Secondly, the Situationist program is incomplete. The SI were not successful, but they left a rich, unrealised program in *détournement*, the *dérive,* and especially in the construction of situations, which I argue is open to re-interpretation and has substantial untapped potential.

The Construction of Situations

In their 1957 founding conference, the SI declared the construction of situations as their entire program albeit, as befits the declared provisionality of Situationist thought, a transitionary one (Debord, 1958). Constructed situations were to build on the existing practice of the *dérive,* which itself can be traced back to the Lettrists[8], the Surrealists and Dada. The *dérive* was described as a "passional journey out of the ordinary through a rapid changing of ambiences" (Debord, 1957), and later defined as a '"technique of rapid passage through varied ambiences" involving "playful-constructive behaviour and

5 The extent of the role of the SI in May '68 is disputed, certainly there were Situationists involved and Situationist slogans and graffiti were widespread in Paris but there is little agreement on the significance of their part in a broad based movement.

6 The former manager of the *Sex Pistols* who claimed the UK punk movement to be influenced by the Situationists and was a member of *King Mob* formed by expelled British Situationists (see Home in Rasmussen and Jakobsen (2011:205-215) for an idiosyncratic account of *King Mob*).

7 Sur le passage de quelques personnes à travers une assez courte unité de temps. A propos de l'Internationale Situationniste 1957-1972', at the Centre Pompidou, Paris (February 21-April 9, 1989) touring to London and Boston.

8 The Lettrist International, one of the groups along with The International Movement for an Imaginist Bauhaus and the London Psychogeographical Association which merged to form the SI. Guy Debord was originally a member of the Lettrists.

awareness of psychogeographical effects", making it "thus quite different from the classic notions of journey or stroll" (Debord, 1957). The *dérive* was intended not as a reworking of Baudelaire's *flâneur,* the dispassionate and detached observer strolling the streets of Paris, but as a mode of active engagement with the city. It was to be a research process uncovering the psychogeographic contours of the city as a social, transformational event which would change the city, and as part of larger program to transform the way cities are inhabited. Guy Debord acknowledged the *dérive* as a rough experiment which foreshadowed the construction of situations. But whereas the *dérive* was a discrete self-contained event the intention was that constructed situations would be more pervasive, extending the playful creativity of the *dérive* to all aspects of human relationships (Debord, 1958).

If, as the SI claimed, "a person's life is a succession of fortuitous situations, and even if none of them is exactly the same as another the immense majority of them are so undifferentiated and so dull that they give a definite impression of sameness" then "the rare intensely engaging situations found in life only serve to strictly confine and limit that life" (Debord, 1957). The Situationist solution was to actively construct situations rather than merely passively consume or experience them. Rather than describing and interpreting situations, the Situationists would seek to transform them. If, as they believed, human beings are "molded by the situations they go through" and "defined by their situation", then they need the power to create situations worthy of their desires rather than be limited to passive consumers of the situations they find themselves in.

The construction of situations was described as "the concrete construction of momentary ambiances of life and their transformation into a superior passional quality" (Debord, 1957)[9] with the resulting situations being

> ephemeral, without a future. Passageways. Our only concern is real life; we care nothing about the permanence of art or of anything else (Debord, 1957:41).

This was to be a revolutionary program in which the "radical subject demands to construct the situations in which it lived" (Plant 1992:39), to be approached as an

9 I will reference here Ken Knabb's Situationist International Anthology due to it's wide availability but in doing so I acknowledge that it is a contested anthology. See McDonough's "Rereading Debord, rereading the Situationists" (1997) for a summary of his disputes with the anthology.

experimental undertaking for which Situationist techniques would have to be invented. A program was outlined starting with small scale experimentation from which a set of tools and procedures would be developed leading in turn to the experimental discovery and verification of laws for the construction of situations. Debord saw it as "a systematic intervention based on the complex factors of two components in perpetual interaction: the material environment of life and the behaviours which that environment gives rise to and which radically transform it" (Debord, 1957:38). This focus on the interaction between the physical infrastructure of the city, which as we have demonstrated in Chapter Two includes the systems and code of the contemporary urban code/space, and spatial practices is evidence of the influence of Lefebvre. The construction of situations goes beyond Lefebvre in that it is a proposition of activist intervention, a program of engagement with the intention of changing the conditions of the city. An intent, I argue, in keeping with that of LM.

However, despite its declared centrality to the Situationist agenda, the practicalities of the actual construction of situations were never fully elucidated (Ross, 1997:73). It was unclear where the constructed situation, as an artistic event, ended and the "revolution of everyday life" started, or if they could be separated. Indeed it wasn't clear what a constructed situation was, how it might be constructed and operate, or even how it might be recognised. The Situationist condemnation of New York 'happenings' in 1963 as a 'spectacular' avant-garde activity[10], that is a co-opted event neutralised of any revolutionary potential, was one of their few public pronouncements of what a situation was, or in this case wasn't. According to Simon Sadler, "there isn't any evidence that a situation was ever constructed as prescribed" and that the "program the Situationists set themselves was so ambitious and uncompromising that it condemned itself to failure. At least happenings took place"(1998:106).

The Construction of Situations remained unrealised by the Situationists, it existed as a lightly sketched concept with such overreaching ambitions attached that perhaps, as Sadler claims, it was doomed to failure. Many reasons exist for its remaining a theoretical construct rather than a series of actions or a concerted program to transform everyday life. I argue that it was a prescient concept perhaps best suited to today's urban

10 *L'avant-garde de la présence* Internationale situationniste no. 8, January 1963 in Knabb, Ken (2006) Situationist International Anthology, p143.

conditions where a convergence of ubiquitous network access, locative technologies, and mobile devices produce a hybrid urban space ideal for the re-application of the theories of the constructed situation. In order to establish the connections between LM practices and the Situationist's constructed situation, it is first important to explore the degree of Situationist influence on LM and identify to what degree it operates as a superficial name checking, and to what degree it connects with their underlying principle and purposes, albeit reapplied for contemporary conditions.

5.2 Locative Media as a Situationist Practice

The influence of the Situationists is evident in LM at both an explicit and an implicit level. The connections have been widely made. Tuters and Varnelis (2006) propose that LM can be described as either annotative or tracing, which they equate to the Situationist techniques of *détournement* and the *dérive* respectively. The annual New York based Conflux Festival[11] of "contemporary psychogeography" makes explicit it's desire to re-enchant and reclaim the city through reinventing Situationist techniques for the contemporary city with an emphasis on urban play.

Festivals such as Come out and Play[12] in New York City and Amsterdam and London's Hide & Seek[13] which regularly include LM alongside less technologically influenced urban interventions endeavour to ludically transform the city implicitly drawing on the "playful-constructive behavior" (Debord, 1958a) of the *dérive* and the "striving for playful creativity" (Debord, 1957) of the constructed situation. Mary Flanagan has noted (2007) the connection between the urban play aspects of LM and psychogeography, distinguishing between technologically mediated (locative) urban games which add to the commodification of the city and those which foster critical engagements with place.

Numerous peripatetic locative works adopt the *dérive* with varying degrees of commitment to its underlying theory. Works such as Teri Rueb's "Drift"[14], Valentina Nisi's "Media Portrait of the Liberties"[15] and "34n 118w"[16] (Hight, Knowlton,

11 Glowlab. Conflux Festival, (event) available http://www.confluxfestival.org
12 Come Out and Play Festival, (event) available at www.comeoutandplay.org
13 Hide and Seek Festival.(event) available at http://www.hideandseekfest.co.uk/
14 http://www.terirueb.net/drift/index.html
15 http://www.valentinanisi.com/liberties.html
16 http://34n118w.net/

Spellman) typify projects which take the form of LM *dérives* offering locationally specific experiences delivered through portable devices. The works can be thought of as augmenting the classical Situationist *dérive* through the addition of a data layer over real space. Christian Nold's ongoing ″Biomapping″[17] project implicitly invokes psychogeography as a pseudo-scientific practice as it measures its participants emotional response to their location through combining sensors measuring galvanic skin response with GPS units and mapping the results on Google Maps. While Nold doesn't claim any Situationist heritage, "Biomapping" is an application of technology that the SI would happily have put to work in their studies of psychogeographical effects. Projects such as Social Fiction's self declared algorithmic psychogeographical ".Walk″ (dotWalk)[18] achieve a similar locative result by adopting the instructional sequences[19] of later Situationist *dérives* with the more prosaic technology of pen and paper illustrating the common purpose of much locative art, whether it employs locative technologies or not.

It is not unexpected that Locative Media art practice would seek to connect to the Situationists as an influential avant-garde movement whose spatial concerns and focus on re-appropriating the city for its inhabitants, of becoming active participants rather than being "passive spectators in their own lives" (Debord, 1958), mirror those of contemporary locative artists. The Situationists also share a concern about "new technological means not been used in the service of freedom" (Jappe, 1999:143). In addition to a prescient analysis of the contemporary city, these were always accompanied by powerful practical techniques of action which, I contend, have accrued greater importance and value in the age of urban computing. The Situationist program, psychogeography, the *dérive, détournement* and most importantly the construction of situations was according to Thomas McDonough "an attempt to change the meaning of the city through changing the way it was inhabited" (1997). While the influence and application of psychogeography, the *dérive and détournement* have been noted and explored in other places (Galloway, 2004; Flanagan, 2007; Tuters and Varnelis, 2006), little has been done to connect LM to the declared sole objective of the Situationists, the construction of situations.

17 Nold, C. Biomapping, available http://www.biomapping.net accessed August 14 2009
18 SocialFiction. .Walk. Available http://www.medienkunstnetz.de/works/dot-walk/ accessed June 22 2012.
19 first left, second right, second left, repeat

Spatial Production

The Situationist analysis of space is influenced by Henri Lefebvre's theories of the everyday[20] and closely aligned with his later theories of the social production of space. Lefebvre proposed that space cannot be considered as an empty neutral container in which objects and people are situated (1991:68), causing a rethinking of space as a social product defined by a complex set of interrelationships, resulting in a multiplicity of interconnected and overlapping spaces which influence, and are influenced by, each other (86-87). For Lefebvre it is the actions of inhabitants (spatial practice) which produces the spaces of the city. But while spatial practice reflects the habits and customs of a city's inhabitants it can also act as a coercive force which dictates the range of acceptable practices (73). The constructed situation can be considered as spatial practice, acting as "an integrated ensemble of behavior in time ... composed of actions contained in a transitory decor" (see my note on the translation of the French word *décor* as decor[21]), actions which are "the product of the decor and of themselves, and they in their turn produce other decors and other actions." (Debord, 1958) The constructed situation can in a Lefevrian sense be considered as producing space through the actions of its participants. Lefebvre emphasises that not only is space produced but it is in turn a producer of space and so the constructed situation is itself a constructor of situations.

It has been argued that the enactment of pervasive, ubiquitous and locative technologies in urban space have brought about shifts in spatial production with space being automatically produced (Thrift and French, 2002) by what Amin and Thrift call the 'haze of software' of the contemporary city (2002:125). This in turn raises questions (Dodge et al., 2009) about human agency in these software produced spaces where the ability of an individual to effect change, or to even understand the background processes of production, on these automatically produced spaces is strictly curtailed. I suggest that LM art's agency emanates in part from the temporary, ephemeral and hybrid spaces it produces which disrupt, interfere with, and renegotiate the dominant spaces of the city and that these spaces can best be described as following in the tradition of Situationist

20 For an account of Lefebvre's association with the Situationists see his interview with Kristin Ross in *October* 79 (Ross, 1997).

21 The translation of the French word *décor* as decor fails to convey the sense of the original where it can equally mean the set of a film, a theatre backdrop, background or even environment.

constructed situations.

5.3 The Construction of Locative Situations

Following from this treatment of the SI and the constructed situation, I propose that there exists within LM a tendency which amounts to a contemporary practice-based articulation of these principles. The construction of situations was, at the level of practice, a lightly sketched concept only addressed in two documents; the 1957 "Report on the Construction of Situations" read at the founding conference of the Situationist International, and "Preliminary Problems in Constructing a Situation" in "Internationale Situationniste #1" (1958). The promised procedures and laws for constructing situations were never developed, with the constructed situation remaining as unrealised and enigmatic when the SI ceased to exist as when it was first mooted at their founding conference. As with so many aspects of the SI, "the element of promise still surpassed the element of achievement" (Paolo Salvadori quoted in Debord, 1970). Even by Situationist standards the construction of situations remains remarkably practice-free (Sadler, 1998:106), leaving it open to re-interpretation as it lacks a comprehensive body of practice offering an interpretative framework of the theory.

A body of LM work can be identified which follows this tendency and can be described as being involved in the construction of locative situations. Clearly, the conditions under which they operate and their methods and materials differ in keeping with the changing technological and urban conditions. But in the absence of a developed methodology to follow, these projects have an adherence to the key concepts. As such the claim to a Situationist heritage, whether desired or otherwise[22], is a valid one. A key tenet of the constructed situation was that it was “designed to be lived by it's constructors" with the aim that "the role played by a passive or merely bit-part playing 'public' must constantly diminish, while that played by those who cannot be called actors, but rather, in a new sense of the term, 'livers'[23], must steadily increase" (Debord, 1957). This definition of the participant in the constructed situation as an autonomous agent within the structure of the work and not limited to enacting a predefined script is key. The ambition of the

22 I am well aware that for many locative artists such a claim is an irrelevance but it is my position that locating these practices within an art historical framework can inform current practices and suggest future directions.

23 Thomas McDonough in his translation draws attention to the French word "viveurs", a theatrical usage with connotations of “rake” or “playboy,” noting that Debord assigns it a new meaning that recalls its roots in vivre, to live. (2002:50)

construction of situations was to facilitate and enable its participants to construct their own situations that would be "worthy of their desires" rather than merely being passive consumers of the spectacle. Constructed situations were to be "collectively prepared and developed", this would initially require an "individual to play a sort of “director” role" (Debord, 1958) but this role would fade away as the role of the "livers" took precedence. Situations were to be "an integrated ensemble behaviour in time" composed of actions set in a "transitory decor", that is artistic, social, and spatial practices producing temporary spaces which in turn produce other spaces and practices (Debord, 1958). I draw attention to this aspect of the constructed situation, the situation as activist framework, a set of procedures or toolkit through which the actions of the participants or "livers" produce the situation as providing a framework for consideration of LM as locative situation.

Central to the Situationist dispute with art practice was its separation from the everyday, and the existence of a realm of art (with the associated concern of the co-option of the Situationist agenda by the art market as "Situationism", an associated art movement) distinct from other aspects of life (Jappe,1999:67-70; McDonough, 2006; Plant, 1992:84). Rather than "merely translating and representing life" (Barnard, 2004:114), situations were to be pervasive, integrated into everyday life and indistinguishable from it. Constructed situations were to create new models of everyday life, they would be producers of space which would extend (after Lefebvre) the range of available possibilities and, most importantly, they would be actively created through the actions of their participants, not passively consumed (Debord, 1957, 1958a). Everyday life was the point of departure for Situationist thought and activity. According to Debord, "every project begins from it, and every realization returns to it to acquire its real significance. Everyday life is the measure of all things: of the fulfillment or rather the non-fulfillment of human relations; of the use of lived time; of artistic experimentation; of revolutionary politics" (1961: 69).

It is important though to separate Situationist techniques as methods of critiquing everyday life and spectacular capitalism, from the SI as an avant-garde movement. The moment of the SI as a movement has passed yet their influence persists through the power of their techniques and the accuracy and pertinence of their analysis of the urban condition. According to Edward Ball, "they taught an ensuing generation how to recycle

the detritus of official learning, how to to reinscribe texts, figures, and artifacts so as to empower them with new meanings" (1987:25). The "work of the Situationists is an essential resource " (Barnard, 2004:118), the influence of which can be seen in the Anti-Globalisation movement (Klein, 2000:282), relational art (Bourriaud, 2002:84) and participatory art (Bishop, 2006:120). I invoke this idea of the SI as an intellectual and practical resource to be drawn upon, a resource which empowers actions but which refrains from guiding them, rather than a nostalgic re-visiting of an old avant garde whose moment has passed.

The construction of situations was about creating new situations which would "provide a model for new forms of working and living (and) engage people in participatory acts of creativity that are not governed by external demands (becoming) arenas of self-directed activity that fulfil individual and collective needs" (Barnard, 2004:114). On reflecting on the structures in operation in LM art and the action of LM in shaping emergent locative technologies (Chapter Three) strong correlations between LM practice and the Situationist constructed situation can be identified.

Locative Situations

There is an identifiable strand of LM works which exhibit this tendency and which can be thought as constructing what I term locative situations. These works go beyond a model of the participant being defined by the application in favour of an open model, a set of procedures or a toolkit for participants to construct their own situation to be 'lived' independently of the artist.

I will focus on the aspects which I submit conform to the structures of the constructed situation and extend it for Locative Media. Furthermore I suggest that these works exhibit characteristics or methodological approaches that have a wider applicability within the field. My proposition is that these situations are constructed through the actions of their participants with each situation being "lived by its constructors". These projects are illustrative of an approach, shared by many projects, which allows a greater deal of autonomy to be ceded to the participant. These projects; Mark Shepard's "Tactical Sound Garden", "You Are Not Here" (Duc, El-Haddad, London, Phiffer, Zer-Aviv), the "WalkSpace" series (McGarrigle), and ″WalkingTools" (Stalbaum, Silva) , are mediated through locative technologies with the actions of the participant facilitated,

rather than determined, by the technologies whether GPS enabled device or printed map.

The "Tactical Sound Garden" (TSG) toolkit (Shepard, 2007) enables user/participants to 'plant' sound gardens in real space in an urban environment. It is based on the guerrilla gardening model of appropriating unused urban space for gardening, in effect *détourning* vacant lots and wasteland. Similarly the TSG allows users to overlay real space with locational soundscapes which can then be experienced and enjoyed by anyone with a mobile device running the free TSG software. It seeks to create a "participatory environment where new spatial practices for social interaction within technologically mediated environments can be explored and evaluated" (Shepard, 2007b). Acting as a parasitic technology, the TSG takes advantage of the dense Wi-Fi infrastructure of contemporary urban space, piggy-backing on this network, which it neither owns nor has created, turning it to its own uses to provide a creative space available to anyone to build and enjoy these locational soundgardens. In this way the TSG acts as a classical Situationist *détournement* of the urban technological infrastructure to create a playful space within the city.

I suggest that the participatory structure of the work is of greater significance. LM sound works which offer locationally specific sound are not uncommon but they are usually unidirectional, locating sounds created by the artist which can then be experienced by a public in designated locations. The TSG is, most importantly, structured as a toolkit. That is a set of tools which enable participants to plant a sound garden, to locate sounds in three dimensional space that can then be locationally accessed by others. It does not specify or describe, other than in these very loose terms, how this might work or what it might be used for. In this sense the TSG goes beyond the typical locational artwork as it affords participants the means to create their own vision of the project, to build on the structure of the project but to imbue it with their own meaning which may differ or go beyond those of the artist. In this sense I suggest that works produced with the TSG have a shared authorship between the artist and the author of each individual soundgarden. Thus the role of participants exceeds that of passive actors becoming what Debord called "active livers" of the project. In effect the project constructs what I term locative situations, which are accurately described by Debord's criteria for the constructed situation.

"You are Not Here" (YANH) presents itself as an urban tourism mashup (Duc et al., 2006) through which visitors can "visit Gaza through Tel Aviv" and "Baghdad through New York". Participants use a double sided map which, when held up to the light, overlays the map of Baghdad over New York and is used as a guide to 'visit' Baghdad's tourist sites in New York City. Each tourist site is physically marked with a sign giving a number to call to access an audio guide to the location in question. YANH, with it's deceptively simple format, thus re-frames the locations it visits through over-layering them with political questioning, forcing a consideration of the real connections between the citizens of both cities at this mundane everyday level and suggesting that it is no longer possible to consider Baghdad as a distant place unconnected to New York. While YANH has been represented as an urban game, this is serious play compared to many LM tag games. I consider it an analogue iteration of LM being locational specific with locations marked physically rather than virtually. In addition, as with Shepard's TSG, YANH constructs situations with minimal rules of engagement, leaving participants to their own devices to live the situation, or not.

The WalkSpace series of work discussed in detail in Chapter Four are similarly involved in constructing locative situations. Each project is designed to produce new forms of social and spatial relations and, in some cases, new forms of technological interaction and user practices. While each project adopts its own approach they share a common approach by establishing a framework for action. WalkSpace projects are designed to collapse the distinction between the idea of audience (or viewer) and the author, with participants becoming, in effect, the authors of their own situations, facilitated and catalysed by the framework of the work. In WalkSpace this entails the generation of routes, through both web interfaces and mobile networked location-aware devices, the activation of each route being a spatio-temporal event contingent on its own unique conditions. Each project can be thought of as acting as a mechanism for the construction of locative situations, the practice of which is then determined by their participant/creators.

Silva and Stalbaum's project "WalkingTools" (2009) also points to this new direction in LM through supplying not the work itself but a set of opensource software tools for cell phones that allow users to transform a standard cell phone, *détourning* the device and

reframing it as part of the locative artist/activist's toolkit for peripatetic projects. In this way, "WalkingTools" creates the conditions and the means to construct the situation, rather than locationally specific parameters, which can be used to enact an event. As with other projects of this type, the work can be thought of as existing in two discrete modes which combine to form the greater work. The first is the framework, in the case of "Walkingtools", sharing resources, expertise and experience to enable artists to create their own cellphone software for locative interventions without having specific programming skills. The second is the specific works created using the framework both by the project's initiators and the user/participants. In this fashion the work can be considered a participatory work in which the role of participants goes beyond that of passive actors in a scenario created by the project's authors to one in which they in effect create the work, rather than merely activating it.

Other enterprises such as "Common Sense",[24] which provides locative tools for citizen-monitoring of air quality, "Urban Tapestries" and "Mscape",[25] which offered a toolkit to create locative games, work in a similar vein by placing an emphasis on participant autonomous creation.

Recuperation

To invoke the practices of the SI it is necessary to address recuperation and make a claim for the legitimacy of these approaches. Central to the SI theory of the Society of the Spectacle was the idea that the spectacle had the power to co-opt or recuperate almost anything, and that this power could neutralise even the most radical ideas[26] and practices through incorporating them into the spectacle. It has been suggested (Bonnett, 2006; Home, 1991; Sadler, 1998) that this approach leaves no path other than that of total opposition encapsulated in the famous SI slogan *Ne Travaillez Jamais*[27]. If any oppositional activity which falls short of total opposition becomes part of the spectacle then almost anything, even Fluxus happenings (Sadler, 1998:106) or antiglobalisation protests (Bonnett, 2006), can be dismissed as 'spectacular' activity.

24 http://www.communitysensing.org/

25 Mscape was a HP initiative originating in Mobile Bristol in 2002, Mscape software was made freely available in 2007 and the Mscape community website www.mscapers.com was shut down on March 31 2010.

26 See Sadie Plant's discussion of recuperation as reverse *détournement* (1992:75-80]

27 Never Work

This is problematic and potentially destructive, even at this remove from the SI, for artists who wish to build on the legacy of the Situationists through applying their analysis, reinventing their techniques, or even constructing situations, not in a nostalgic or anachronistic way but as approaches to the contemporary conditions of the Ubicomp city (see Chapter Two). It is for this purpose that I have tried to elucidate the connections between the SI and contemporary LM art practice. I position the construction of locative situations as building on this legacy in developing critical spatial practices (Rendell, 2008) and in *détourning* emergent locative technologies so that they evolve as participatory tools. Tools with possibilities for creation rather than additional channels for passive consumption. I have previously (Chapter Three) identified the agency of LM and its mode of operation and in this chapter shown the points of crossover with the constructed situation, demonstrating that joint enterprise exists between the (unrealised) aspirations the SI had for the construction of situations and those of LM practitioners. It remains to demonstrate the role of the locative situation in the agency of LM.

The purpose here is not to advocate a nostalgic reinterpretation of the Situationist International[28]. As Guy Debord said, "avant-gardes have only one time, and the best thing that can happen to them is, in the full sense of the term, to have had their day. A historical project certainly cannot claim to preserve an eternal youth protected from blows".[29] So to claim LM art as the inheritor of the Situationist mantle is, I would suggest, largely irrelevant. The Situationists have had their day whereas LM's time has yet to come. It is important however to recognise influences, and when techniques and approaches are borrowed or re-invented, their origins, purposes and application need to be fully recognised. In gaining a complete understanding of these techniques, and the theory driving them, they assume their full potency and become powerful allies in their new application. It also serves to insulate the practice against charges of *recuperation* or dilettantism and through recognising a commonality of purpose asserts an independent existence.

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28 Alaister Bonnett notes the reverential treatment of the SI in the 1989 survey exhibitions, and the wave of nostalgia associated with the 40th anniversary of May '68 served to exasperate the matter.

29 From Debord's film *In girum imus nocte et consumimur igni* quoted in McDonough *Rereading Debord, rereading the Situationists* (1997)

I set this analysis against a background of Ubicomp where the much vaunted post-desktop scenario of urban computing is now widely available through devices which actually fit in your pocket (see Chapter Two). The resulting wave of commercial applications are clearly informed by LM art with products such as Clicmobile's Soundwalk[30] iPhone apps which locatively overlay Paris with fictional narratives, uncovering the 'real' Paris. Similarly, heritage guides are going locative with projects like the GPS enabled Berlin MauerGuide[31] which offers a LM guide along the route of the Berlin Wall following the annotative model of LM art. Add the plethora of augmented reality iPhone apps to the mix and it is clear, not only that LM art has been a key influence on these developments[32] but that its future lies not in the paradigm of delivering a relatively static data set locatively[33] but in ceding more autonomy to the participant. Such an enabling framework is, I propose, closely aligned to the SI's constructed situation. This leveraging of Situationist techniques is not about historicising contemporary practices but about realising the unfulfilled potential of constructed situations, a practice perhaps best suited to the hybrid spaces of the Ubicomp city.

Constructing Locative Situations

How does LM preserve this agency? We have spent a great deal of time detailing the nature and mechanisms of this agency but a question arises whether this is a temporary phenomena. Does this potential for shaping locative technologies diminish proportionally once they enter the everyday with established modes of operation? I propose a speculative framework which describes LM in terms of a contemporary articulation of the Situationist constructed situation and points toward a continued agency for LM. Speculative, as it is of the moment, based on an activist engagement with LM and on an extrapolation of observations of the practice thus far.

LM adds another dimension to constructing situations. As detailed in Chapter Three, LM is involved in a process of shaping locative technologies, shifting them from an imagined or scripted practice into a more engaging user-centric mode of operation. I

30 Soundwalks create audio tours with an alternative flavour such as Bronx hiphop tours and are now releasing locative tours for the iPhone http://www.soundwalk.com/

31 MauerGuide www.mauerguide.com

32 See Section 3.5 for an extended discussion on the influence of LM on location-aware applications and services.

33 What Jeremy Hight calls the bowling alley conundrum, when the pins get knocked down they reset themselves automatically (2007)

propose to describe this process in terms of the Situationist's construction of situations. In this scenario these locative (media) situations are integral in this process of shaping the technologies and their application, providing another layer to the multi-layered process. At another level these locative situations produce space which, as Lefebvre demonstrates, causes other spaces to be produced. These considerations can be extended to the technology and its uses, with locative situations introducing new user and spatial practices, causing a shift in the meaning and application of the technologies as they emerge into the everyday. Ultimately, locative technologies and their application become, to some degree, themselves producers of situations.

In this articulation, LM is engaged in constructing locative situations. These situations not only act as discrete situations, enacted in their specific circumstances, conditions and locations, but also initiate a sequence of events with the situations acting as part of a process, producing space and shaping the technology. As discussed in Chapter Three, these processes shift location-aware technologies toward a more open user-centric mode of operation, a mode of operation which is itself a producer of situations that are more open and engaging than they otherwise might have been. It can be said that these then cause new situations to be constructed which in turn influence the application of the technologies and produce space, and so forth in a feedback loop.

As a framework, the Construction of Locative Situations is, of necessity, lightly sketched to allow for a requisite flexibility. It is designed to account for the action of LM practice and to re-frame it in terms of the constructed situation; as an activist practice which seeks to intervene in everyday life to create situations and to provide the circumstances through which the emergent field of location-aware technologies and their application become tools that enhance and augment everyday life, rather than vectors of passive consumption. It is based on the analysis of LM practice presented in this document; as a body of art work which sets out to shape location-aware technologies, and a reading of the Situationist constructed situation as an activist resource which calls out to be reapplied as contemporary practice. The framework is an experiential one, based on an analysis of a body of practice, which accounts for its observed agency and seeks to identify the associated modes of operation. It is not intended to guide the practice nor to straitjacket it in a quasi-historical framework to be employed to identify what is and isn't Locative Media. However, through establishing

the connection with the Situationist constructed situation, locative situations serve to foreground LM's foundational principle of activist engagement and offer an entry point into the resources of Situationist thought and praxis. The ambition of the constructed situation was to transform moments of everyday life through the development of a mechanism through which individuals could change their own situations. They would become creators rather than merely consumers, through constructing situations worthy of their desires rather than consumers of existing situations (Debord, 1957).

This is a point of strong correlation between LM and the SI. The SI were not content to merely analyse and comment on the poverty, as they saw it, of urban life. They were determined to change it through a concerted plan of action. Similarly, LM sees the potential of locative technologies to enhance and augment everyday life. One which is coexistent with an awareness of the potential for these tools to become tools of control, surveillance, and domination alongside an understanding that the trajectory of emergent technologies is not fixed. Things might be otherwise, and as with the Situationists, LM seeks to provide alternative ways of being, alternative modes of operation which work to realise the potential for these technologies whilst ameliorating their harmful aspects. LM's ambition to transform location-aware technologies, to realise their potential as tools which enhance and transform everyday life, is achieved through expanding the range of allowed and expected uses and applications to which these technologies are put. Acting, in effect, to change the understanding and meaning of location as articulated through location-aware technologies and their associated devices, applications, and practices.

This framework (following from the arguments developed on interface in Section 3.2) also positions the practice as spatial interface which connects its participants to the space of the city. This notion of the locative situation as spatial interface is key to the agency of LM. This is not a panacea but a prospect for future situations, an emergent model as befits an emergent practice, and a starting point for a mode of engagement which will continue as locative technologies are increasingly integrated into everyday life.

5.4 Locative Situations as Spatial Interface

We have previously established the role of spatial practices in producing the space of a

city. Locative technologies serve to expand the range of possible spatial practices, enabling novel categories from the now everyday practices of mobile telephony (Ling and Yttri, 2002; Ling, 2004; Urry, 2007) to the newer practices of social location sharing (see Section 2.3) made possible through their enhanced technical capability for locating and tracking the subject through ubiquitous location-awareness and network access.

Spatial practices must be considered in the light of Lefebvre's contribution to spatial thinking which recognises space not as an object or an artefact but as a practice or a set of procedures. Lefebvre sees social space not as a fixed object but as the dynamic 'outcome of a sequence and set of operations' (1991:73). It is "social space which permits fresh actions to occur, while suggesting others and prohibiting yet others" (1991:73), acting as a tool of production, or of it's own reproduction. The emphasis with Lefebvre is that as space is in a state of continuous production, a state of continually being brought into existence, then it is the process rather than the product which is of most interest, and this process is a contested one. The processes of ubiquitous computing and locative technologies are imbricated in these processes, not as discrete computational objects but rather as practices, ensembles and flows (Galloway, 2004, 2008; MacKenzie, 2002). Part of the "haze of software" (Thrift and Amin, 2002) which mediate the contemporary experience of the city.

We have derived what I term the 'Locative Situation' from the Situationist constructed situation and connected it with the spatial practices of LM. I have proposed that the agency of LM can be accounted for by the double action of the locative situation; as an interface to the underlying technicity of locative technologies, and as a spatial interface, providing an interface layer to the space of the city and acting as producer of space (in a Lefevrian sense). In effect the spatial practices of LM are the nexus through which the work is enacted. It is necessary then to return to the practice component of this research to reconsider these works as spatial interface, serving as specific examples which, of course, operate alongside a myriad of other LM works as part of this ongoing process of engagement.

The WalkSpace projects are spatially enacted providing the user with a peripatetic mode of engagement. Or in other words they are walking projects which invite the user on a

walk, constructed according to varying criteria. As we have discussed the role of the WalkSpace projects as interface layer (see Section 4.3) to their underlying technology, it must be emphasised that they similarly act as spatial interfaces in their provision of procedures for operating in space. In addition, they can be considered as producers of space, producing space through the spatial practices they foster. This follows in the broader tradition of walking art with its ability to produce temporary spaces through the logic of the artwork, as discussed in the previous chapter. Walking art as an urban mode of practice coincides with thinking among urban philosophers on the role of art practice in rethinking the urban condition. From Henri Lefebvre's belief that "the future of art is not artistic, but urban" (1996:173) and Guy Debord's assertion in his "Report on the Construction of Situations" (1957) that "something that changes our way of seeing the streets is more important than something that changes our way of seeing paintings". In "Art and the City", Nicholas Whybrow argues for the expansion of the notion of context, familiar from the consideration of the role of site in art (after Kaye, 2004; Kwon, 2002; Smithson, 1967), to take into account "a broad conception of the urban itself as a multipli-city of possible locations and practices" (2011:36).

At the core of "JoyceWalks" (JW) is the practice of walking in the city mediated by a generated map that, rather than assist the user in way-finding and navigation, directs her on a route which by virtue of its relocation has been rendered devoid of direct meaning, becoming instead a palimpsest over which the participant must inscribe her own meaning. JW presents many of the difficulties and opportunities of art works which engage with technologies. It seeks to offer a re-interpretation of the technology while simultaneously evading multiple levels of potential control configured into the interwoven platforms on which it is built, and to achieve this goal must operate within the restrictions imposed to create an operational project. Ultimately it succeeds or otherwise as a set of procedures that enable user-generated spatial practices, its participants construct locative situations which intervene in urban space acting as a disruption to the logic of the Google Maps mashup as a Cartesian locator of products and services. The critique of the conventions of the mashup, as web 2.0 user generated content (Gartner, 2009; Scholz, 2008), is aligned with the spatial practice of the work, providing both an interface to the space of the city and a mode of engagement with the mashup that alters the type and quality of the engagement.

The "WalkSpace" App (WS), as with JW, provides a platform for action. It suggests a method of operation but aims not to overly define this mode of operation other than to suggest that it involves walking (though even walking is not strictly necessary). The ambition is to provide a loose toolkit for constructing locative situations which facilitates walking in the city by roughly sketching out a mode of operation, a prescription for action which provides ample room for the participants to fill in the blanks, and instil their own concerns and desires into the work. There are, I recognise, advantages and disadvantages to this approach. The disadvantages are that by not defining the objectives of the work, or perhaps gamifying it, that users will fail to engage or be unclear as to what is expected of them. However, the purpose of WS is to provide an impetus to wander with purpose, in the same way that the classical Situationist *dérive* adopted techniques designed to overcome the habitual such as navigating Paris using a map of London as a guide, or following a set algorithmic sequence of instructions (such as first left, second right, second left). In setting the routes for WS, the project seeks to avoid excessive scripting where participation amounts to carrying out the artist's instructions, indeed the very condition I argue that LM has set itself against. An additional layer of permutation is also added through the ability for any user to independently add additional routes to the app, an addition which acts to extend the app architecture beyond its own confines through the mechanism of importing from external data sources.

In JW and WS, remapped routes form a conceptual and temporal re-imagining of space which is contingent on the conditions of its own performance. It can be approached as a Situationist *dérive*, breaking free of the habitual and exploring the psychogeographical contours of the city. Alternatively it can be understood as disruptive, challenging the view of map as navigational device focused on the instrumentalised goal orientated journey from point A to Point B. JW and WS recast mapping as a phenomenological experience where it is the act of passing (deCerteau, 1984:97), rather than the destination, which counts. Similarly with "Walking Stories", where the objective is not to traverse the village main street to reach a (shopping) destination, but rather to experience the journey and to re-encounter familiar places in a new light, through a re-enchantment of space enabled through location based narratives.

"NAMAland" offers yet another model of spatial practice based on the walk, with

NAMA tours navigating the legacy of the Irish financial collapse through its physical infrastructure of buildings, sites and carparks. In this case the walks serve to make visible the abstracted data of lists of buildings, properties, loans, and developers associated with NAMA, mapping it and providing a method of contextualising it as part of the urban infrastructure and the lived space of the city. The project builds on the existing practices of location-awareness, that of being able to interrogate the surroundings for context sensitive information. NL adds a political context to this through its addition of a layer of geolocated, context sensitive, political information, bringing NAMA and its implications to street level. This spatialisation of data serves to concretise the arcane details of the financial collapse, uncovering connections between bailout mechanisms, bank guarantees and elaborate Byzantine corporate structures that serve to obfuscate property ownership. The aim is to re-connect it to physical space, to buildings and structures and the everyday life of the city and its inhabitants. The spatial practice of "NAMAland" makes visible what Manuel Castells terms the "space of flows", the global abstracted movements of capital which have come crashing down to earth, floundering in the Irish property market.

The practice of being able to interrogate your surroundings for specific information for decision making are a well established benefit of locative technologies, with well known applications such as Yelp. NL adds a turn to this with the addition of 'grey' politically sensitive information which acts as a tool of political critique, and in this case adding a layer of information which is not otherwise available. The process of walking NAMAland[34] itself guided by the app then becomes a mobile forum for debating the issues involved (see Figure 5.1), with the nature of the debate being led by the participants in response to their location. The "NAMAland" walks, in fact, become the epitome of hybrid space. Real actions and conversation are facilitated through a data overlay that identifies locations of interest which would otherwise remain hidden, with participants' input adding another layer of personal experience, anecdote, and personal knowledge.

A typical example of this occurred on one tour with a walker who had worked as a driver for a top ten NAMA developer,[35] regularly driving potential investors around the

34 NAMAland the area in Dublin rather than the artwork

35 The Irish Times published a list of the top ten NAMA developers ranked by the value of their loans in February 2010, http://www.irishtimes.com/newspaper/frontpage/2010/0218/1224264715434.html

developer's sites which coincided with the route of the NAMAland tour. Now unemployed, his employer bankrupt, he was retracing his investor route and was able to share his experience of NAMAland with the other participants.

Figure 5.1 The author speaking on a "NAMAland" walk in Dublin's Docklands.

The spatial strategy of "WalkSpace:Beirut-Venice" (WBV) was a conscious attempt to realise a Situationist *dérive* based on available accounts of their practice, but to augment the practice with location-awareness and mobile communication. Google Latitude was chosen as a technology to track the participants movement as it represents a "calm technology" (Weiser and Seely-Brown,1996), a technology the action of which recedes into the background. Whereas using GPS to track participants is a core technology in LM work, Latitude differs in that rather than the dedicated GPS unit employed in early LM works, it is an unobtrusive app, put forward as a social tool to share location with your friends. To an extent Latitude disavows its identity as a tracking technology, diminishing this aspect of its operation to normalise the seemingly innocuous notion of 'location sharing' as opposed to real-time tracking. This worrisome highlighting of the frictionless nature of tracking is to some degree offset by knowledge of the role that video streaming applications, another technology employed in the work which aspires to frictionless sharing, have played and are continuing to play in the Arab Spring

(Cottle, 2011; El Hamamsy, 2011) and other activist movements such as the Occupy Movement. WBV clearly demonstrates that internet enabled location-aware mobile devices are ideally suited to facilitate and extend the urban interventions both carried out and imagined by the Situationists, extending and expanding the constructed situation as the locative situation.

Interface and Agency

In considering LM as locative situation, following from the Situationist constructed situation, it is necessary to unpack what is at stake in this approach and to uncover the ways in which this understanding of LM is central to the agency of LM. I have outlined the mode of operation of the "WalkSpace" series (see Chapter Four), uncovering the works as multi-layered interfaces which connect the user/participant to the underlying technology (which in turn access its core technicity, or potential to effect change) and the spatial practices which act as interface to the space of the city, producing new space. To complete the picture it is necessary to address "WalkSpace" as interface or, to adopt the language of HCI, to address the user practices which structure the multi layered interface, allowing it to function as an artwork and as a mode of engagement which is meaningful to its users.

When speaking of the agency of LM it is worth re-iterating that it is exercised in an incremental manner. We do not expect the killer app, the game changer, after which nothing is the same. Although this may happen, if the history of technology teaches anything, it is that it is unpredictable. A more probable scenario is that the ambitions of LM art for the technologies they employ will become assimilated incrementally into the mature user practices and usage modes. This is not necessarily a linear cause and effect, in some cases it might be, but often the effect is more subtle. "Urban Tapestries" is an example whose influence is evident in the application of current location-aware applications, not as a direct connection with a plethora of applications and services explicitly aimed at letting communities annotate their local areas,[36] but in the more subtle concept that location-awareness lends itself to user interaction and annotation. This leads to a tendency toward the expression of location-awareness as a two way channel that provides the user with tools with sufficient openness and recognises that

36 Though this is quite a genre in itself too

their success depends on the user practices which will grow up around them. In this way mobile video streaming tools, such as Bambuser[37], originally envisaged as a video social networking tool, can acquire multiple uses such as the live documentation and reportage of the Arab Spring protests. The global Occupy Movement similarly has employed live video streaming services such as Livestream and Ustream, services which are commercial and advertising supported, as a tool to connect their encampments[38]. This emphasis on the user as adding meaning and extending the service, notable in recent location-aware applications (see Section 3.6) goes beyond a scenario where the relationship between the subject and the application is simply one of data-mining the individual and her location and broadcasting a context sensitive message.

The component WalkSpace projects each channel users in certain directions through the practices they establish and through their provision of a model of user engagement. The ambition is that the structure of the work should not overly constrain the participants, but that they should be enabled to construct their own situation to become "active livers" of the project. Working with new and emergent technologies, LM introduces new user practices which, when they resonate with their audience, can become permanently inscribed in the technology.

"NAMAland" arose from a desire to leverage AR technology, acknowledging its limited functionality, to augment real space with a layer of data which could recount an alternative narrative. "NAMAland" was firstly a research led project which had its origins in this inquiry into the implications of artistic engagement with emergent locative technologies. The initial impetus was to create an AR project, in that sense it was technology led but not technologically determined. AR, as a subset of LM, appeared to offer significant opportunities as an activist tool to locate context sensitive political data in real space, to visualise that data and deliver it directly to a broad range of mobile devices. Working within the available platforms for delivering AR application renders production and delivery of an app accessible to a broader range of artist developers. The required level of technical expertise is significantly less than for a native app for the iPhone, artists with a basic level of PHP and an ability to hack through examples of code can successfully produce an AR Layar. In considering activist

37 www.bambuser.com, video shot on bambuser with mobile devices is automatically saved and made available on their website

38 OccupyStreams lists 240 streams from occupy camps internationally http://occupystreams.org/

apps, the barriers presented by Apple's appstore approval process are worrisome,[39] and publishing through a third party app such as Layar serves to avoid the scrutiny of the App Store censors. "NAMAland" was also a conscious attempt to demonstrate the technology as an activist tool for delivering political content where it was otherwise unavailable, with the intention of establishing AR as a tool for activism and the dissemination of alternative and oppositional data and information as a legitimate and expected use of the technology.

The popular success of "NAMAland" combined with its wide coverage in the mainstream media meant that it had in some fashion come to the attention of a large group of people beyond the sphere of its direct users. It is to be expected then that for a great number of people, and my personal anecdotal evidence backs this interpretation, NL was their first encounter with the emergent technology of AR. If we say that NL was the first AR application which had meaning for them, in that it addressed an issue of concern and provided them with information not obtainable from other sources, then this inextricably connects the technology with its application for activist political use alongside its other emergent uses.

"JoyceWalks" and the "WalkSpace" App share an approach which involves the overlayering of real space with a conceptual remapping derived from spatially expressed cultural trails. These projects in one sense work within the established practices of web mapping and what has been called "neogeography" (Turner, 2006). They use the tools of Google maps and the iPhone Mapping service (powered by Google) to navigate the city and create annotated personal maps, introducing new practices which *detourn* the logic of maps as a technology of navigation with techniques to generate randomised routes and devise novel and algorithmic ways to get lost. These techniques, which build on the Situationist *dérive* and on a tradition of walking art (see Ararya, 2004; Careri, 2002; Davila, 2002), augment existing practices in ways which suggest how these tools might be used for other than the obvious. The work that these projects do is twofold. On one level it is the work of art which creates a space of encounter as participants walk the routes generated, either self initiated or as part of artist led performances. At another level it expands the range of permitted practices even

39 See Section 3.3 for an account of the Appstore process and see Zittrain (2011) for the wider implications of the Appstore's gatekeeping.

if these are, as in this case, conceptual art practices, they nonetheless broaden the range of practices available, opening up a field of possibility which can be further expanded on.

As practices for art they work in a cumulative manner alongside other works, disruptions, and emergent practices. Each eking out their respective grounds, incrementally creating the conditions for further expansion of the range of permitted and normalised practices associated with the technology. The locative situation can be seen to provide the framework which facilitates the participants in developing a necessary set of procedures and conceptual approaches through which LM shifts the meaning of the technologies, enabling an expanded range of uses, approaches and applications. This framework is sufficiently flexible to allow for actions which are tuned to the situations they encounter, and as conditions and technologies evolve and change they offer a continued engagement through responsive procedures and approaches that ensures a continued agency for LM.

5.5 Summary

This chapter has argued that there exists joint purpose between the approach, ambitions and concerns of the Situationists and Locative Media which goes beyond superficial similarities. Building on this I propose a framework for the consideration of LM which builds on and extends the Situationist constructed situation.

While the influence and application of psychogeography, the *dérive and détournement* in LM have been noted and explored, little has been done to connect LM to the declared sole objective of the Situationists, the construction of situations. I attend to the connections between the two and propose that the constructed situation has exerted the more significant influence on LM practice. The chapter establishes the centrality of the construction of situations to the Situationist project but recognises that this aspect of the SI program remained unrealised. I draw attention to the constructed situation as a framework for action, the SI were not content to merely analyse and comment on the poverty, as they saw it, of urban life, they were determined to change it through a concerted plan of action. The ambition of the construction of situations was to facilitate and enable its participants to construct their own situations which would be worthy of their desires rather than merely being passive consumers of the spectacle. I identify a

similar desire in LM which sees the potential of locative technologies to enhance and augment everyday life and seeks to intervene to transform these technologies to make them "worthy of their desires".

I develop a speculative practice-based framework which sees LM as being involved in the construction of locative situations. Following from the Situationist constructed situation, LM's locative situations are seen to act as interface serving to both interpret the underlying technologies of location and introduce spatial practices which produce space in a Lefebvrian sense.

I position LM's appropriation or re-application of the constructed situation not as nostalgiac re-interpretation but as an activation of a resource, a resource which is simultaneously a mode of operation and a conceptual approach. I demonstrate, with reference to practice, that this re-application of the SI's *Constructed Situation* as LM's *Locative Situation* provides a necessary set of procedures and conceptual approaches through which LM shifts the meaning of the technologies, enabling an expanded range of uses, approaches and applications. The construction of locative situations is, it is argued, a sufficiently flexible framework to ensure a continued agency for LM in the face of rapidly deploying locative technologies.

Conclusion

In this dissertation a case is presented for thinking about the agency of technological art through the examination of the narrow specificity of Locative Media Art (LM). LM is afforded special consideration for a number of reasons. Firstly its development has coincided with the moment of emergence of location-aware technologies into everyday use. This presents a rare insight into both the interdependent relationship of technological art practice, its underlying technologies and the degree to which they influence and are influenced by each other at this early and significant phase in the emergence of a new technology. Secondly, as LM artists were among the early adopters of these new to market locative technologies, it was possible to clearly identify the ways in which their influence was exerted and correctly attribute their influence, something which is not achieved so readily with more established technologies. Finally, I draw attention to the declared intentionality of the practice. LM as practice arose from a prescient analysis of the potential for location-aware technologies, tempered by an acute awareness of an alternate aspect as tools of surveillance and control. LM set out to shape these technologies to align them with a specific vision of the potential of the technology. To a considerable extent this has come to pass, and the forms of everyday location-aware products, applications and practices today reflect the foundational ambitions of LM practitioners.

The dissertation aims to reveal the nature of this agency, to identify possible mechanisms which uncover its action, and develop the beginnings of a framework for its consideration which might have broader applicability in the wider field of technologically mediated art. Practice is central to this account, agency is about effecting change and the thesis seeks to identify the ways in which the practice of LM has altered outcomes and shaped locative technologies. This has been led by an analysis of LM practice which contextualises it within the technologically mediated environment of the contemporary city, traces its origins and antecedents within fine art practice, and identifies the foundational ambitions of its practitioners. This near-historical account was conducted in parallel with the production of the WalkSpace series of LM art which inform and are informed by the research. The five projects considered in this dissertation address different aspects of LM practice. From connecting LM to, and building on, its Situationist past to engaging with the most recent developments in

locative technology as activist political tools. This is an activist practitioner's account and as such has different ambitions than say an art historical or a technology studies treatment, the focus is always on the potential for the practice. The ambition of this document is to provide a snapshot account of LM which unravels the strands of the practice, identifying the work it does, and pointing toward future modes of engagement.

In considering LM, the focus is not as much on the specific artworks, their enactment and the logic of each work. Rather the dissertation seeks to identify patterns in these works related to their understanding and articulation of location and in the nature of their relationship to the technologies employed. LM is positioned as deeply integrated in the extensive infrastructural networks of pervasive and ubiquitous computing, relying for its existence on these systems which appear to offer limited, if any, possibilities for human agency. This connection has been the source of controversy with well aired criticism of what has been characterised as the practice's techno-utopian stance within this "imperial infrastructure". The research reconsiders this interconnectedness as a source of agency at a time when preserving separateness from technological infrastructures is no longer tenable or desirable. The dissertation thus acknowledges this interdependence but places it, perhaps counter-intuitively, at the core of its agency, driving a sustained engagement with the technology.

LM is located within an extensive network of pervasive computing and urban computing, acting as an aleatory product of these networks, where the very act of becoming location-aware needs to call upon the infrastructural networks enabling the hybrid positioning systems of mobile devices. While deCerteau's notion of the tactical describes the action of working within networks and systems over which the individual has no control, the limitations of tactical action as outlined by Lovink (2005) are that it lacks a sustained engagement capable of altering the conditions under which it operates, in effect rendering it always reactive, never constitutive. The dissertation identifies in LM such a sustained engagement which overcomes these limitations while retaining some of the disruptive action of the tactical. Though these pervasive technologies and systems appear initially as black-box systems, they are seen as contingent, incomplete systems that still offer entry points for artistic engagement and agency which carry the potential to generate new knowledge and new understandings of their significance and

application. LM is established not only as technologically mediated art but one which is situated within a tradition of situated art practice. LM calls on this legacy in its introduction of a range of engaging spatial practices which, as they are assimilated into the technology, work to recast our understanding of location through rich user practices that continue and extend the tradition of situated art practice. Ultimately the dissertation unpacks the complex relationship between the practice, the technology, and its context and in this process brings to light the agency of LM and technological art. This understanding is used to develop a speculative framework for the consideration of this agency which offers a base for understanding the nature and mechanisms involved and points toward a continued agency in a fast changing climate of technological change.

Contributions

This thesis develops an analysis of Locative Media which considers the work that technological art practice does in influencing the form and application of emergent technologies. It goes beyond a consideration of technological art as appropriating technologies in a tactical fashion to argue that these art practices represent a sustained engagement with the technologies deployed which causes the use, understanding and application of these emergent technologies to be different than they otherwise might have been. This is supported by the creation of a body of artwork which supports the thesis's arguments and extends the field of Locative Media. The thesis constructs an argument for the agency of LM and develops a mechanism for this agency. It concludes by proposing a speculative practice-based framework for LM art based on the Situationist constructed situation which accounts for its agency and, it is proposed, preserves this agency in the face of rapidly developing locative technologies. While the thesis considers the narrow specificity of LM it suggests that this approach has wider applicability in the broader field of technological art. I outline the specific contributions of this thesis below.

The thesis contributes a detailed analysis of the field, presenting an account of Locative Media which situates it in a wider context as an art practice which draws on an art historical lineage whilst operating within the technological infrastructure, and all that entails, of the contemporary technologically mediated city. An updated taxonomy of LM practice is developed based on its methodological approach rather than on the specific technologies employed.

I advance a case for the agency of Locative Media, and develop a mechanism for this agency drawing on Ziarek's treatment of art and technology in the "The Force of Art", concepts of the shaping of technology from Science and Technology Studies (STS), and software studies. This argument is constructed on Ziarek's notion of technological art as 'Forcework', which acquires agency through operating outside of power causing a fundamental rethinking of the meaning of the technology. I develop a case for the forcework of LM which overcomes weaknesses in Ziarek's stance toward the role of practices in the agency of technological art. This positions the artist as an 'augmented-user', developing LM as an interface layer which, in connecting the user to the underlying functionality of locative technologies, offers alternative interpretations, introduces new usage modes and ultimately shifts the meaning and application of the technology.

The practice component of the thesis has made significant contributions to the field of Locative Media through the creation of the five projects which span the range of location-aware technologies; with the paper maps and Google maps mashups of "JoyceWalks", the location-aware networked mobile device of the WalkSpace iPhone App, the data driven Augmented Reality of "NAMAland", the location-aware place based narrative soundwalk of "Walking Stories" to the updating of the traditional Situationist *dérive* of "WalkSpace:Beirut-Venice". These projects have introduced user practices which broadens the range of acceptable practices for locative technologies and extends the field of LM.

The thesis proposes a speculative practice-based framework for the consideration of LM, the construction of locative situations, which it is proposed offers to continue the agency of LM in the face of locative technologies becoming part of the everyday. This framework is developed from the Situationist constructed situation and calls on the Situationist legacy as an activist resource to be accessed and built upon. While the Situationist influence on LM is often cited, the thesis details the connections between the practices and drawing on a body of literature on the SI builds a case for LM's leveraging of the unrealised Situationist constructed situation.

Future Directions

The framework of the construction of locative situations developed in this dissertation is a starting point which has been formulated at a time when these processes are still in progress. There is much work to be done in developing and extending it and in further assessment of its effectiveness and indeed validity. This document has emphasised the urgency of this approach from a practitioner's viewpoint involved in engaging with these technologies at the moment of their emergence, where the imperative is one of action before the moment of opportunity has passed.

In some respects this has been a fortunate research process in that the wagers it made in the beginning have paid off. The dangers of working with emergent technologies are that what appear to be promising technologies worthy of consideration can lose their lustre. This study of LM has coincided rather neatly with locative technologies and location-awareness assuming a significant, if as yet unrealised or undecided, role in the mobile internet which places location and its consideration at the heart of unfolding technical, social and commercial developments that have profound implications for spatial practice and locational privacy. The work of this dissertation makes a contribution to this current and future debate whilst offering clear paths for future work.

The convergence of the burgeoning opendata movement, which sees the availability of vast swaths of data about all aspects of the operation of our cites and geographical space, represents a significant and important area for future work. In this area, "NAMAland", with its combination of data and augmented reality platforms on location-aware mobile devices, has begun to tap the vast potential of this field. Future developments of this research will include the spatial implications of data and the potential for the locative situation to be a data driven situation. This convergence of opendata and location-aware devices and systems is at a similar place as LM with the new resource of opendata in search of an application. It can be considered that the lure of the potential of opendata has in some ways led to a data gold-rush as cities and governments release data to enable the smart economy without a clear vision of the form that will take. At the risk of attempting to predict future outcomes, it is likely that as the field matures we will see access to city data becoming more and more restricted as the commercial and governmental implications become better understood. Indeed at a

Dublinked[1] forum it was mentioned that data on water usage in Dublin city was restricted as commercially sensitive when Guinness objected that competitors would be able to deduce from water usage data the output of their Dublin brewery, currently a trade secret.

The final area of future development is an area only briefly touched on in this document, that of locational sound, but one which has always had a presence in LM. Sound, both as sound-art and as generative location driven music which responds to environmental cues, is anticipated to become more significant especially with the increased processing power of the latest smartphones and widely anticipated devices such as the iPhone 5.

Locative Media as an art practice which engages and shapes emerging locative technologies will continue to contribute to our understanding and articulation of location. It is hoped that this dissertation informs and contributes to these future areas of research.

1 The Dublin City opendata initiative.

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Appendix A: Publications

The progress of this dissertation has been aided by a number of publications on aspects of the research which I have written and presented at conferences internationally. I am indebted to the feedback both at the stage of peer review, during the process of conference paper and journal article submission, from reviewers and editors and in presenting this research to colleagues and peers at these conferences. This has helped me refine the research, validated my research directions and kept me focused on my goals.

The five publications selected for inclusion are:

McGarrigle, Conor (2010a) 'The construction of locative situations: locative media and the Situationist International, recuperation or redux?', *Digital Creativity*, 21(1), pp. 55-62.

McGarrigle, Conor (2011c) 'JoyceWalks', In Burroughs, X. (ed.), *Net Works: Case Studies in Web Art and Design,*, New York; London, Routledge.

McGarrigle, Conor (2009c) 'The Construction of Locative Situations', In Penny, S. (ed.), *Proceedings of Digital Art and Culture*, Irvine, CA, UC Irvine: Digital Art and Culture 2009, pp. 55-62..

McGarrigle, Conor (2011b) 'How locative media art set the agenda for mobile location aware apps (and why this still matters)', In Aceti, L. (ed.), *Proceedings of ISEA 2011 Istanbul*, Istanbul, ISEA International.

McGarrigle, Conor (2009a) 'Joyce Walks: Remapping Culture as Tactical Space', In *Proceedings of ISEA 2009 Belfast*, Belfast, ISEA International.

In addition to these the following papers formed part of the research process:

McGarrigle, Conor (2011a) 'AppSpace – how location aware art apps recode space', In DRHA 2010, University of Nottingham Ningbo.

McGarrigle, Conor (2010b) 'Walking, Art & the iPhone: a case study of the iPhone as a platform for walking art.', In *Digital Resources for the Humanities and Arts*, DRHA 2010, Brunel University London.

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The construction of locative situations: locative media and the Situationist International, recuperation or redux?

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The construction of locative situations: locative media and the Situationist International, recuperation or redux?

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Abstract

A trend exists within locative media art of invoking the practices of the Situationist International (SI) as an art historical and theoretical background to contemporary practices. It is claimed that locative media seeks to re-enchant urban space though the application of locative technologies to develop novel and experimental methods for navigating, exploring and experiencing the city. To this end, SI concepts such as psychogeography and the techniques of *detournement* and the *dérive* (drift) have exerted considerable influence on locative media practices, but questions arise as to whether this constitutes a valid contemporary appropriation or a recuperative co-option, serving to neutralise their inherent oppositional qualities.

The paper will argue that there is an identifiable strand of locative art works which through their contingent re-appropriation of situationist techniques can be thought of as being involved in the 'construction of locative situations', and that these (re)applications of situationist practices point to future directions for locative media's artistic engagement with the accelerating ubiquity of locative technologies.

Keywords: locative media, locative art, situationists, location, construction of situations, psychogeography

1 The Situationist International and the construction of situations

1.1 The Situationist International

The Situationist International was a small avant-garde group active between 1957 and 1972. In total the SI had seventy members of which forty-nine were expelled, and when the group was disbanded only four remained. They rose to prominence for their role in the May 1968 events in France,[1] and since their demise have been brought back to popular attention by the likes of Greil Marcus (1989), Malcolm McLaren,[2] and through the major 1989 Pompidou retrospective.[3]

In their 1957 founding conference they declared the construction of situations as their entire programme albeit, as befits the declared provisionality of situationist thought, a transitionary one (Debord 1957). Constructed situations were to build on the existing practice of the *derive*, which had its origins with the Lettrists[4] and the surrealists. The *dérive* was described as a 'passional journey out of the ordinary through a rapid changing of ambiences' (Debord 1957), and later defined as a 'technique of rapid passage through varied ambiences' involving 'playful-constructive behavior and awareness of psychogeographical

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effects' making it 'thus quite different from the classic notions of journey or stroll' (Debord 1957). Debord acknowledged the *dérive* as a rough experiment which foreshadowed the construction of situations, but whereas the *dérive* was a discrete, self-contained event, the intention was that constructed situations would be more pervasive, extending the playful creativity of the *dérive* to all aspects of human relationships (Debord 1958).

The situationists believed that 'a person's life is a succession of fortuitous situations . . . so undifferentiated and so dull that they give a definite impression of sameness' and that 'the rare intensely engaging situations found in life only serve to strictly confine and limit that life'(Debord 1957). To counter what they saw as the banality of everyday life, they proposed actively constructing situations rather than merely passively consuming or experiencing them. Rather than describing and interpreting situations, the situationists would seek to transform them. If, as they believed, human beings are 'moulded by the situations they go through' and 'defined by their situation', then they need the power to create situations worthy of their desires rather than be limited to passive consumers of the situations in which they find themselves.

1.2 The constructed situation

The constructed situation they described as 'the concrete construction of momentary ambiances of life and their transformation into a superior passional quality' (Debord 1957),[5] producing situations which were described as 'ephemeral, without a future. Passageways. Our only concern is real life; we care nothing about the permanence of art or of anything else' (Debord 1957). The construction of situations was to be a revolutionary programme in which the 'radical subject demands to construct the situations in which it lived' (Plant 1992, p. 39), one which was to be approached as an experimental undertaking for which situationist techniques would have to be invented. A programme was outlined; it would start with small scale experimentation from which a set of tools and procedures would be developed, leading in turn to the experimental discovery and verification of laws for the constructed situation (Debord 1957).

However, despite its centrality to the situationist agenda, the practicalities of the actual construction of situations were never fully elucidated. According to Simon Sadler, 'there isn't any evidence that a situation was ever constructed as prescribed', and that the 'program the Situationists set themselves was so ambitious and uncompromising that it condemned itself to failure' (Sadler 1998, p.106).

2 Locative media as a situationist practice

2.1 Situationist influences

The influence of the situationists at both an explicit and an implicit level is evident in locative media. In their influential 2006 paper 'Beyond Locative Media', Marc Tuters and Kazys Varnelis (2006) proposed that locative media can be described as either annotative or tracing, which they equated to the situationist techniques of *detournement* and the *dérive* respectively. The annual New York-based Conflux Festival of 'contemporary psychogeography' makes explicit its desire to re-enchant and reclaim the city through reinventing situationist techniques for the contemporary city with an emphasis on urban play. Festivals such as Come Out and Play in New York City and Amsterdam and London's Hide and Seek, which regularly include locative media alongside less technologically influenced urban interventions, endeavour to ludically transform the city, implicitly drawing on the 'playful-constructive behavior' (Debord 1958) of the *dérive* and the 'striving for playful creativity' (Debord 1957) of the constructed situation. Mary Flanagan (2007) has noted the connection between the urban play aspects of locative media and psychogeography, distinguishing between technologically mediated (locative) urban games which add to the commodification of the city and those which foster critical engagements with place. Numerous peripatetic locative works adopt the *dérive* with varying degrees of commitment to its underlying theory. Works such

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as Teri Rueb's *Drift*,[6] Valentina Nisi's *Media Portrait of the Liberties*[7] and *34n 118w*[8] (Knowlton, Spellman, Hight) typify projects which offer locative media *dérives*. Christian Nold's ongoing *Biomapping* project implicitly invokes psychogeography as a scientific practice, as it measures its participants' emotional response to their location through combining sensors measuring galvanic skin response with GPS units and mapping the results on Google Maps. Projects such as Social-Fiction's self-declared algorithmic psychogeographical. *Walk* achieve a similar locative result by adopting the instructional sequences[9] of later situationist *dérives* with the more prosaic technology of pen and paper, illustrating, I would argue, the common purpose of much locative art, whether it employs locative media or not.

2.2 Contemporary relevance

While there is no doubt as to the influence of the SI on locative media practitioners, questions do arise as to what is the nature of this influence. Is it simply a nostalgic harking back to an old avant-garde movement when it would be more productive to consider more recent practices like, for example, walking artists such as Hamish Fulton, Francis Alys or even Richard Long? Does the very mention of the SI draw locative media back into old discussions which add little to advancing the field? It is important not to overstate the influence of the SI on locative media; it is merely one of a rich tapestry of influence but one, nonetheless, that it would be remiss to disavow. I would argue that there is a substantive connection between the two practices. The situationists' spatial concerns and focus on re-appropriating the city for its inhabitants, of becoming active participants rather than being 'passive spectators in their own lives' (Barnard 2004) mirror those of contemporary locative artists. Thomas McDonough (1994) noted that the situationist programme, psychogeography, the *dérive*, *detournement* and most importantly the constructed situation was 'an attempt to change the meaning of the city through changing the way it was inhabited', an ambition, I would venture, shared by locative media. While the influence and application of psychogeography, the *dérive* and *detournement* have been noted and explored in other places, little has been done to connect locative media to the declared sole objective of the situationists: the construction of situations; and I suggest that it is here where the most productive connections can be made.

3 The construction of locative situations

3.1 Constructing situations

I propose that within locative art there exists a tendency which amounts to a contemporary practice-based articulation of the principles of the constructed situation (Debord 1957) which points to future directions for locative media art. The construction of situations was at the level of practice a lightly sketched concept, and as the promised rules and laws for constructing situations were never developed, and with a recognition that the situationist tag is one which has been widely overused, I propose that many locative media art projects can be thought of as being involved in the construction of locative situations. Clearly, the conditions under which they operate and their methods and materials differ in keeping with the changing technological and urban conditions, but in the absence of a developed methodology to follow, these projects have an adherence to the key concepts. As such, the claim to a situationist heritage, whether desired or otherwise,[10] is a valid one.

A key tenet of the constructed situation was that it was 'designed to be lived by its constructors' with the aim that 'the role played by a passive or merely bit-part-playing "public" must constantly diminish, while that played by those who cannot be called actors, but rather, in a new sense of the term, "livers", must steadily increase' (Debord 1957). This definition of the participant in the constructed situation as an autonomous agent within the structure of the work and not limited to enacting a predefined script is key. I will identify locative works which exhibit this tendency, which go beyond a model of the participant being defined by the application in favour of an open model, a set of procedures or a toolkit with which participants

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construct their own situation to be 'lived' independently of the artist.

3.2 Locative art

I want here to briefly introduce and discuss a number of locative media art projects in the context of my argument. Space doesn't permit a comprehensive treatment of these works; rather I will treat of certain aspects of the works which I propose conform to the principles of the constructed situation, and furthermore suggest that these works contain characteristics or methodological approaches that have a wider applicability within the field. My proposition is that these situations are constructed through the actions of their participants with each situation being 'lived by its constructors' (Debord 1957). These projects are illustrative of a methodological approach toward participation, shared by many projects, which allows a greater deal of autonomy to be ceded to the participant. The projects selected both use locative media and are locative but not technology dependent. However, they share a common approach in that the actions of the participant are facilitated, rather than determined, by the technologies, whether GPS-enabled device or printed map.

The projects I will briefly touch on are Mark Shepard's *Tactical Sound Garden*, *You Are Not Here* (Duc, El-Haddad, London, Phiffer, Zer-Aviv), *Joyce Walks* (McGarrigle) and *Walking-Tools* (Stalbaum, Silva).

The Tactical Sound Garden (TSG) toolkit (Shepard 2007a) enables users/participants to 'plant' sound gardens in real space in an urban environment. Based on the guerrilla gardening model of appropriating unused urban space for gardening, in effect *detourning* vacant lots and wasteland, the TSG allows users to overlay real space with locational soundscapes which can then be experienced and enjoyed by anyone with a mobile device running the free TSG software. It seeks to create a 'participatory environment where new spatial practices for social interaction within technologically mediated environments can be explored and evaluated' (Shepard 2007b). Acting as a parasitic technology, the TSG takes advantage of the dense wi-fi infrastructure of contemporary urban space, piggy-backing on this network which it neither owns nor has created, turning it to its own uses to provide a creative space available to anyone to build and enjoy these locational sound gardens. In this way, the TSG acts as a classical situationist *detournement* of the urban technological infrastructure to create a playful space within the city.

I would suggest that of greater significance is the participatory structure of the work. Locative media sound works offering locationally specific sound are not uncommon but they are usually unidirectional, locating sounds created by the artist which can then be experienced by a public in designated locations. The TSG is, most importantly, structured as a toolkit, that is a set of tools which enable participants to plant a sound garden, to locate sounds in space which can then be locationally accessed by others. It does not specify or describe other than in these very loose terms how this might work or what it might be used for. In this sense the TSG goes beyond a typical locational artwork, as it affords participants the means to create their own vision of the project, to build on the structure of the project but to imbue it with their own meaning which may differ or go beyond those of the artist. In this sense, I suggest that works produced with the TSG have a shared authorship between the artist and the author of each individual sound garden. Thus the role of participants exceeds that of passive actors into what Debord called 'active livers' of the project. I would claim that the project is involved in the construction of locative situations, and furthermore that these situations are accurately described by Debord's criteria for the constructed situation.

You are Not Here (*YANH*) presents itself as a urban tourism mashup through which visitors can visit Gaza through Tel Aviv and Baghdad through New York. Participants use a double-sided map which when held up to the light overlays the map of Baghdad over New York and is used as a guide to 'visit' Baghdad's tourist sites in New York. Each tourist site is marked with a sign giving a number to call to access an audio guide to the location in question. *YANH*, with its

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deceptively simple format, thus reframes the locations it visits through over-layering them with political questioning and forcing a consideration of the real connections between the citizens of both cities at this mundane everyday level, suggesting that it is no longer possible to consider Baghdad as distant and unconnected. While *YANH* has been represented as an urban game, this is serious play compared to many locative media tag games. I would consider it as an analogue iteration of locative media being locational-specific, with locations marked physically rather than virtually. I would also argue that *YANH* constructs situations with minimal rules of engagement, leaving participants to their own devices to live the situation or not.

My project, *Joyce Walks* (McGarrigle 2007), is a participatory locative artwork which allows participants to remap routes from James Joyce's *Ulysses* to any city in the world, producing walking maps which can then be used as the basis of a generated *dérive.* The project is an extensive project which has been more fully explored elsewhere (McGarrigle 2009). For the purposes of the argument here, it will suffice to say that *Joyce Walks* is essentially a locational artwork in which the locations are uniquely generated with each iteration, with the result that each individual walking route created is unique even when multiple routes occur in the same city. *Joyce Walks* explicitly adopts the situationist technique of the *derive*, reworking it into an algorithmic generation of routes based on a *detournement* of the classic modernist text. It is designed to avoid what Debord identified as the 'limitations of chance' and its 'inevitably reactionary effects' (Debord 1958). Its approach reworks the traditional algorithmic approach to the *derive*, but differs from the traditional situationist *dérive* (at least in declared intent[11]), as it doesn't seek to explicitly map out the psychogeographical contours of the city (Debord 1958), being more concerned with providing a methodology for the construction of contingent, ephemeral situations which may indeed involve the 'discovery of psychogeographical pivotal points' (Debord 1958) but which are primarily situations the practice of which is determined by their participants/creators. Each Joyce Walk is a spatio-temporal event contingent on its own unique conditions and can be thought of as acting as a framework through which situations may be constructed.

Stalbaum and Silva's *WalkingTools* also points to this new direction in locative media through supplying not the work itself but a set of open source software tools for cell phones allowing users to transform a standard cell, *detourning* the device and reframing it as part of the locative artist/activist's toolkit for peripatetic projects. In this way *WalkingTools* creates the conditions and the means to construct the situation rather than the locationally specific parameters.

Other enterprises such as *Common Sense*,[12] which provides locative tools for citizen-monitoring of air quality, *Urban Tapestries*,[13] which provided a framework for geo-annotation of place, and *mscape*,[14] which offers a toolkit to create locative games, work in a similar vein by placing an emphasis on participant autonomous creation, but differ in that they have a more clearly defined objective and are thus less open-ended.

4 Future situations

4.1 Recuperation

Central to the SI theory of the society of the spectacle was the idea that the spectacle had the power to co-opt or recuperate almost anything and that this power could neutralise even the most radical ideas[15] and practices through incorporating them into the spectacle. It has been suggested (Home 1991, Sadler 1998, Bonnett 2006) that this approach leaves no path other than that of total opposition encapsulated in the famous SI slogan '*Ne Travaillez Jamais*' ('Never Work'). If any oppositional activity which falls short of total opposition becomes part of the spectacle, then almost anything, even fluxus happenings (Sadler 1998, p. 106) or anti-globalisation protests (Bonnett 2006), can be dismissed as 'spectacular' activity.

This is problematic and potentially destructive, even at this remove from the SI, for artists who wish to reconsider situationist techniques, not in a nostalgic or anachronistic way but as approaches to

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contemporary conditions. It is for this purpose that I have tried to elucidate the connections between the SI and contemporary locative media art practice and propose that there exists a tendency within locative art which can be legitimately described as the 'construction of locative situations'. Locative media art has a role to play in developing critical spatial practices and in *detourning* emergent locative technologies so that they evolve as participatory tools; tools with possibilities for creation rather than additional channels for passive consumption, and I believe that a critical framework for the consideration of locative art can be developed through a consideration of situationist theories on the constructed situation.

I set this analysis against a background of ubiquitous computing where the much-vaunted post-desktop scenario of urban computing is now widely available through devices which actually fit in your pocket. The resulting wave of commercial applications is clearly informed by locative media art with products such as Clicmobile's *Soundwalk*[16] iPhone applications which locatively overlay Paris with fictional narratives uncovering the 'real' Paris. Similarly heritage guides are going locative with projects like the GPS-enabled Berlin *MauerGuide*[17] following the annotative model of locative media art. Add the plethora of augmented reality applications to the mix and it is clear not only that locative media art has been a key influence on these developments, but that its future lies not in the paradigm of delivering a relatively static data set locatively[18] but, I would suggest, in ceding more autonomy to the participant in an enabling framework which I propose is closely aligned to the SI's construction of situations. This leveraging of situationist techniques is not about historicising contemporary practices but about realising the unfulfilled potential of constructed situations, a practice perhaps best suited to the hybrid spaces of the UbiComp city.

4.2 Situationist nostalgia

My purpose is not to advocate a nostalgic reinterpretation of the Situationist International. As Guy Debord said, 'avant-gardes have only one time, and the best thing that can happen to them is, in the full sense of the term, to have had their day'.[19] So to claim locative media art as the inheritor of the situationist mantle is, I would suggest, largely irrelevant; the situationists have had their day, whereas locative media's time has yet to come. It is important, however, for a new art form to recognise its influences, to pay its dues where necessary, and when techniques and approaches are borrowed or re-invented to fully recognise their origins, purposes and application. In gaining a complete understanding of these techniques and the theory driving them, they assume their full potency and become powerful allies in their new application. It also serves to insulate the practice against charges of *recuperation* or dilettantism, and through recognising a commonality of purpose asserts an independent existence, standing on the shoulders of giants rather than languishing in their shadows.

Notes

[1] The extent of the role of the SI in May 1968 is disputed; certainly there were situationists involved and situationist slogans and graffiti were widespread in Paris, but there is little agreement on the significance of their part in a broad-based movement.

[2] Former manager of The Sex Pistols, who claimed the UK punk movement to be influenced by the situationists and who was a member of King Mob formed by expelled British situationists.

[3] '*Sur le passage de quelques personnes à travers une assez courte unité de temps. A propos de l'Internationale Situationniste 1957–1972*', at the Centre Pompidou, Paris (21 February–9 April 1989), touring to London and Boston.

[4] The Lettrist International, one of the groups which, along with The International Movement for an Imaginist Bauhaus and the London Psychogeographical Association, merged to form the SI. Guy Debord was a member of the Lettrists.

[5] I will reference here Ken Knabb's (2006) *Situationist International anthology* due to its wide availability, but in doing so I acknowledge that it is a contested anthology—see Home (1991) and McDonough's (1997) *Rereading Debord, rereading the situationists* for a summary of his disputes with the anthology.

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[6] http://www.terirueb.net/drift/index.html.
[7] http://www.valentinanisi.com/liberties.html.
[8] http://34n118w.net/.
[9] Second right, second right, first left, repeat.
[10] I am well aware that for many locative artists such a claim is an irrelevance, but it is my position that locating these practices within an art historical framework can inform current practices and suggest future directions.
[11] There exist few examples of *derives* which actually undertook a structured psychogeographic analysis of their routes.
[12] http://www.communitysensing.org/.
[13] http://urbantapestries.net/.
[14] http://www.mscapers.com/.
[15] See Sadie Plant's discussion of recuperation as reverse detournement (1992, p. 75-80)
[16] Soundwalks create audio tours with an alternative flavour such as Bronx hip hop tours and are now releasing locative tours for the iPhone; http://www.soundwalk.com/.
[17] http://www.mauerguide.com.
[18] What Jeremy Hight calls 'the bowling alley conundrum'.
[19] From Debord's film *In girum imus nocte et consumimur igni* quoted in McDonough (1979).

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18 JOYCEWALKS

Conor McGarrigle

Key Words: *Dérive*, Detournement, "The Logic of Selection," Mash-up, Psychogeography

T&F Proof

Project Summary

JoyceWalks is a participatory art project which uses Google Maps to remap routes from James Joyce's *Ulysses* to any city in the world, generating walking maps for participants to explore the city of their choice adopting the form of the Situationist *dérive*.

Project Developer Background

JoyceWalks had its origins in an older 2006 web project, *The Bono Probability Positioning System (aka Google Bono)*,[1] which presented itself as a service for visitors to Dublin, claiming:

> We know that for a visitor to Dublin an important attraction is the possibility that they may see U2 frontman and international celebrity Bono. The Bono Probability Positioning System version 2 Google Bono (beta) utilises Dublin's extensive surveillance camera network in conjunction with facial recognition software, Google Maps and advanced probability techniques to allow visitors to determine the probability of seeing Bono in any of the most probable locations in Dublin's city centre in real time.

The site was a Google Maps mashup which located live feeds from Dublin city's extensive traffic camera network on a map of Dublin, allowing the site visitor to view live feeds of the city while giving the probability that they would see Bono at that particular loca-

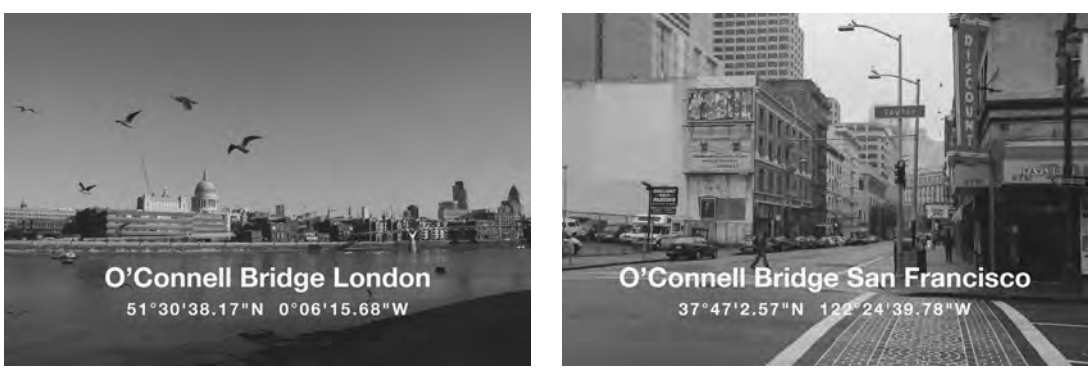

Figure 18.1, 18.2 Two views of the O'Connell Bridge as interpreted by *JoyceWalks* participants.

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tion. Interestingly, the project, while obviously not all it claimed to be, was taken up by U2 fan sites (of which there are a surprising number) and tourism sites. It had obviously assumed another role, presumably as a useful interface to live camera views of Dublin, for U2 fans and for potential visitors to Dublin. I liked the way that the project had quite unintentionally taken on these multiple identities: as a net.art project being exhibited at festivals and, for whatever reason, as a popular site for U2 fans and tourists, and it led me to think more about designing projects which would facilitate its users in their own interpretations, taking the work beyond my original intention.

Introduction to Joycewalks.com

Project Description

The project is based on the annual June 16 Dublin Bloomsday celebrations where Joyceans and tourists follow in the footsteps of Leopold Bloom on his travels through the city, re-enacting the fictional events of *Ulysses* in a major event of the Irish cultural tourism calendar.

JoyceWalks remixes the cultural trail of Bloomsday by transplanting the routes from Dublin to any other city in the world where, removed from their local significance, they are transformed into an obscure set of instructions to be used for navigating urban space in new and unexpected ways. The project draws on the Situationist technique of the *dérive*[2] (or "drift") which involves exploring the city according to sets of predefined instructions and seeks to provide a framework for participants to employ while building a critical and creative engagement with the city. *JoyceWalks* overlays the physical space of the city with a conceptual remapping allowing the user to navigate familiar streets as if they were the Joycean streets of 1904 Dublin, allowing the participant to re-enact the (fictional) footsteps of Leopold Bloom wherever they may be located.

The project has both web- and street-based components; participants create an individual walking route for the city of their choice, print out their customized map, and use the map as a guide to exploring the city. Participants have the option to also document their walk with videos and photographs and to share these on the *JoyceWalks* site as a Google Maps mashup.[3]

Figure 18.3 Screenshot of *JoyceWalks* created in Paris.

T&F Proof

Project Background

The original impulse which led to the creation of Joyce Walks was threefold; First, I was interested in exploring the Google Maps mashup as a platform for art in a way that would play against the dominant idea of the mashup as an informative tool.

Second, I wanted to develop a project which would facilitate ephemeral, playful interventions in urban space drawing inspiration from the technique of the *dérive* developed by the Situationists in the 1950s and 1960s which would, even in a small way, re-enchant urban space.

Finally, I was interested in the nature of the participants' role in "participatory art" with a particular focus on whether a truly participatory experience, that is, one in which participant action can transform the meaning of the work to the point where it can be thought of as having a shared authorship, is in fact possible.

These aims coalesced into *JoyceWalks*, a Google Maps mashup that provides the user/participant a method of navigating the city designed to subtly disrupt expected modes of operation, in effect a *dérive* generator using the locative capabilities of the Google Maps infrastructure to allow the user to wander aimlessly, with purpose. To this end I adopted and remixed the notion of the cultural trail, in this case Bloomsday, but any spatially expressed cultural activity would work.

The cultural trail, a familiar mainstay of the tourist industry in almost any city, represents the spatial commodification of culture in what Sharon Zukin characterized as "the symbolic economy of cities."[4] Without dwelling too much on the role of culture in the modern urban economy, it will suffice to say that cultural trails are a known quantity. We understand how they operate, we can predict expectations about trails, and it is this familiarity which makes them the perfect tool for disrupting our experience of the city through the process of remixing and reframing at work in *JoyceWalks*.

T&F Proof

Technical Description

Before exploring the concepts behind *JoyceWalks* I want to briefly discuss how it works on a practical level.

The project comprises the following four interconnected sections: the routes, the online component, walking in the city, and documenting the traces.

The Routes

The starting point was the annual Bloomsday celebrations in my native Dublin. Bloomsday is a typical cultural product that can be seen in almost any city in the world today. It involves re-enactment, a cultural trail, pageantry, a granting of locational identity to culture, and a renegotiation of the spaces of the city according to a predefined cultural narrative. It is celebrated by retracing the footsteps—preferably in Edwardian period costume while travelling in a horse and carriage—of characters from James Joyce's *Ulysses*, the actions of which unfold on a single day in Dublin in 1904. Many chapters in *Ulysses* have a clearly identifiable route followed by the characters in the course of the narrative, and it is these routes re-enacted every June 16 in Dublin which form the basis of *JoyceWalks*.

The original routes were first mapped out in Dublin using a GPS unit with a close adherence to the text of individual chapters of *Ulysses*. Each route selected takes place within a single chapter, nine or ten points of significance are identified and expressed as points of longitude and latitude with each point having an associated text from *Ulysses*—with the location specifically mentioned in the text.

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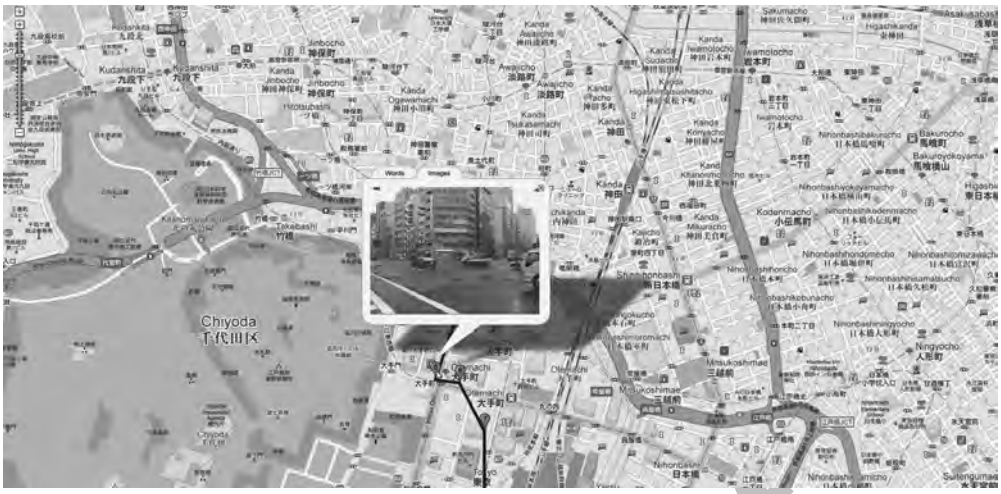

Figure 18.4 Screenshot of *JoyceWalks* created in Tokyo.

Online Component and Remapping

The main interface of *JoyceWalks* is the project website, *joycewalks.com*. To participate in *JoyceWalks* the user visits the website and is invited to create his/her own *JoyceWalk*. The first step is choosing a city to walk in. Through typing the name of a city, the interface loads a Google Map of the chosen city, you are then asked to select a center point, a crucial step as it creates a customized remapping unique to the center point selection. Finally, the user selects a chapter route from the menu and the route is automatically remapped to the city of your choice and displayed onscreen as a Google Map mashup. While displaying the new route in the chosen city, the mashup also allows the user to read the associated text for each point on the walks and to view a video of the original Dublin location.

JoyceWalks is based on the Google Maps API,[5] a set of programming tools which allow anyone to create their own application incorporating Google Maps. At a technical level the remapping is executed through a procedure of linear transformation (with the center point as origin) that moves each point of longitude and latitude to an analogous location in the new city. The newly remapped route is an isometric reflection retaining the relationship between all places of significance in the route; and it is in effect an exact copy of the original Dublin walking route. However, though it may be an exact Cartesian copy, transferring it onto the topology of a different city, where the cultural significance of the original locations is lost, renders each route as abstracted walking instructions. While these instructions have no local significance, they have curiously been found to still carry echoes of their original purpose.

Walking the city

JoyceWalks most importantly takes place at street level, each remapped route generates a printable walking map to guide the user on his/her walk. A facility to download a route to a GPS device as well as a mobile version are now under development but were deliberately left out of earlier versions to emphasize this traditional experience of trying to find your way with a map, a familiar locative experience and one very different in character to using the latest locative technologies to navigate the city.

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To ensure the uniqueness of each generated walk the project has many in-built features to ensure variability; to map a route the user must select a center point of the city and the route is generated in relation to this center point, the points of the walk are draggable and repositionable, there is no snapping to the line of streets, points are joined by straight lines, taking them through buildings and obstacles which the walkers must negotiate at street level, increasing the routes' contingency on local conditions. In the practice of *JoyceWalks*, when shoe hits pavement, the clarity of the web drops away with the often confusing realities of navigating real space with these less-then-perfect Google Maps and the project stands or falls at this experiential level.

Leaving Traces: Documenting and Recording

A record of each walk created by *JoyceWalks* is saved as a map trace in a database. This database holds the most complete record of the project with every walk saved as a trace on a map as abstracted lines which are nonetheless suggestive of the activities they represent. After a walk is completed, participants have the option of uploading images or videos documenting their walk to create a Google Maps mashup. The database of all walks created is then searchable by city for other users to view the route walked and its associated images and videos. In this way, every walk exists as a trace on a map, as a memory of an experience personal to its participants and through the optional documentation of the experience. A tension always exists in live work between the work itself and the documentation of the work. This tension is emphasized in *JoyceWalks* as the work itself exists as an amalgamation of a multiplicity of experiences raising questions about the balance between open participation and appropriation. The question of documentation contributes to this, as it inhabits the shifting ground of authorship in the work addressing notions of the authenticity of co-authorship when the work is more clearly identified with one author.

Did Someone Say Participate?

The role of the participant is central to the *JoyceWalks* project. I would suggest that for a work to be participatory in any meaningful sense it must be significantly (re)created by the actions of the participants, and must go beyond the familiar approach of much participatory work in which the role of the participant is to "complete" or "activate" the work, while the authorship of the work remains very clearly with the artist. A key aim of the project was to explore whether a truly participatory experience, that is, one in which participant action can transform the meaning of the work to the point where it can be thought of as having a shared authorship, is in fact possible.

The approach I adopted was to create what I describe as a participatory framework which would internalize this essential freedom through supplying a set of tools which provided a set of procedures for action rather then dictating the mode of operation. To achieve this there is, of course, a need for the artist to relinquish some of their control over the work.

Even though this was a stated aim, I have to confess that sometimes I wish that every participant would document their walk extensively so that even though I cannot be there I can live vicariously through these documents. I am invested in the contemporary impulse to document everything in exhaustive detail, yet have to recognize that there is another way. Richard Long's 1967 *Line Made by Walking* shows a line in a field marked into the grass by repeated walking. As a record of activity the image is evocative,

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suggestive but ultimately unknowable. Long describes it as a "distillation of experience"[6] which can never compete with that experience. These documents of experiences, to paraphrase Michel de Certeau,[7] can only ever refer to the absence of what has passed but miss the act of passing itself. Similar to Long's distillation, *JoyceWalks* begins with the act of passing, and its documentation, like the experience itself, is left to the participants. For the artist, the important thing is knowing when to relinquish control, allowing the work to be directed by the participant.

Knowing your tools

JoyceWalks adopts the form of the Google Maps mashup, a familiar format to most web users, but one that is not without its own problems. I adopted the mashup with the awareness that maps are not neutral, objective documents. Instead, they are subjective, political documents with an inherent logic that needs to be decoded.[8] Google Maps is in an unusual position because, while not immune to these criticisms, as illustrated by its willingness to blur out areas of their maps at the request of governments[9] or by the vast inequality of its coverage, it also offers users an extensive set of tools within its API with which to overlay the maps with users' own re-encoding of the space. While this offering assists in deflecting this criticism, it is not a panacea. Indeed there remains a persistent doubt over whether the format of the mashup itself really lends itself to criticality or is there, to invoke Lev Manovich,[10] an inbuilt logic of selection that favors mashups which locate Starbucks or crime rather than exposing systems of surveillance and control, or even critiquing the medium itself?

In response to these concerns the *JoyceWalks* approach differs in that whereas most mashups are informative in intent, mapping practical data or revealing hidden histories, *JoyceWalks* allows users to map an imaginary landscape. It overlays the physical space of the city with a conceptual remapping, allowing the user to navigate familiar streets as if they were the Joycean streets of 1904 Dublin, thereby allowing the participant to re-enact the (fictional) footsteps of Leopold Bloom wherever they may be. This re-encoding is designed to interfere with and disrupt the existing encoding of the space allowing for the temporary insertion of a space produced through the actions of its participants.

For me the work has two aspects: *JoyceWalks* my personal project and *JoyceWalks* the public project which operates at this point fairly independently of my involvement through its website. I think it is worth elaborating on the difference, as I suspect that the two modes of operation mirror the way *JoyceWalks* operates in the real world.

The personal project is an ongoing part of my art practice. It is a public performative work where typically I am invited to lead groups of walkers in the context of an art event or festival. Each performance is very different, drawing on the interests of the participants, the nature of the event, and the city where it takes place. These performances are then documented as part of my art practice. At another level, whenever I am in a new city I will normally walk a personal *JoyceWalk* as a way of getting to know the city beyond the obvious places, these walks are often not documented but have proven to be a very effective method of exploring and getting to know the psychogeographic contours of a new place. Personal feedback leads me to believe that this is a common use of the project.

Without my direct involvement, the public project is ongoing. The 24-hour *JoyceWalks* event was a concentrated version of this usage, enabling me to gain insight regarding user tendencies. I have found that documenting the walks and uploading images to create a mashup does not happen in the majority of cases. This makes sense in

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many ways: if the point of the work is the event, then the documentation of it seems extraneous, especially in the current version where it requires access to a computer. The other possibility is that while the routes are mapped on the website, the walks never happen. While this is no doubt true in some cases, I get fairly regular feedback from participants, mostly in the form of brief notes, to say that they enjoyed their walk. So I presume that most walks do in fact take place.

24-hour JoyceWalks

For Bloomsday 2008, I put out a call for participants to plan and enact a Bloomsday *JoyceWalk* as part of 24 hours of psychogeographical action. The call was straightforward: use the *JoyceWalks* site to generate a walking map for whatever city you will be in on June 16 and walk that walk. I also suggested, but did not mandate, that participants document their walks with photographs and videos to create a Google Maps mashup using the *JoyceWalks* mashup generator. The call resulted in 80 walks taking place in 39 cities around the world with each walk being saved as a map in the searchable project database.

Twenty-four-hour *JoyceWalks* was, most importantly, a participant-led intervention. The event was organized with a minimal set of instructions or guidelines other than the basic instructions for mapping a route and walking that route on June 16. For the project to succeed it needed to retain an essential openness, to be non-prescriptive so that participants would determine their own mode of operation. Some walks were organized as group outings, some as solo strolls, while others were undertaken by artists already involved with psychogeographical projects such as those in Mexico City by *Laboratorio de Situaciones*[11] or in Jundiai, Brazil by *Quadrafónica Urbana*[12] who incorporated it into their existing practice as a new technique. While some were extensively documented, others exist only as ephemeral events acknowledged only by a trace on a map. I know of at least one walk planned for Marrakesh which was abandoned when the walkers discovered that the Google Map bore no relation to the actuality at street level, an event which was a failure on one level but could still be considered as a successful psychogeographical exploration of the city. For me, the important aspect was that the project was adopted by the participants, that they made it their own, and that it responded to their concerns rather than simply enacting a part in a larger work.

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Historical Perspectives: The Production of Tactical Space

To gain a perspective on the art historical and theoretical underpinnings of the project, I would like to go back to the writings on space and place of the influential French theorist Henri Lefebvre. Lefebvre argued that urban space is a site of contestation and, in *The Production of Space*,[13] laid out what was at stake in his theory of spatial production. Space, according to Lefebvre, cannot be considered as an empty, neutral container in which objects and people are situated.[14] Rather, space is a social product, defined by a complex set of interrelationships and the "outcome of a sequence and set of operations."[15] This production process results in a multiplicity of interconnected and overlapping spaces which influence, and are influenced by, each other. Space, Lefebvre suggests, is not superseded whenever a new space is produced, but rather each space overlays previously produced spaces, resulting in a multi-layered space in which the layers "co-exist, overlap and interfere" with each other. That is, the dynamic relationship between these layers establishes the nature of social space.[16] Social space in turn acts as a tool of control

in that it is "what permits fresh actions to occur, while suggesting others and prohibiting yet others."[17]

If, as Lefebvre argues, space is in a state of continuous production, a state continually being brought into existence, then it is the process rather than the product which is of most interest. This leads one to an acceptance that location, for example as defined by a set of coordinates of longitude and latitude or by being named in a text, is of small importance in and of itself. Of greater significance is how that location is related to other locations and to the practices defining that location. It is the practice, the procedures, and the process that lead up to, for example, standing at a specific location as a participant in a locative art work that matter, rather then the GPS coordinates of that location.

In this sense I consider *JoyceWalks* as a producer of temporary ephemeral spaces produced by a complex set of interrelationships. The spaces produced take the properties of what Lefebvre called "lived space," where users transform and manipulate imposed space in order to make it their own.[18] This space disrupts and interferes with the existing spatial encoding and, I would propose, suggests new modes of spatial practice outside of existing spatializations.

The spaces produced by *JoyceWalks* can be further described by Michel de Certeau's account of space as the locus of tactics. De Certeau considered the very act of walking in the city as an act of "tactical" resistance, famously calling pedestrian movements "one of those real systems whose existence in fact makes up the city."[19] *Space*, according to de Certeau is *place* actuated by the "ensemble of movements deployed within it" which "occurs as the effect produced by the operations that orient it, situate it, temporalize it."[20] It could be said that space is place+practice and so the streets are transformed into the space of *JoyceWalks* through the actions of the participants as they walk the *JoyceWalks* routes in a temporary transformative appropriation of place. In this way they can be considered tactical interventions as tactics, according to de Certeau, insinuate themselves into "the other place fragmentarily, without taking it over in its entirety."[21] They are opportunistic ways of operating within a system, of manipulating the imposed system and turning it to its own advantage.

JoyceWalks adopts these positions as a theoretical framework and sets out to provide a set of developing procedures to facilitate urban interventions which explore, reveal, and disrupt urban space, producing ephemeral spaces which "co-exist, overlap and interfere" with the spaces of the city producing temporary re-encodings of the spatial code which in turn facilitate alternative and critical spatial readings of the city. It is a hybrid work informed by Situationist practice, by locative media, and by the tradition of the walking artist to develop a critical spatial practice that is participatory in nature and open-ended.

Conclusions and Outcomes

In considering whether the project is effective, or indeed even a success, I consider the role of *JoyceWalks* as that of a catalyst. It facilitates and allows for work to be made, for interventions to occur which would not have happened without it. These actions thus go beyond the confines of *JoyceWalks* and establish their own way of being, their own mode of operation independent from the project.

While it is important not to over-claim the significance of these small spatial interventions, I propose that these tactical appropriations of space have the potential to produce critical spatial knowledges—*JoyceWalks* is structured to retain an essential

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openness in its offering of a set of procedures without a prescriptive mode of operating, so that while it is the action of the participants which actuates the space of *JoyceWalks*, they are not defined by it. The work hinges on the interaction between the walkers and the route with each space produced being a unique contingent spatio-temporal event. With almost 600 *JoyceWalks* in over 70 countries, each walk also sits within a larger ongoing work involving a geographically dispersed series of tactical interventions facilitating multiple re-encodings of the spatial code, enabling alternative and critical spatial readings of the city.

In its remixing of the cultural trail, *JoyceWalks* asks the seemingly simple question: What happens if you move it? Through displacing the cultural trail from the site of its locational identity, one assumes that it neutralizes that identity and removes not only its role in the construction of this cultural economy of the city but also, collaterally, the cultural resonance of its engagement with the text and site. In actuality the results are more nuanced and less straightforward than they would appear. Certainly the geographic displacement neutralizes the specifically locational elements of the narrative but in the process forces a re-engagement with the idea of the cultural trail. *JoyceWalks* remains a cultural trail, but one in which the operational conventions have been disrupted. It reframes the cultural trail not as an instrumentalized spatial product of the cultural economy but as a socio-spatial production of a temporary, ephemeral space. As the project shifts between the certainties of its online presence with the all-encompassing, totalizing viewpoint of Google Maps to the often confusing realities of navigating through the *JoyceWalks* remix of the cultural trail, participants must reimagine its meaning, reinvent its procedures, and rethink the mode of operation. Through this process, the participants produce a temporary re-encoding of the spatial code which in turn facilitates alternative and critical spatial readings of the city.

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Notes

1. Google Bono no longer functions because the majority of Dublin city camera feeds have been taken offline. A version is still available at www.stunned.org/bono/googlebono.htm.
2. Guy Debord, "Theory of the Dérive," in *Situationist International Anthology*, ed. Ken Knabb, Berkeley: Bureau of Public Secrets, 2006: 62.
3. A mashup is a webpage or application that uses or combines data or functionality from two or more external sources to create a new message or service.
4. Sharon Zukin, *The Cultures of Cities*, Cambridge, MA: Blackwell, 1995.
5. Application programming interface.
6. Statement carried on Richard Long's official website: www.richardlong.org (accessed May 15, 2010).
7. Michel de Certeau, *The Practice of Everyday Life*, Berkeley: University of California Press, 1984: 97.
8. The approach introduced by what has become known as critical cartography, of whom the best-known proponent was J.B. Harley with his 1989 essay "Deconstructing the Map," *Cartographica*, 26, 2, 1989: 1–20.
9. Google maps images with intentionally obscured data, Wikipedia: http://en.wikipedia.org/wiki/List_of_places_blurred_out_on_Google_Maps (accessed June 15, 2010).
10. Lev Manovich, *The Language of New Media*, Cambridge MA: MIT Press, 2001: 123–129.
11. www.flickr.com/photos/laboratoriodesituaciones.
12. http://quadrafonica.blogspot.com.
13. Henri Lefebvre, *The Production of Space*, Cambridge, MA: Blackwell, 1991: 86.
14. Ibid.: 68.
15. Ibid.: 73.
16. Ibid.: 86–87.

17. Ibid.: 73.
18. Ibid.: 39.
19. De Certeau, op. cit.: 97.
20. Ibid.: 117.
21. Ibid.: 32.

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Links

Google Maps API: http://code.google.com/apis/maps/index.html.
JoyceWalks: www.joycewalks.com.
GoogleBono: www.conormcgarrigle.com/google_bono.htm.
Situationist Texts Online: http://library.nothingness.org/articles/SI.
Bloomsday: www.jamesjoyce.ie/listing.asp?id=29.

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The paper will argue that there is an identifiable strand of locative art works which through their contingent re appropriation of Situationist techniques can be thought of as being involved in the 'construction of locative situations' and that these (re)applications of the SI practices point to future directions for locative media's artistic engagement with the accelerating ubiquity of locative technologies.

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The Construction of Locative Situations: Locative Media and the Situationist International, Recuperation or Redux?

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ABSTRACT

This paper will address the trend within locative media art of invoking the practices of the Situationist International (SI) as an art historical and theoretical background to contemporary practices. It is claimed that locative media seeks to re-enchant urban space though the application of locative technologies to develop novel and experimental methods for navigating, exploring and experiencing the city. To this end SI concepts such as psychogeography and the techniques of *detournement* and the *dérive* (drift) have exerted considerable influence on locative media practices but questions arise as to whether this constitutes a valid contemporary appropriation or a recuperative co-option, serving to neutralize their inherent oppositional qualities.

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Keywords

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1. THE SITUATIONIST INTERNATIONAL AND THE CONSTRUCTION OF SITUATIONS

The Situationist International were a small avant-garde group active between 1957 and 1972. Formed from an amalgamation of the Lettrist International, the International Movement for an Imaginist Bauhaus (consisting of ex-CoBrA members) and the London Psychogeographic Association's sole member Ralph Rumney. In total the SI had 70 members of which 49 were expelled and when the group was disbanded only 4 remained. They rose to prominence for their role in the May 1968 events in France[1] and since their demise have been brought back to popular attention by the likes of Greil Marcus[22] Malcolm McLaren[2] and through the major 1989 Pompidou retrospective[3].

In their 1957 founding conference they declared the construction of situations as their entire program albeit, as befits the declared provisionality of Situationist thought, a transitionary one[10]. Constructed situations were to build on the existing practice of the *dérive* which had it's origins with the Lettrists[4] and the Surrealists. The *dérive* was described as a 'passional journey out of the ordinary through a rapid changing of ambiences' [10] and later defined as a ' technique of rapid passage through varied ambiences' involving 'playful-constructive behavior and awareness of psychogeographical effects' making it 'thus quite different from the classic notions of journey or stroll' [10]. Debord acknowledged the *dérive* as a rough experiment which foreshadowed the construction of situations but whereas the *dérive* was a discrete self-contained event the intention was that constructed situations would be more pervasive extending the playful creativity of the *dérive* to all aspects of human relationships. [9]

If, as the SI claimed, 'a person's life is a succession of fortuitous situations, and even if none of them is exactly the same as another the immense majority of them are so undifferentiated and so dull that they give a definite impression of sameness. As a result the rare intensely engaging situations found in life only serve to strictly confine and limit that life'[10] The situationist solution was to actively construct situations rather then merely passively consume or experience them. Rather than describing and interpreting situations the Situationists would seek to transform them. If as they believed human beings are 'molded by the situations they go through' and 'defined by their situation' then

[1] The extent of the role of the SI in May '68 is disputed, certainly there were Situationists involved and Situationist slogans and graffiti were widespread in Paris but there is little agreement on the significance of their part in a broad based movement.

[2] Former manager of the *Sex Pistols* who claimed the UK punk movement to be influenced by the Situationists and who was a member of *King Mob* formed by expelled British Situationists.

[3] Sur le passage de quelques personnes à travers une assez courte unité de temps. A propos de l'Internationale Situationniste 1957-1972', at the Centre Pompidou, Paris (February 21-April 9, 1989) touring to London and Boston.

[4] The Lettrist International, one of the groups along with The International Movement for an Imaginist Bauhaus and the London Psychogeographical Association which merged to form the SI. Guy Debord was originally a member of the Lettrists.

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they need the power to create situations worthy of their desires rather than be limited to passive consumers of the situations they find themselves in.

The construction of situations was described as 'the concrete construction of momentary ambiances of life and their transformation into a superior passional quality '[10] [5] with the resulting situations being 'ephemeral, without a future. Passageways. Our only concern is real life; we care nothing about the permanence of art or of anything else ' [10]. This was to be a revolutionary program in which the 'radical subject demands to construct the situations in which it lived' [28:39] to be approached as an experimental undertaking for which Situationist techniques would have to be invented. A program was outlined starting with small scale experimentation from which a set of tools and procedures would be developed leading in turn to the experimental discovery and verification of laws for the construction of situations.[10]

However despite it's declared centrality to the Situationist agenda the practicalities of the actual construction of situations were never fully elucidated. It was unclear where the constructed situation as an artistic event ended and the 'revolution of everyday life' started. Indeed it wasn't clear what a constructed situation was, how it might be constructed and operate or even how it might be recognized. The situationist condemnation of New York 'happenings' in 1963 as a 'spectacular' avant-garde activity[6], that is a co-opted event neutralized of any revolutionary potential, was one of their few public pronouncements of what a situation was or in this case wasn't. According to Simon Sadler 'there isn't any evidence that a situation was ever constructed as prescribed.' and that the 'program the Situationists set themselves was so ambitious and uncompromising that it condemned itself to failure. At least happenings took place'.[30:106]

2. LOCATIVE MEDIA AS A SITUATIONIST PRACTICE

The influence of the Situationists is evident in locative media at both an explicit and an implicit level. The connections have been widely made. Tuters and Varnelis[36] propose that locative media can be described as either annotative or tracing which they equate to the situationist techniques of *detournement* and the *dérive* respectively. The annual New York based *Conflux Festival* [17] of 'contemporary psychogeography' makes explicit it's desire to re-enchant and reclaim the city through reinventing situationist techniques for the contemporary city with an emphasis on urban play. Festivals such as *Come out and Play* [6] in New York City and Amsterdam and London's *Hide & Seek* [18] which regularly include locative media alongside less technologically influenced urban interventions endeavor to ludically transform the city implicitly drawing on the 'playful-constructive behavior' [9] of the *dérive* and the 'striving for playful creativity' [10] of the constructed situation. Mary Flanagan has noted [13] the connection between the urban play aspects of locative media and psychogeography, distinguishing between technologically mediated (locative) urban games which add to the commodification of the city and those which foster critical engagements with place. Numerous peripatetic locative works adopt the *dérive* with varying degrees of commitment to it's underlying theory. Works such as Teri Rueb's *Drift*[7], Valentina Nisi's *Media Portrait of the Liberties*[8] and *34n 118w*[9] (Hight, Knowlton, Spellman) typify projects which take the form of locative media *dérives* offering locationally specific experiences delivered through portable devices. The works can be thought of as augmenting the classical situationist *dérive* through the addition of an additional data layer over real space. Christian Nold's ongoing *Biomapping*[27] project implicitly invokes psychogeography as a scientific practice as it measures it's participants emotional response to their location through combining sensors measuring galvanic skin response with GPS units and mapping the results on Google Maps. While Nold to the best of my knowledge doesn't claim any situationist heritage *Biomapping* is an application of technology that the SI would happily have put to work in their studies of psychogeographical effects. Projects such as Social Fiction's self declared algorithmic psychogeographical .*Walk* [35] achieve a similar locative result by adopting the instructional sequences[10] of later situationist *dérives* with the more prosaic technology of pen and paper, illustrating I would argue, the common purpose of much locative art whether it employs locative media or not.

It is natural that locative media art practice would seek to connect to the Situationists as an influential avant-garde movement whose spatial concerns and focus on re-appropriating the city for it's inhabitants, of becoming active participants rather than being 'passive spectators in their own lives' [1] mirror those of contemporary locative artists. The situationist program, psychogeography, the *dérive*, *detournement* and most importantly the construction of situations was according to Thomas McDonough 'an attempt to change the meaning of the city through changing the way it was inhabited' [24]. While the influence and application of psychogeography, the *dérive and detournement* have been noted and explored in other places little has been done to connect locative media to the declared sole objective of the Situationists, the construction of situations.

2.1 Spatial Production

The situationist analysis of space is closely tied to the theories of the social production of space developed later by Henri Lefebvre[11]. Lefebvre proposed that space cannot be considered as an empty neutral container in which objects and people are situated [21:68] but rather space is a social product, defined by a complex set of interrelationships resulting in a multiplicity of

[5] I will reference here Ken Knabb's Situationist International Anthology due to it's wide availability but in doing so I acknowledge that it is a contested anthology (McDonagh, Home) See McDonough's *Rereading Debord, rereading the Situationists* for a summary of his disputes with the anthology

[6] *L'avant-garde de la présence* Internationale situationniste no. 8, January 1963.

[7] http://www.terirueb.net/drift/index.html

[8] http://www.valentinanisi.com/liberties.html

[9] http://34n118w.net/

[10] second right, second right, first left, repeat

[11] For an account of Lefebvre's association with the Situationists see his interview with Kristin Ross in *October* 79 [29].

interconnected and overlapping spaces which influence, and are influenced by, each other [21:86-87]. For Lefebvre it is the actions of inhabitants (spatial practice) which produces the spaces of the city, but while spatial practice reflects the habits and customs of a city's inhabitants it can also act as a coercive force which dictates the range of acceptable practices[21:73]. It has been argued that the enactment of pervasive, ubiquitous and locative technologies in urban space have brought about shifts in spatial production with space being automatically produced [38] by what Amin and Thrift call the 'haze of software' of the contemporary city [37:125]. This in turn raises questions [11] about human agency in these software produced spaces where the ability of an individual to effect change , or to even understand the background processes of production, on these automatically produced spaces is strictly curtailed.

I suggest that locative media art's agency emanates from the temporary, ephemeral and hybrid spaces it produces which disrupt, interfere with and renegotiate these dominant spaces of the city and that this process can best be described though the application of situationist theories of the construction of situations.

3. THE CONSTRUCTION OF LOCATIVE SITUATIONS

3.1 Constructing Situations

I propose that within locative art there exists a tendency which amounts to a contemporary practice based articulation of the principles of the construction of situations[10] which points to future directions for locative media art. The construction of situations was, at the level of practice, a lightly sketched concept and as the promised procedures and laws for constructing situations were never developed, and with a recognition that the situationist tag is one which has been widely overused, I propose that many locative media art projects can be though of as being involved in the construction of locative situations. Clearly, the conditions under which they operate and their methods and materials differ in keeping with the changing technological and urban conditions but in the absence of a developed methodology to follow, these projects have an adherence to the key concepts. As such the claim to a situationist heritage, whether desired or otherwise[12], is a valid one.

A key tenet of the constructed situation was that it was “designed to be lived by it's constructors' with the aim that 'the role played by a passive or merely bit-part playing 'public' must constantly diminish, while that played by those who cannot be called actors, but rather, in a new sense of the term, 'livers', must steadily increase" [10]. This definition of the participant in the constructed situation as an autonomous agent within the structure of the work and not limited to enacting a predefined script is key. I will identify locative works which exhibit this tendency, which go beyond a model of the participant being defined by the application in favor of an open model, a set of procedures or a toolkit with which participants construct their own situation to be 'lived' independently of the artist.

[12] I am well aware that for many locative artists such a claim is an irrelevance but it is my position that locating these practices within an art historical framework can inform current practices and suggest future directions.

3.2 Locative Art

I want here to briefly introduce and discuss a number of locative media art projects in the context of my argument. Space doesn't permit a comprehensive treatment of these works, rather I will treat of certain aspects which I submit conform to the structures for the construction of situations and furthermore suggest that these works contain characteristics or methodological approaches that have a wider applicability within the field. My proposition is that these situations are constructed through the actions of their participants with each situation being ‘lived by it's constructors' [10]. These projects are illustrative of a methodological approach toward participation, shared by many projects, allowing a greater deal of autonomy to be ceded to the participant. The projects selected both use locative media and are locative but not technology dependent. However, they share a common approach in that the actions of the participant are facilitated, rather then determined, by the technologies whether GPS enabled device or printed map.

The projects I will briefly touch on are Mark Shepard's *Tactical Sound Garden*, *You Are Not Here* (Duc, El-Haddad, London, Phiffer, Zer-Aviv), *Joyce Walks* (McGarrigle) and *WalkingTools* (Stalbaum, Silva)

The Tactical Sound Garden (TSG) toolkit [32] enables user/participants to 'plant' soundgardens in real space in an urban environment. It is based on the guerrilla gardening model of appropriating unused urban space for gardening, in effect *detourning* vacant lots and wasteland. Similarly the TSG allows users to overlay real space with locational soundscapes which can then be experienced and enjoyed by anyone with a mobile device running the free TSG software. It seeks to create a 'participatory environment where new spatial practices for social interaction within technologically mediated environments can be explored and evaluated' [33]. Acting as a parasitic technology the TSG takes advantage of the dense wi-fi infrastructure of contemporary urban space piggy-backing on this network, which it neither owns nor has created, turning it to it's own uses to provide a creative space available to anyone to build and enjoy these locational soundgardens. In this way the TSG acts as a classical situationist *detournement* of the urban technological infrastructure to create a playful space within the city.

I would suggest that of greater significance is the participatory structure of the work. Locative media sound works which offer locationally specific sound are not uncommon but they are usually unidirectional, locating sounds created by the artist which can then be experienced by a public in designated locations. The TSG is, most importantly, structured as a toolkit, that is a set of tools which enable participants to plant a sound garden, to locate sounds in three dimensional space which can then be locationally accessed by others. It does not specify or describe other then in these very loose terms how this might work or what it might be used for. In this sense the TSG goes beyond a typical locational artwork as it affords participants the means to create their own vision of the project, to build on the structure of the project but to imbue it with their own meaning which may differ or go beyond those of the artist. In this sense I suggest that works produced with the TSG have a shared authorship between the artist and the author of each individual soundgarden. Thus the role of participants exceeds that of passive actors into what Debord called 'active livers' of the project. I would claim that the project is involved in the construction of locative situations, and

furthermore that these constructed situations are accurately described by Debord's criteria for the constructed situation.

You are Not Here (YANH) presents itself as a urban tourism mashup [12] through which visitors can visit Gaza through Tel Aviv and Baghdad through New York. Participants use a double sided map which when held up to the light overlays the map of Baghdad over New York which is used as a guide to 'visit' Baghdad's tourist sites in New York. Each tourist site is physically marked with a sign giving a number to call to access an audio guide to the location in question. YANH with it's deceptively simple format thus re-frames the locations it visits through over-layering them with political questioning and forcing a consideration of the real connections between the citizens of both cities at this mundane everyday level, suggesting that it is no longer possible to consider Baghdad as distant and unconnected. While YANH has been represented as an urban game this is serious play compared to many locative media tag games. I would consider it as an analogue iteration of locative media being locational specific with locations marked physically rather then virtually. I would also argue that like Shepard's Tactical Sound Garden YANH constructs situations with minimal rules of engagement leaving participants to their own devices to live the situation or not.

My project *Joyce Walks* [25] is a participatory locative artwork which allows participants to remap routes from James Joyce's Ulysses to any city in the world producing walking maps which can then be used as the basis of a generated *dérive*. The project is an extensive project which has been more fully explored elsewhere[26]. For the purposes of the argument here it will suffice to say that *Joyce Walks* is essentially a locational artwork in which the locations are uniquely generated with each iteration, resulting in each individual walking route generated being unique even when multiple walks occur in the same city. Joyce Walks explicitly adopts the situationist technique of the *dérive* reworking it into a algorithmic generation of routes based on a *detournement* of the classic modernist text. It is designed to avoid what Debord identified as the 'limitations of chance' and it's 'inevitably reactionary effects' [9]. It's approach reworks the traditional algorithmic approach to the *dérive*. but differs from the traditional Situationist *dérive* (in declared intent at least[13]) as it doesn't seek to explicitly map out the psychogeographical contours of the city [9]. Rather it is more concerned with providing a methodology for the construction of contingent, ephemeral situations which may indeed involve the 'discovery of psychogeographical pivotal points' [9] but which are primarily situations the practice of which is determined by their participant/creators. Each walk is a spatio-temporal event contingent on it's own unique conditions and can be thought of as acting as a framework for the construction of situations.

Silva and Stalbaum's *WalkingTools* [39] also points to this new direction in locative media through supplying not the work itself but a set of opensource software tools for cell phones allowing users to transform a standard cell phone, *detourning* the device and reframing it as part of the locative artist/activist's toolkit for peripatetic projects. In this way *WalkingTools* creates the conditions and the means to construct the situation rather than locationally specific parameters which can be used to enact an event. As with other projects of this type the work can be though of as existing in two discrete modes which combine to form the greater work. The first is the framework, in the case of *Walkingtools* sharing resources, expertise and experience to enable artists to create their own cellphone software for locative interventions without having specific programming skills. The second is the the specific works created using the framework both by the project's initiators and the user/participants. In this fashion the work can be considered a participatory work in which the role of participants goes beyond that of passive actors in a scenario created by the project's authors to one in which they in effect create the work rather then merely activating it.

Other enterprises such as *Common Sense*[14] which provides locative tools for citizen-monitoring of air quality, *Urban Tapestries*[15] which provided a framework for community based geo-annotation of place and *Mscape*[16] which offers a toolkit to create locative games, work in a similar vein by placing an emphasis on participant autonomous creation. However these projects have a more ambiguous relationship with their industry sponsors with the suggestion that there exists a deterministic relationship between the application and the research imperatives of the development of new technologies. [17]

4. Future Situations

4.1 Recuperation

Central to the SI theory of the society of the spectacle was the idea that the spectacle had the power to co-opt or recuperate almost anything and that this power could neutralize even the most radical ideas[18] and practices through incorporating them into the spectacle. It has been suggested (Bonnett[3], Home[19], Sadler[30]) that this approach leaves no path other then that of total opposition encapsulated in the famous SI slogan *Ne Travaillez Jamais*[19]. If any oppositional activity which falls short of total opposition becomes part of the spectacle then almost anything, even fluxus happenings[30:106] or anti-globalization protests[3], can be dismissed as 'spectacular' activity.

This is problematic and potentially destructive, even at this remove from the SI, for artists who wish to build on the legacy of the Situationists through applying their analysis, reinventing their techniques or even experimenting with the construction of situations, not in a nostalgic or anachronistic way but as approaches to contemporary conditions. It is for this purpose that I have tried to elucidate the connections between the SI and contemporary locative media art practice and propose that there

[13] there exist few examples of derives which actually undertook a structured psychogeographic analysis of their routes

[14] http://www.communitysensing.org/

[15] http://urbantapestries.net/

[16] http://www.mscapers.com/

[17] See Anne Galloway's dissertation discussion [16:168] of the Mobile Bristol project for the inherent issues of this type of projects.

[18] See Sadie Plant's discussion of recuperation as reverse detournement [28:75-80]

[19] Never Work

exists a tendency within locative art which can be legitimately described as the 'construction of locative situations' . Locative Media art has a role to play in developing critical spatial practices and in *detourning* emergent locative technologies so that they evolve as participatory tools. Tools with possibilities for creation rather then additional channels for passive consumption and I believe that a critical framework for the consideration of locative art can be developed through a consideration of situationist theories on the construction of situations.

I set this analysis against a background of ubiquitous computing where the much vaunted post-desktop scenario of urban computing is now widely available through devices which actually fit in your pocket. The resulting wave of commercial applications are clearly informed by locative media art with products such as Clicmobile's *Soundwalk*[20] iphone apps which locatively overlay Paris with fictional narratives uncovering the 'real' Paris. Similarly heritage guides are going locative with projects like the GPS enabled Berlin MauerGuide[21] following the annotative model of locative media art. Add the plethora of augmented reality iphone apps to the mix and it is clear not only that locative media art has been a key influence on these developments but that it's future lies not in the paradigm of delivering a relatively static data set locatively[22] but, I would suggest, in ceding more autonomy to the participant in an enabling framework which I propose is closely aligned to the SI's construction of situations. This leveraging of Situationist techniques is not about historicising contemporary practices but about realizing the unfulfilled potential of constructed situations, a practice perhaps best suited to the hybrid spaces of the ubicomp city.

4.2 Situationist Nostalgia

My purpose is not to advocate a nostalgic reinterpretation of the Situationist International. As Guy Debord said 'avant-gardes have only one time, and the best thing that can happen to them is, in the full sense of the term, to have had their day. A historical project certainly cannot claim to preserve an eternal youth protected from blows'.[23] So to claim locative media art as the inheritor of the Situationist mantle is, I would suggest, largely irrelevant, the Situationists have had their day whereas locative media's time has yet to come. It is important however for a new artform to recognize it's influences, to pay it's dues where necessary and when techniques and approaches are borrowed or re-invented to fully recognize their origins, purposes and application. In gaining a complete understanding of these techniques and the theory driving them they assume their full potency and become powerful allies in their new application. It also serves to insulate the practice against charges of r*ecuperation* or dilettantism and through recognizing a commonality of purpose asserts an independent existence, standing on the shoulders of giants rather then languishing in their shadows.

[20] Soundwalks create audio tours with an alternative flavor such as Bronx hiphop tours and are now releasing locative tours for the iphone http://www.soundwalk.com/

[21] MauerGuide www.mauerguide.com

[22] what Jeremy Hight calls the bowling alley conundrum

[23] From Debord's film *In girum imus nocte et consumimur igni* quoted in McDonagh *Rereading Debord, rereading the Situationists*

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How Locative Media art set the agenda for mobile location aware apps (and why this still matters).

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Introduction
This paper explores the connection between Locative Media (LM) a set of art practices centred on location aware technologies and current Location Based Services (LBS) and applications. To achieve this LM will be traced to the origins of the term and to the originary ambitions driving this unique mode of engagement with emergent location-aware technologies. This involves returning to the first principles of the Karosta Locative Media workshop, its associated texts and to Ben Russell's "Headmap Manifesto" [1] to locate the intentions and ambitions embedded in the term itself.

From its inception at the locative media workshop in Karosta, Latvia in 2003 it can be said that LM has set itself the task of defining modes of operation for emergent locative technologies. These emphasise the technology's ability to augment space through revealing layers of meanings and associations which act to foreground the rich lived experience of place. With the growing ubiquity of locative technologies I propose that LM exerted a significant influence on these unfolding technologies shaping the application of the technologies resulting in a more user centred experience which opens the technology to a wider constituency beyond the realm of specialists. This influence goes beyond the specifics of similarities in approach between particular applications and artworks, representing a more fundamental conceptual shift in thinking about location which has far reaching implications for the future of locative applications.

The ambitions of LM
The term "Locative Media" originated at the "Locative Media Workshop : Mapping the Zone" event which took place in Karosta, Latvia in July 2003. The term was originally employed to distinguish the questioning artistic uses of locative technologies from their instrumentalised commercial and military uses. The proposition was that locative technologies, which had at this point only recently become widely available for civilian use, represented a fundamental shift (or the means to bring about such a shift) in our perception of geographic location. That the artistic uses of these technologies not only represented a new artistic form but had an important role to play in the opening up of the possibilities of these media to everyone. It was the embodiment of Ben Russell's prescient predictions in the Headmap Manifesto, "what was once the sole preserve of builders, architects and engineers falls into the hands of everyone: the ability to shape and organise the real world and the real space" [2]. Russell's is an unashamed utopian view but one which correctly identifies the potential of the convergence of high bandwidth mobile internet and location awareness in mobile devices to overlay real space with a geographically referenced layer of annotation and context sensitive information. His interest mirrors that of the Ubicomp [3] community of researchers but his concerns focus on the privileging of user-centric practices and the aspiration that these technologies become tools for creation rather then solely consumption. This concern echoes those expressed by the creators of urban annotation project "Urban Tapestries" that practices emerging around locative technologies (in 2003) were "unnecessarily impoverished" [4] a concern which Urban Tapestries sought to address.

LM can trace its origins to the year 2000 when "selective availability", an intentional degradation of the Global Positioning System (GPS) signal accuracy for non-military users, was switched off.

GPS, a multi-billion dollar space based positioning, navigation, and timing system established by the US Department of Defence and controlled by The U.S. National Executive Committee for Space-Based Positioning, Navigation, and Timing, then became a system in search of a new commercial market. Ben Russell commented that

hardware manufacturers seem to be producing devices that are as capable and open as possible, perhaps in the hope that users can tell them what the devices are for. In this sense, they seek grassroots and consumer level interpretation of what these devices are as surely as they seek an answer from corporate users. [5]

LM can be thought of as a range of art practices which sought to reinterpret these emergent technologies as bottom-up rather then top-down technologies [6] . Ben Russell placed it squarely at the convergence of a rapidly unfurling technology and the social and physical spaces in which it is being deployed, describing it as:

a new site for old discussions about the relationship of consciousness to place and other people. A framework within which to actively engage with, critique, and shape a rapid set of technological developments. A context within which to explore new and old models of communication, community and exchange.[7]

It is this sense of a practice which seeks to engage, to shape and to set the agenda for location aware technologies which defines LM. I propose that this engagement takes it beyond a purely oppositional stance confronting what has been seen as the flaw in tactical media which "point out the problem, and then run away" [8]. Through the introduction of novel practices and approaches toward technologies of location awareness, through questioning what this means and what it can mean, LM have in effect become involved in a process of shaping these emerging technologies. Lisa Parks in "Cultures in Orbit" asks "how might Western controlled satellite technologies be appropriated and used in the interests of a wider range of social formations?"[9]. Locative media offers one response.

Practices

I posit that this is due to locative media's influence on both the ways in which locative technologies are employed in an increasing range of everyday situations and fundamentally the way we think about and understand these technologies. This can be attributed to the set of user practices introduced by LM which shifted the meaning of these technologies through the privileging of user-centric modes of operation focusing on space as Lefebvrian *lived space.*

What do I mean when I speak of practice? At one level it can be though of as the ways in which users engage with technology, the usage modes and habits which grow up around new technologies [10]. On a deeper level it is the ways that the technologies are integrated into everyday life which makes them meaningful and therefore useful. Paul Dourish sees the concept of practice as "one that unites action and meaning" describing "how the world reveals itself to us as one that is meaningful for particular sorts of actions". He continues "part of what people are doing when they adopt and adapt technologies, incorporating them into their own work, is creating and communicating new meanings though those technologies as their working practices evolve" [11]. Crucially this process of making technologies meaningful comes through practice, it is not inherent in the technology nor can it be inscribed by designers being rather contingent on real world situations and revealed through practice [12]. The integration of new technologies into the everyday is dependent according to this account on a "supervening social necessity" [13]. Regardless of how innovative they are, technologies will not be adopted if they cannot be made to be meaningful in the context of the everyday.

The emphasis here is on what people actually do rather then what they are expected to do or are instructed to do. This can be described as tactical where "the imposed knowledge and symbolisms become objects manipulated by practitioners who have not produced them" [14], a form of resistance or subversion. Or in a less oppositional sense as simply part of a "process by which we can experience the world and our engagement with it as meaningful" [15]. In effect it is to be expected that practices can be both, acts of resistance and pragmatic acts of "appropriative assimilation". [16]

The corollary is that practices which add meaning to a technology have the power to reposition the technology from the original intent of its creators, hastening its acceptance through shaping the technology. My proposal is that the work that LM has done in this regard is at two levels; one it has established a set of practices for engaging with location-awareness, with GPS and other location technologies and with the networked devices that are enabled by them and secondly it has caused us to think about location differently, in effect acting to “recode relations” [17].

The first consumer orientated applications of locative technologies which achieved broad appeal were satnav devices, direct descendants of their military antecedents in their approach to position. They orientated around position as points on the Cartesian grid identified by co-ordinates of longitude and latitude with the connection between the satnav unit and GPS satellites ever present. Of course this makes sense in an application designed for navigation, up to a point. As satnav gained a wider user base and became part of everyday situations so to did the anecdotal and media reports of its shortcomings. The familiar accounts of mishaps attributed variously to an over reliance on fallible technology but more cogently to an inability of the technological practices to account for real contingent local conditions. While satnav still has a niche the focus of development for location aware technologies and associated applications has shifted to mobile devices and applications which have a very different character focusing on exploring the individual's relationship with her location and augmenting that experience in a meaningful way. In short drawing substantially on locative media practitioners ambitions for these technologies and their articulation of location as Lefebvrian "lived space".

Position vs Location

LM's articulation of location as lived space as distinct from the cartesianism of position is central to its approach. Position treats space as points on a cartesian grid identified by co-ordinates of longitude and latitude to be tracked and targeted with locative technologies ; for example as I write this at home an app on my iPhone locates me at 53˚17' 22.74" N latitude, -6˚8' 15.26" W longitude. Useful information if I were lost at sea, to or to be targeted by a Predator drone but it provides no information about the nature of this place, its history and the layers of association which constitute my relationship with it. In short it fails to address location as lived space and in doing so fails to build on the potential of the technology to enhance space. Location on the other hand is an “existential, inhabited, experienced and lived place” [18], the space of individuals and communities replete with histories, narratives and layers of association which imbue location with meaning which can be revealed and made visible through the application of locative media. I suggest that locative media's privileging of lived space and development of a rich set of practices building on the affordances of the technologies have introduced a new thinking about location and about how we might use location aware devices.

Tracing Influence: the afterglow of locative media

There is much to be gained in tracing the trajectory of location-aware technologies and their public acceptance from the early GPS-centric satnav to today's smartphone apps and to unpack the nuanced but nonetheless significant differences in how they think about location and place. If

location awareness is to be the nexus of mobile internet and the geospatial web then it assumes a pivotal role in the unfolding of these technologies and their integration into the everyday. It follows then that for location awareness the practices which grow up around them are a critical contested space for the future of digitally mediated space. This fact is recognised in the ambitions of locative media practitioners.

I propose that the practices employed by LBS, particularly those which potentially have a wide user base like Facebook Places or which capture the popular imagination like Foursquare, are the agents involved in shifting the balance of these technologies from control space (Deleuze) to enhanced space (Manovich). If we follow the short trajectory of locative technologies as they move from new technologies addressing specialist user groups of military, mariners and surveyors to their current position as emerging technologies tentatively reaching a broader constituency of everyday users employing a burgeoning constellation of devices and applications we find a commensurate shift in the meaning of location-awareness.

Locative media practitioners operate within this window developing practices which are sometimes experimental and other times eminently practical which establish a mode of operating for location aware technologies which, if successful, remain permanently inscribed. Through augmenting space with location specific narratives, personal annotation, through revealing hidden histories, ludically transforming everyday space into digitally mediated game-space and developing proximity based social networking it can be said that LM projects foreshadowed all of the key areas of current location aware applications and services. Space doesn't permit a comprehensive detailing of these so I will outline a few examples each indicative of an approach shared by a number of LM works.

Consider Urban Tapestries (UT) the 2002-2004 research project which used location aware mobile devices to allow users to virtually annotate physical space to be asynchronously accessed by others in the locations to which they referred. The project established a rich set of practices which were researched, tested and refined. Envisaged as a public authoring platform UT consciously adopted a position as a counterpoint to what they saw as the "unnecessarily impoverished" prevailing views of the application of location aware technologies seeking to instead find out

what it was about local places that mattered to people as they went about their daily routines. True daily life is richer and more complex than the traditional view, relying as much on social networks, personal experiences, and chance interactions and connections, so pervasive computing applications should attempt to reflect this [19]

Indeed this could be the mission statement for so many location aware mobile applications. Apps such as Color, Local Mind, Ditto, Whatser, Weddar, Foursquare, Gowalla, GraffitiGeo, SCVNGR, Yelp and Dopplr among many more share the concept of location as a social space defined by relationships and communities of interest through providing user tools for virtually annotating space . Building on the facility to quickly and accurately locate users mobile devices their focus is on location as lived space employing varying approaches and exhibiting an ambition to enhance space through fostering and building location based connections between individuals.

Similarly the practices of urban gaming, the ludic transformation of urban space mediated by mobile devices, introduced in LM projects such as Pacmanhatten and Blast Theory's Mixed-Reality games have pervaded LBS such as Foursquare and SCVNGR which incorporate game elements as well as location-based games such as Gbanga and AR games like Battle:Los Angeles. Proximity sensing familiar from LM works such as “Umbrella.net” (Brucker-Cohen, Morawakawi 2004) and “Aura” (Symons 2004), has become one of the fastest growing areas for LBS with the dating/contact apps of Gaydar, Grindr, Skout and Whoshere standing out in a crowded marketplace. LM projects which overlaid physical spaces with narrative and sound such as “Trace” (1999),

“Murmur” (2003), "34w118n" (2004) and "Media Portrait of the Liberties" (2004) have established a genre of their own with any number of location based heritage applications and commercially available apps such as those produced by companies like SoundWalks.

All changed, changed utterly...?

It is important to not overstate the extent of locative media's influence on location aware technologies or understate the challenges presented by the influx of development money as they enter the mainstream. These changes are incremental changes which insinuate themselves into the logic of the technology through introducing practices and ways of operating which are assimilated. They are however persistent, shifting user understanding of the technology which in turn impacts on the nature of development employing the technology. This is a process being continually renewed and challenged as new location-aware technologies emerge.

This does not necessarily result in a loss of agency for LM artworks. As illustrated by this author's 2010 “NAMAland” [20] an augmented-reality app which overlaid Dublin with a layer detailing patterns of property ownership associated with the Irish banking bailout. The project was a popular success becoming part of the national debate on the financial collapse. From the perspective of our argument here it permanently connected emerging AR technology with activist political critique. There is a sense in LM practice that the introduction of user-centric practices responding to real needs can and have shaped the trajectory. This is backed up by a realisation that as location-aware technologies become part of the everyday they "might have been otherwise" [21].

Conclusions

It is my contention that the engagement of locative media artists with location aware technologies has changed their application in a range of everyday situations and shifted concepts of location from a GPS-inspired instrumentalised vision of positioning to a richer user-centric conceptualisation as lived space. These changes are reflected in an ever increasing range of mobile applications and services. This does not necessarily mean that Locative Media *per se* needs to continue, Locative Media represents a mode of engagement which will evolve with the technology. This mode of engagement, in whatever form it may take, will continue to have agency in shaping locative technologies as bottom-up rather then top-down.

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JoyceWalks: remapping culture as tactical space

Introduction

This paper will discuss JoyceWalks, a participatory locative art project which uses Google Maps to remap routes from James Joyce's Ulysses to any city in the world. The project is web based using the Google Maps API[1] to remap these routes from Dublin to any other city and to generate walking maps which are then used as the basis of situationist inspired psychogeographical dérives.

This paper will argue that JoyceWalks acts as a tool through which participant action can be used to generate critical spatial knowledges of the urban environment. Through a structured mechanism of remapping spatially expressed cultural tropes such as (but not limited to) the Bloomsday celebrations in Dublin the project questions the spatial commodification of culture as part of what Sharon Zukin calls the symbolic economy of cities (3)[2] and its implied fragmentation of space into zones of culture and zones of what presumably can be described as 'non-culture'. My proposal is that JoyceWalks offers a mechanism for (re)mappings of cultural space in cities which privileges the social relationships of cultural production over the spatial and in the process offers an expandable set of procedures for generating situationist inspired explorations of urban space. I suggest that JoyceWalks produces ephemeral tactical spaces which are actuated by the user/participants and that this form, the 'tactical toolkit' as it were, represents an effective method for the interrogation of urban space.

Mapping Ulysses

The project chooses as its starting point Bloomsday, the annual celebration of James Joyce's Ulysses which takes place in Dublin on June 16th. Bloomsday is a typical cultural product that can be seen in almost any city in the world today. It involves re-enactment, a cultural trail, pageantry and a granting of locational identity to culture and a renegotiation of the spaces of the city according to a predefined cultural narrative. Ulysses is an ideal text for such an exercise and I'd like to take a moment to drill down a little into the relationship between Ulysses and the city and explore how it

1 API (Application Programming Interface). A set of programming tools which enable the user to use Google Maps resources for their own applications.

2 See Hegglund's discussion of the 'Wandering Rocks' episode of Ulysses

underpins this project. Ulysses is inextricably connected to the topography of Dublin and Joyce, while living abroad, famously mapped out the streets of Dublin with great precision from memory and through a close adherence to the 1904 edition of Thom's Almanac and ordnance survey maps (Budgen 1972, Hegglund 2003). The maps consulted were products of the great Imperial mapping projects of the 19th century, the Ordnance Survey of Ireland and the Great Trigonometrical Survey of India which adopted its methodology. These enterprises which established the modern notion of scientific cartography were inextricably involved in the construction of empire; the role of mapping in the construction and definition of territory is beyond the scope of this paper but has been widely discussed in the literature of critical cartography (Harley, Pickles, Woods). A parallel could be drawn between the 19th century mapping revolution which influenced Joyce to the current mapping revolution as typified by Google Maps where users are invited to construct their own territory through the API driven mashups which, through these facilities to overlay the map with new data sets, have tentatively reintroduced the idea of the neutrality of maps

There is also in Joyce another impulse at work which can be gleaned from Joyce's oft quoted remark that "I want to give a picture of Dublin so complete that if the city one day suddenly disappeared from the face of the earth it could be reconstructed out of my book" (Budgen 1972 : 69) indicating (what Daniel Birnbaum[3] might call) the world making intent of his project, Joyce too seeks to construct territory3 but unlike the imperial project of constructing and defining the empire he constructs Dublin through the everyday actions of its inhabitants which can then be extrapolating to a universal narrative of the city. In effect Ulysses can be thought of as presenting a city which is brought into being through the actions of its inhabitants. I connect this to Michel de Certeau's writing on walking in the city where when speaking of pedestrian movements he asserts that "their intertwining paths give their shape to spaces. They weave places together. In that respect, pedestrian movements form one of those real systems whose existence in fact makes up the city." (de Certeau 1984:97) JoyceWalks is, in this de Certian way, a walking project, one which is involved in the production of its own space through the manipulation of existing spatial elements. This process is mediated through the web and enacted on the street and can be thought as taking place in a hybrid space (Kluitenberg 2006) with elements of the network facilitating real street based actions.

While I would argue that Ulysses is a particularly rich starting point for this project I recognise also that Bloomsday exists primarily as a generic cultural product in a wider scheme of cultural commodification, belonging in particular to a class of spatially contingent products -such as cultural trails, cultural quarters and so on - which denote zones of culture and construct the symbolic

3 Director of the 53rd Venice Biannale of Art 'Making Worlds' http://www.labiennale.org/en/art/exhibition

economy of the city. In Dublin Bloomsday has a pivotal role to play in this process and as it can be claimed that in Ulysses Joyce constructs a version of the city of Dublin it is also true that Bloomsday, the cultural event, in turn reconstructs the city of Dublin as the 'Joycean City' which is itself a subset of 'Literary Dublin'. JoyceWalks Techniques

Before exploring further the idea of JoyceWalks as a producer of spaces I want to briefly discuss how it works on a practical level. JoyceWalks is based on the Google maps API. The original routes are mapped out in Dublin through a close adherence to the text of individual chapters of Ulysses. Each route takes place within a single chapter of Ulysses, nine or ten points of significance are identified which are expressed as points of longitude and latitude each point has an associated text from Ulysses. At the moment three chapters are available, chosen for routes that are easily walked.

To use JoyceWalks the participant chooses a city to walk in, selects a chapter route and crucially chooses a centre point for the selected city. The original Dublin routes are then remapped to your chosen city through a procedure of linear transformation (with the centre point as origin) which moves each point of longitude and latitude to an analogous location in the new city. This results in a isometric reflection which retains the relationship between all places of significance in the route. The points on the mashup retain the associated text from Ulysses so participants can choose to read the text at each location. After a walk is completed, participants can upload images or videos associated with each point and the resulting final mashup is accessible for other users to view the route, text and images. To ensure the uniqueness of each walk generated the project has many in-built features to ensure variability; to map a route the user must select a centre point of the city and the route is generated in relation to this centre point, the points of the walk are draggable and repositionable, there is no snapping to the line of streets, points are joined by straight lines, taking them though buildings and obstacles which the walkers must negotiate at street level increasing the routes' contingency on local conditions. The mechanisms and code behind JoyceWalks are extensible and it is proposed that future development will allow the user/participant to create and customise their own routes using GPS tracklogs or by importing routes created with Google Earth/Maps. The option of downloading your route to a GPS enabled device will also be added shortly, this feature was deliberately left out of the first version to emphasise the traditional experience of trying to find your way with a map, a familiar locative experience and one very different in character to using the latest locative technologies to navigate the city.

Reframing Space

I have previously discussed the way in which Ulysses (and Bloomsday) is embedded in Dublin and its role in the definition and perhaps even the reinvention of the city. JoyceWalks asks the seemingly

simple question, what happens if you move it ? Through displacing the cultural trail from the site of its locational identity one assumes that it neutralises that identity and removes not only its role in the construction of this cultural economy of the city but also collaterally the cultural resonance of its engagement with the text and site. In actuality the results are more nuanced and less straightforward then they would appear. Certainly the geographic displacement neutralises the specifically locational elements of the narrative but in the process forces a re-engagement with the idea of the cultural trail. JoyceWalks remains a cultural trail but one in which the conventions of how to operate have been disrupted. It reframes the cultural trail not as an instrumentalised spatial product of the symbolic/cultural economy but as a socio spatial production of a temporary, ephemeral space. As the project shifts between the certainties of Google maps with its all- encompassing, totalising viewpoint to the often confusing realities of navigating through the superimposed spaces of Joycean remappings at street level participants must re-imagine its meaning, re-invent its procedures and re-think the mode of operation and through this process produce a temporary re-encoding of the spatial code which in turn facilitates alternative and critical spatial readings of the city.

I would like at this point to disconnect the project from Joyce and Ulysses. Their role is to act as a framing device for the project establishing a set of procedures or score[4] which indicates a mode of action for the participants in their engagement with the space of the city rather then a prescriptive set of instructions which govern the enactment/performance of the work . In the disruptive process of remapping cultural spaces JoyceWalks subverts the function of the Joycean routes transforming them into a set of procedures for navigating city spaces in new and unexpected ways. I consider the remappings to be a form of generative (situationist) dérive and suggest that the situationist tactics of the dérive and détournement (Debord, Knabb) offer powerful methods for considering the technological city which lend themselves to a contemporary reworking in locative art. Guy Debord described the dérive as "a technique of rapid passage through varied ambiences" which "involve playful-constructive behavior and awareness of psychogeographical effects" (Debord 1956) but he also warned of the limitations of relying on chance as it was ' naturally conservative and in a new setting tends to reduce everything to habit or to an alternation between a limited number of variants" urging that "progress means breaking through fields where chance holds sway by creating new conditions more favorable to our purposes. We can say, then, that the randomness of a dérive is fundamentally different from that of the stroll, but also that the first psychogeographical attractions discovered by dérivers may tend to fixate them around new habitual axes, to which they will constantly be drawn back." (Debord 1956) In its offering of a algorithmic approach to the dérive which combines the randomness of the generated route with a set of mapped instructions I argue

4 After the Fluxus 'event score' introduced by Georges Brecht

that it removes this danger of the habitual resurfacing and as such is a legitimate contemporary reworking of the Situationist dérive.

The Production of Tactical Space

In The Production of Space Lefebvre argues that space cannot be considered as an empty neutral container in which objects and people are situated (Lefebvre 1991:68). Rather space is a social product, defined by a complex set of interrelationships and the "outcome of a sequence and set of operations" (Lefebvre:73) this production process results in a multiplicity of interconnected and overlapping spaces which influence, and are influenced by, each other (Lefebvre 1991:86-87). Space, he suggests, isn't superseded whenever a new space is produced but rather each space overlays previously produced spaces resulting in a multi-layered space in which the layers "co-exist, overlap and interfere" (Lefebvre 1991 :86) which other and that it is the dynamic relationship between these layers which establishes the nature of social space (Lefebvre1991:86- 87). Social space in turn acts as a tool of control in that it is "what permits fresh actions to occur, while suggesting others and prohibiting yet others" (Lefebvre 1991:73) . If as Lefebvre argues space is in a state of continuous production, a state of continually being brought into existence, then it is the process rather then the product which is of most interest. This leads on to to an acceptance that location, for example as defined by a set of co-ordinates of longitude and latitude or by being named in a text, is of small importance in and of itself. Of greater significance is how that location is related to other locations and to the practices which define that location. It is the practice, the procedures and the process that lead up to, for example, standing at a specific location as a participant in a locative art work that matter rather then the GPS co-ordinates of that location. With JoyceWalks the spaces produced can be considered as Lefebvre's 'lived space' where users transform and manipulate imposed space to make it their own (Lefebvre 1991:39) . This space disrupts and interferes with the existing spatial encoding and, it is proposed, suggest new modes of spatial practice outside of existing spatialisations.

The space produced by JoyceWalks can be further described by Michel de Certeau's definition of space as the locus of tactics. 'Space' according to de Certeau is 'place' actuated by the "ensemble of movements deployed within it" which "occurs as the effect produced by the operations that orient it, situate it, temporalise it" (1984:117). It could be said that space is place+practice and so the streets are transformed into the space of JoyceWalks through the actions of the participants as they walk the JoyceWalks routes in a temporary transformative appropriation of place. In this way they can be considered tactical interventions. According to de Certeau tactics insinuate themselves into " the other place fragmentarily, without taking it over in its entirety"(1984:32). they are opportunistic

ways of operating within a system, of manipulating the imposed system and turning it to its own advantage

Conclusion

While it is important not to over claim the significance of these small spatial interventions I would propose that these tactical appropriations of space have the potential to produce critical spatial knowledges. JoyceWalks is structured to retain an essential openness in its offering of a set of procedures without a prescriptive mode of operating so that it is the action of the participants which actuates the space of JoyceWalks. The work hinges on the interaction between the walkers and the route with each space produced being a unique contingent spatio-temporal event. With almost 500 JoyceWalks taken place in over 70 countries each walk also sits within a larger ongoing work involving a geographically dispersed series of tactical interventions facilitating multiple re-encodings of the spatial code enabling alternative and critical spatial readings of the city.

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