'Getting it up' with mobile virtual graffiti

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Abstract: Since the first appearance of modern man one trait of human behaviour appears to be an inherent desire to leave our mark on a particular object or space and controversial 'SprayCan' graffiti that appeared in the 1970s is but a modern extension of this phenomenon. The Mobspray project started out looking at the possibilities for allowing environmentally friendly location based virtual graffiti tagging using mobile phones equipped with a RFID reader/writer. However, our experiences produce aspects akin to the 'tagging' behaviour of 'real' writing crews and indeed behaviour often associated with gaming. This demonstration will show how both how simple and easy to use mobile phones equipped with RFID technology are, and how tangible objects can be used to create interesting mixed reality experiences for the modern urban landscape.

1. Introduction

If applications are to achieve the vision of pervasive then they must become part of our everyday fabric of our lives and existence [1] and will often require us to provide users with the ability to interact with objects and places within both real and virtual worlds. One trait of human behaviour in the interaction with the physical world appears to be an inherent passion for leaving our mark on objects. One particular manifestation of this is phenomenon is the spray-can graffiti, in particular tagging[1] [2], that first appeared in during the late 60's and early 70's and has become part of the modern landscape. Whilst it is subject that often polarises opinion it does represent a cultural activity were people interact with tangible objects in a physical landscape and as such is offers and interesting opportunity for a digital location based activity. To this end we present the Mobspray project [2] which utilises mobile phones coupled with the emerging pervasive technology of Radio Frequency Identification (RFID) to produce an innovative representation of graffiti.

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[1] A tag is the most basic form of modern graffiti art representing the writer's signature. It is normally in the form of a moniker or nickname of four to six letters in length.

2. Mobile graffiti system

Mobspray uses stick-on 13.5 MHz RFID tags that are not a repository for the actual writers tag but represent a physical location where digital writers can 'get-up" their mobtag[2] using the application on their mobile phone. For this project we produced postcards with the Mobile SprayCan logo and RFID tags attached, as shown in Figure 1(b), to make tag sites easily identifiable for our test crew[3] whose tags are show in Figure 1(a).

Figure 1. Mobspray crew mobtags (monkE, LOC, Nboy, Milo, 2Tvo, haich)(a), Mobspray site marker(b), and, Interactive map from Mobspray website (c).

Writers first register on the project website, www.mobspray.com (Figure 1 (c)), with a unique tag name of up to five characters and then upload their own custom mobtag to the database operating on this central server. Writers' are then able to use their own mobtags, or view other writers' mobtags, by accessing this database using a GPRS connection initiated by the J2ME application on the phone when an RFID tag is read as shown in Figure 2.

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[2] To avoid confusion between RFID tags and graffiti tags we have coined the term 'mobtag' to describe the images created in this project.
[3] A crew is the term used by graffiti writers for a collection of like minded individuals who all adopt a certain style.

Figure 2. Mobspray Application Screenshots

Once a writer reads an RFID tag, the client application displays the contents of the RFID tag which consists of a tag location string, and the names of last writers to have visited that particular RFID tag. The application then connects to the database which returns the time and date at which those writers tagged that location. The writer can then choose to view any of the writers' mobtag images or place their own mobtag at that location and these details are stored within the database. If the user chooses to write his tag, the application creates a new list of the last 5 writers by dropping the last writer from the previous list and shifting the remaining by one position. This list is then written on the RFID tag.

It would be possible to achieve the same functionality without storing any data on RFID tags, with writers' interactions and the tag location stored server-side. However, the design outlined was chosen in order to demonstrate the potential for future systems where tag storage is not as severely constrained and also because of graffiti's inherent nature of physical interaction with a particular location.

3. User Experience

Although, only a small proportion of our test crew of writers had a specific interest in graffiti, their experiences do highlight some interesting experiences of utilizing this technology and produce aspects

akin to the tagging behavior of 'real' writing crews and indeed behavior often associated with gaming.

Firstly, as we had linked the website to the mobtags a competitive aspect of tagging did emerge as writers tried to get their tag on as many locations as possible, a practice known as 'bombing' amongst conventional writers. There is an obvious ludic parallel of trying to win the game and indeed a game based around this premise could prove popular.

Secondly, the mobtags started out as very simple one color signatures in the majority of cases but a competitive element emerged where the mobtags became much more elaborate in a similar vein to traditional spraycan tags as discussed in section two. This is also akin to the ludic desire of identifying yourself as an experienced player rather than a novice.

Finally, the storage of a list of the last writers to tag a particular location gave a sense of community and belonging to a space which appears to be an important attribute for most writers.

In terms of the tagging process, it was perceived to be extremely easy and most of the crew commented that the act of actually touching the object you wished to communicate with seemed very obvious and natural. The major criticism was related to not having the ability to create the mobtags using the mobile phone directly which was a limitation of the devices themselves and is something we are trying to address with a future evolution.

4. Conclusions

Although Graffiti can be understood as physical manifestations of personal and communal ideologies which are visually striking, insistent, and provocative; as such, they are worthy of the continued attention. The Mobile Spray Can project is but our first step towards providing a system that will allow writers to continue to express themselves but without producing the physical. Further, this project highlights the potential for mobile phones equipped with RFID/NFC capabilities enabling many other applications, such as games.

References

1. Paulos, E. "Mobile Play: Blogging, Tagging, and Messaging" available as a white paper at http://whitepapers.techrepublic.com.

2. Garner, P., Rashid, O., Coulton, P., and Edwards, R., "The Mobile Phone as a Digital SprayCan", ACM SIGCHI International Conference on Advances In Computer Entertainment Technology, Hollywood, USA, 14-16 June 2006.