EDITORIAL PREFACE

Changing Worlds:
The Arrival of Truly Global Augmented Reality

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If you think about it, there has not been a breakthrough 'augmented reality product' as promised in all the technology predictions made through the years. Perhaps that could change as geeks add an extra layer to our life enabling us to experience and share our thoughts and visuals in various ways. Google are about to release a massively multiplayer online game that uses the real world as its map. The project, internally named Nemesis, has been tested by Google employees over the last six months. This large-scale project has been hinted at online in a number of cryptic messages. In a nut-shell, players can attack and defend virtual control points at landmarks but they have to actually be there. Not exactly armchair gaming then.

The game called Ingress is freely available for Android devices and integrates with the physical world to run in real-time. It has a sophisticated back-story with supporting website and online community actively encouraging people to participate in the fictional project. The site contains notes and clues pinned to a pegboard, as well as shareable content on Facebook, Google+ and Twitter. The back-story is that scientists have released a mysterious energy into the world by accident. This energy is gathering in real-world locations which are described as portals. A building or landmark nearby could be a portal, and they are under the control of one of the game's two sides. Players within 40 meters of the physical structures can interact with the image on the phone. Players in less well-covered areas can suggest that interesting landmarks to them should become new game portals by taking geotagged photos. The phone basically acts as a GPS device and a controller. Players can hack portals or protect them among other actions. Much of this has not yet been revealed so it is difficult to predict the success of such an ambitious project.

Google are not creating such a project out of philanthropy but hope to test whether the game can lead traffic into real world stores, as well as online. They are testing brands like Jamba Juice, Zipcar, and Chrome Bags Store. It seems QR codes may be one integration method for the game.

This is not the first Augmented Reality game. Even I was working on Urban games 10 years ago due to my background in networking and programming. The Urban Game I helped

build was for an Irish gaming company who wanted a Treasure Trek game for corporate parties. The idea was that teams equipped with PDAs capable of reading RFID tags would compete against each other in a bid to solve clues in the correct order, in a shorter time than their opponents. Clues were displayed in a pre-defined order on a PDA belonging to each team and referred to the location of hidden RFID tags within a specified game area. Tags were embedded in the structure and architecture of the game area, and could be hidden in a variety of places, such as statues, walls, fabrics, pictures or even books. Players had to deduce the correct location and scan the tag before proceeding to the next clue. In this way the exact physical location of the players could be pinpointed to a precise location at an exact moment in time. Teams travelled on foot and begun at staggered start times to prevent congestion at clue locations. Hardly earth shattering but like most urban games - there was simply no market for the company to exploit.

Google plans to make real-world game tools used in this project available as a platform for developers to create their own. It is widely expected that Google's Project Glass which is headed by founder Sergey Brin will become an accessory to the game. A large part of me feels that such a project needs a kickass technology such as Google Glass to create the critical mass of players which then leads to the production of more enhanced augmented reality games from the major gaming studios. It really remains to be seen what the chances of being a hit are. All we can say is that with Google behind it - it has every chance.

Most urban games are multiplayer; often team based, and extremely interactive, requiring participants to run around myriad streets governed by the information they receive on their mobile devices as to the location of clues or opponents. Some urban games have been adapted from stalwart rudimentary games such as Pac-Man and others the contemporary innovations of a futuristic generation. Urban Challenge was one such urban game deployed across a city where participants were required to visit twelve checkpoints in correct order; the only allowable methods of travel being on foot or local public transportation. The Bill was another urban game which actually exploited the gaps or seams that exist in computer networks. The game was designed so that players move in and out of areas of wireless network coverage, taking advantage of the connectivity within a wireless hotspot and also of the lack of connectivity outside it, thus exploring how this concept could be a source of design ideas for urban games.

It was Geocaching however that was widely accepted as the predominate pioneer of urban gaming. In this global treasure hunt GPS equipped participants seek containers, known as caches; the GPS coordinates of which have been posted on a web site. Caches contain a log book and 'treasure' and are hidden in publicly accessible places. Once found, a cache provides the visitor with a variety of rewards. Visitors are obligated however to replace items removed from the cache with new treasures for subsequent seekers, sign the logbook, and later report the find on the website.

My personal favourite urban game was Pac Manhattan which was played on streets of Manhattan. Basically you had one player who was pacman and another four who were ghosts. The aim of pacman was to move through a series of streets in the predefined grid in order to gobble up the virtual dots whilst avoiding being captured by the ghosts. There was a command and relay centre to help guide him. Urban gaming has immense potential and an increasing following, but is somewhat hampered by existing technologies. GPS, the more commonly used technology in this genre is prone to serious limitations in urban areas and often proves too coarse for accurate location based gaming.

So onto this issue. "Analyzing the Behavior of Smartphone Service Users" by Fagan, Caulfield, and Meier reports the findings of a study into the behavior of the users of a mobile service where they analysed the behavior of travellers using a Smartphone application to access real-time transit information and contrasted such

user behavior with that of users accessing a transit information service from a website. They specifically explored the behavior patterns of travellers using a Smartphone service and those using a website to provide real-time transit information. Based on empirical data derived from real information services, the impact on user behavior of providing a mobile service is analyzed and contrasted to traditional Web-based service provision. The Smartphone service is furthermore used to conduct a passenger survey to obtain information on the individuals using the mobile service. The results presented demonstrate that the demand for information from the website is constant throughout the working week whereas demand for Smartphone information increases during the week peaking during late afternoons and on Fridays.

Aloudat and Michael in "Towards a Conceptual Model of User Acceptance of Location-Based Emergency Services" investigate the introduction of location-based services by government as part of an all-hazards approach to modern emergency management solutions. Its main contribution is in exploring the determinants of an individual's acceptance or rejection of location services. The authors put forward a conceptual model to better predict why an individual would accept or reject such services, especially with respect to emergencies. While it may be posited by government agencies that individuals would unanimously wish to accept life-saving and life-sustaining location services for their well-being, this view remains untested. It is argued the conceptual model presented would yield to the field of location-based services research a justifiable theoretical approach competent for exploitation in further empirical research in a variety of contexts (e.g. national security).

Ribeiro and José in "Smart Content Selection for Public Displays in Ambient Intelligence Environments" provides an overview of the key challenges involved and an exploration of some of the main alternatives available in the ability to autonomously select appropriate content based on some interpretation of the surrounding social context. It also describes a novel place-based content adaptation system that autonomously selects from web sources the content deemed more relevant according to a dynamic place model. This model is based on a tag cloud that combines content suggestions expressed by multiple place visitors with those expressed by the place owner. Evaluation results have shown that a place tag cloud can provide a valuable approach to this issue and that people recognize and understand the sensitivity of the system to their demands.

Finally in "Keyword-based Sentiment Mining using Twitter" by Baumgarten, Mulvenna, Rooney, and Reid we discover that Big Data are the new frontier for businesses and governments alike. Dealing with big data and extracting valuable and actionable knowledge from it poses one of the biggest challenges in computing and, simultaneously, provides one of the greatest opportunities for business, government and society alike. The content produced by the social media community and in particular the micro blogging community reflects one of the most opinion- and knowledge-rich, real-time accessible, expressive and diverse data sources, both in terms of content itself as well as context related knowledge such as user profiles including user relations. Harnessing the embedded knowledge and in particular the underlying opinion about certain topics and gaining a deeper understanding of the overall context will provide new opportunities in the inclusion of user opinions and preferences. This paper discusses a keyword-based classifier for short message based sentiment mining. It outlines a simple classification mechanism that has the potential to be extended to include additional sentiment dimensions. Eventually, this could provide a deeper understanding about user preferences, which in turn could actively and in almost real time influence further development activities or marketing campaigns.

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