Objects of Wonderment: Hullabaloo

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ABSTRACT

No longer confined to our offices, schools, and homes, technology is expanding at an astonishing rate across our everyday public urban landscapes. From the visible (mobile phones, laptops, and blackberries) to the invisible (GPS, WiFi, GSM, and EVDO), we find the full spectrum of digital technologies transforming nearly every facet of our urban experience. Many current urban computing systems focus on improving our efficiency and productivity in the city by providing "location services" and/or interactive navigation and mapping tools. While agreeing with the need for such systems, we are reminded that urban life spans a much wider range of emotions and experiences. Our claim is that our successful future urban technological tools will be those that incorporate the full range of urban experiences – from improving productivity and efficiency to promoting wonderment and daydreaming. We present early work in this area with *Hullabaloo* – a prototype Object of Wonderment.

INTRODUCTION

The industrial era metropolis is transforming into the digital era *metapolis* – a place of places, a dynamic and mutable system made up of collisions, encounters and intersections that end up yielding an extensive variety of combinations and scenarios, both real and virtual, specific and general [4]. It is natural that we wonder about our relationship within this new hyper-place and across its wide spectrum of situations. In this research we undertake the deconstruction of the mobile phone away from its typical use as a personal tool for communication and instead physically attach it to a place such as a light post, stop sign, tree, or park bench. We further permute the mobile phone by attaching a collection of sensors and actuators, transforming its roll to that of public object. In this setting the mobile phone serves as the central element in a toolkit for promoting wonderment – the *Objects of Wonderment Toolkit*.

Wonderment

More than just problem solvers, we are creatures of boundless curiosity. Mixed within our moments of productivity are brief instances of daydreaming. We find ourselves astonished and in awe of not just the extraordinary, but the ordinary. We marvel at mundane everyday experiences and objects that evoke mystery, doubt, and uncertainty. How many newspapers has that person sold today? When was that bus last repaired? How far have I walked today? How many people have ever sat on that bench? Does that woman own a cat? Did a child or adult spit that gum onto the sidewalk? These are all feelings of wonderment that color and enrich our lives. To some degree, we all experience such thoughts every day. These feelings are difficult to measure and nearly impossible to assign a value. Nonetheless, these episodes are part of our lives and as such deserve a place within the discussion of our future digital technologies. How can we design technology to support such wonderment? This paper presents a brief introduction to the development of a toolkit designed specifically to enable others to easily create and author new urban objects for their city – Objects of Wonderment. Our work builds on a larger historical body of research exploring similar themes such as designing for the ludic [5], ambiguous [6], strange [1], slow [8, 10], noir [2], and hermeneutic [11].

Goals

Our goal is not to provide general purpose holistic solutions to problems within the complex social, cultural, political, and economic ecology of urban life. Rather, we hope to merely expand the vocabulary of potential urban technologies, enabling a wider range of choices as we form our future urban lifestyles. Our final designs are intended to provoke open ended discussions around urban technologies rather than present "killer apps" or final solutions.

OBJECTS OF WONDERMENT TOOLKIT

Contrary to location based services and corporate generated productivity tools; our goal is to create a simplified open source toolkit that the public can use to easily create new public urban objects that promote wonderment. By allowing anyone to design and deploy these new city objects, we are directly empowering people to participate in the authorship of their emerging digital era *metapolis* with emotionally meaningful technological objects that matter. Objects of Wonderment are scoped to focus on "public object" + "public sensing" + "public expression" = "personal reflection". That is, these new objects should be public in nature and promote wonderment.

Deconstructing the Mobile Phone

Central to the *Objects of Wonderment Toolkit* is the mobile phone. While there are a wide range of physical toolkits [3, 7, 9], the use of the mobile phone allows for a hacker style, DIY (Do It Yourself) mentality using standard everyday consumer technology as the basic building block. Already

a throw away item, discarded mobile phone can be repurposed back to life serving as the cores for these *Objects of Wonderment*. It is important that other single board computers and embedded processors are not used. This keeps the cost low as well as the accessibility of the system to a wide range of non-experts. Using the phone has several advantages: (1) these objects are easily networked to the phone network, (2) by design they readily interact with existing urban technologies such as Bluetooth, SMS, and MMS, and (3) provide a functional color display.

Think of the mobile phone not simply as an interface from person to person but as belonging to a place. Using the phone as the primary building block for the toolkit, we can then connect it to a variety of sensors and actuators. We are currently developing much of the technology to enable this system. However, in this paper we briefly describe *Hullabaloo*, a prototype *Object of Wonderment*.

HULLABALOO

As part of a larger study on the $4 billion worldwide ringtones market, shared public urban objects, and urban sounds, we were able to create *Hullabaloo*. *Hullabaloo* was developed as a proof of concept for motivating the *Objects of Wonderment Toolkit*. Like the toolkit, at its core is a single mobile phone, in this case a Nokia N80 enclosed within a casing to allow outdoor unattended deployment. Attached is a single output speaker similarly encased (Figure 2).
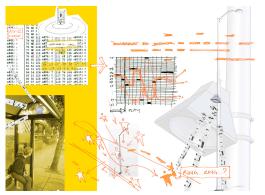

Figure 1: Schematic of Bluetooth ID sniffing to Audio Output

Currently, ringtones on mobile phones have a private meaning but create a public experience. The idea is to see if we could generate a "place based ringtone" that would be dynamic mashup of the people nearby. We use the phone's built-in Bluetooth sensor to sniff nearly Bluetooth devices. We are able to retrieve a unique ID and name of the device. The ID also provides information on the device manufacturer. The results of this live scan are shown on the screen of the mobile phone. Similarly, each ID triggers a unique audio output that mixes with the others nearby. The resulting sound is played out the speaker. A schematic diagram of this interaction is outlined in Figure 1. The sounds are deterministic – that is if the same people are around it will produce the same sound.

Figure 2: Hullabaloo's Encased Mobile Phone and Speaker

We are experimenting with enabling deployment of such dynamic ringtones to phones. Similarly, we are experimenting with allowing the uploading of new audio content to the system. The entire system is shown below.

Figure 3: Deployed Hullabaloo Object of Wonderment

CONCLUSION

Computing in and across our urban landscapes is rapidly transforming our everyday experiences of city life. As we adopt such technologies, let's insure that we embrace the full scope of urban life with all of its emotions, from productivity and efficiency to daydreaming and wonderment. Let's not confuse frenzy with efficiency. *Hullabaloo* presents what we believe is an encouraging and simple approach towards expanding our range of choices as we adopt technologies into our future urban lifestyles.

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