

Near-Future Urban Archaeology

The Sentient City Survival Kit

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To what extent can artists and designers develop instruments that, using the newest digital technology, question how we will live our lives in the (near) future? In search of an answer, the editors of *Open* asked artist, architect and researcher Mark Shepard to write about his research project The Sentient City Survival Kit.

The Sentient City Survival Kit is a design research project that probes the social, cultural and political implications of ubiquitous computing for urban environments. Conceived as an archaeology of the near future, the project consists of designing, fabricating and publicly presenting a collection of artefacts for 'survival' in the near-future 'sentient' city.

As computing leaves the desktop and spills out onto the sidewalks, streets and public spaces of the city, information processing becomes embedded in and distributed throughout the material fabric of everyday urban space. Ubiquitous computing evangelists herald a coming age of urban information systems capable of sensing and responding to the events and activities transpiring around them. Imbued with the capacity to remember, correlate and anticipate, this 'sentient' city is envisioned as being capable of reflexively monitoring our behaviour within it and becoming an active agent in the organization of our daily lives.

Few may quibble about 'smart' traffic light control systems that more efficiently manage the ebbs and flows of trucks, cars and busses on our city streets. Some may be irritated when discount coupons for their favourite espresso drink are beamed to their mobile phone as they pass by Starbucks. Many are likely to protest when they are denied passage through a subway turnstile because the system 'senses' that their purchasing habits, mobility patterns and current galvanic skin response (GSR) reading happens to match the profile of a terrorist.

The project investigates the darker side of this near future urban imaginary and posits a set of playful and ironic technosocial artefacts that explore the implications for privacy, autonomy, trust and serendipity of this highly observant, ever more efficient and overcoded city.

Context-awareness plays a significant role in current research in sentient systems. In addition to sensing where someone is, factors such as whom they are with and what time of day it is reduces the possibility space within which inferences and predictions are made. This real-time information is correlated with historical data of someone's mobility patterns, purchasing history, social relations and personal preferences (as reflected by user-generated profiles) in order to make more accurate predictions about what his or her wants and needs may currently be, or what actions s / he is likely to take next.

MIT's Serendipity project,¹ for example, draws on the real-time sensing of proximate others using Bluetooth technologies built into mobile phones to search for matching

patterns in profiles of people's interests. Developed by the Human Dynamics Group at the Media Lab, the project's goal is to facilitate corporate productivity by providing a matchmaking service for workers with shared interests or complimentary needs and skills who otherwise might not encounter each other within spaces organized around the office cubicle. A typical design scenario involves one worker needing the skills of another and the system facilitating their meeting: 'When we were passing each other in the hallway, my phone would sense the presence of his phone. It would then connect to our server, which would recognize that Tom has extensive expertise in a specific area that I was currently struggling with. If both of our phones had been set to "available" mode, two picture messages would have been sent to alert us of our common interests, and we might have stopped to talk instead of walking by each other.'²

This project presents at least two assumptions that are worth exploring further. The first is that 'matchmaking' should be based on comparing profiles and looking for 'synergies' between two people. If the term 'serendipity' is understood to mean the process of finding something by looking for something else, the Serendipity project does precisely the opposite: it simply outsources the problem of finding something we are already looking for (that 'expertise in a specific area that I was currently struggling with' that I have somehow indicated in my profile). Secondly, while the introduction of 'available' mode suggests that some attempt has been made to address privacy issues, there is no consideration of who has access to your profile data and how they use it.

Profile data considered private in one context can be publicly revealing in another. A another MIT project by two graduate students, code-named *Gaydar*,³ mined Facebook profile information to see if people were revealing more than they realized by using the social networking site. By looking at a person's online friends, they found that they could predict that person's sexual orientation. They did this with a software program that looked at the gender and sexuality of a person's friends and, using statistical analysis, made a prediction. While the project lacked scientific rigor – they verified their results using their personal knowledge of 10 people in the network who were gay but did not declare it on their Facebook page – it does point to the possibility that information disclosed in one context may be used to interpret information in another.

Crang and Graham's recent essay 'Sentient Cities: Ambient Intelligence and the Politics of Urban Space'⁴ does a great job at outlining how corporate and military agendas are currently driving these technological ecosystems we're likely to cohabit with in the near future. Mapping current research and development on the Sentient City, they point to location-based search results and target-marketing databases storing finely grained purchasing histories as steps toward 'data-driven mass customization based on continuous, real-time monitoring of consumers'. Further, citing a study by the US Defense Science Board calling for a 'New Manhattan Project' based on Ambient Intelligence for 'Tracking, Targeting and Locating' they outline an Orwellian future that is in fact currently in operation in lower Manhattan.

The Lower Manhattan Security Initiative,⁵ as the plan is called, resembles London's so-called Ring of Steel, an extensive web of cameras and roadblocks designed to detect, track and deter terrorists. The system went live in November 2008 with 156 surveillance cameras and 30 mobile license plate readers. Designed for 3,000 public and private security cameras below Canal Street, this system will include not only license plate readers but also movable roadblocks. Pivoting gates would be installed at critical intersections and would swing out to block traffic or a suspect car at the push of a button.

While the implications of projects like *Serendipity* occupy a relatively benign problem space, *The Lower Manhattan Security Initiative* points towards possibly more serious outcomes from the false positives (or false negatives) inevitably generated by the pattern matching and data mining algorithms at the core of these systems. What happens when Facebook profile data is added to the mix? Is information about us that is collected

through inference engines subject to the same privacy regulations as the data upon which it is based? What are the mechanisms by which these systems will gain our trust? In what ways does our autonomy become compromised? Do we care and does it matter? How do the answers to these questions differ depending upon where in the world they are asked?

While it may be intriguing to attempt to pose answers to these speculative questions about potential futures, perhaps a more pressing challenge is to identify concrete examples in the present around which we might organize a public debate that aims to both sharpen and broaden the questions we ask ourselves about what kind of future we want. In the wake of a massive, global financial crisis and increasingly grim environmental forecasts, the general public is finally beginning to register that as a planet we need to negotiate our way of life with those of the various actants and ecosystems with which we cohabitate, be they environmental, political, economic, social or technological. While Crang and Graham do help us understand current corporate and military agendas, their analysis of the role of artists and designers working with embedded and pervasive technologies as one of 're-enchanting urban space' – of making visible the invisible traces of things past, a 'haunting of place with absent others' – renders artistic practice in relatively conservative and familiar terms, casting art in a reactionary role vis-à-vis technological development. What other roles might artists, architects and designers play in shaping how we inhabit the near-future Sentient City?

The Sentient City Survival Kit takes as its method a critical design practice that looks towards archaeology for guidance. Archaeology involves the (re)construction of a world through fragments of artefacts, where past cultures are reconstituted in the present through specific socializing and spatializing practices involving mapping, classifying, collecting and curating. Cultural knowledge is reproduced through relating in space and time the traces and remains of people, places, things, activities and events. Collections of archaeological artefacts serve to reveal the everyday social and spatial relations of societies not contemporary with ours, yet recontextualized within the present. Greg Stevenson refers to an archaeology of the contemporary past as 'the design history of the everyday',⁶ where common objects drawn from daily life do not simply (passively) reflect cultural forces (trends in taste and fashion, for example) but also actively participate in shaping the evolving social and spatial relations between people and their environment.

Positing an archaeology not of the contemporary past but of the proximate future, the project takes the practice of designing everyday artefacts as a vehicle for shaping tomorrow's cities. The aim here is to attempt to instigate the process of imagining a future city and its inhabitants through fragments and traces of a society yet to exist. Collectively, the artefacts, spaces and media that constitute the Survival Kit ask: Who made me, and for what purpose? What relations between people and their environment do I suggest? In what places, circumstances and situations would I be found? In what kind of city would I be viable, useful, necessary, or even popular?

Ultimately the project is less invested in forecasting future trends in technology than focused on provoking public discussion in the present about just what kind of future we might want. This involves a design process based on looking at what's happening just upstream in the computer science and engineering R&D labs and teasing out some of the more absurd assumptions, latent biases and hidden agendas at play. The production of physical working prototypes for items in the Survival Kit subsequently involves playing out the design implications of these assumptions, biases and agendas.

Figure 1 - GPS Serendipitor

In the near future, finding our way from point A to point B will not be the problem. Maintaining consciousness of what happens along the way might be more difficult. The GPS Serendipitor is an alternative GPS navigation software application for mobile phones that determines a route to a destination that the user has not previously taken, designed to facilitate finding something by looking for something else.

Figure 2 - RFID under(a)ware

In the near-future sentient shopping centre, item-level tagging and discrete data-sniffing are both common corporate culture and popular criminal activities. This popular product line consists of his and her underwear designed to sense hidden Radio Frequency Identification (RFID) Tag readers, alert the wearer to their presence, and make the whole affair a pleasurable experience by activating small vibrators sewn into bras and boxer shorts in strategic locations.

Figure 3 - Ad-hoc Dark (roast) Travel Mug

In an environment where all network traffic is monitored via 'smart' filters, where access privileges are dynamically granted and denied on the fly based on your credit card transaction history, and where bandwidth is a function of your market capitalization, standard commuter gear includes this travel mug designed for creating ad-hoc 'dark' networks for communication along a morning commute. Caffeinated commuters share short messages tapped out in Morse code on the side of the mug and picked up by a capacitance sensor.

Figure 4 - CCD-me-not Umbrella

When human vision is no longer the only game in town, don't leave home without this umbrella studded with infrared LEDs visible only to CCD surveillance cameras, designed to frustrate object detection algorithms used in computer vision surveillance systems. Use in pairs with a friend to train these systems to recognize nonhuman shapes and patterns more common to dreams and hallucinations than to your average city street

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Footnotes

1. <http://reality.media.mit.edu/serendipity.php>.
2. See Nathan Eagle, 'Can Serendipity Be Planned?', *MIT Sloan Management Review*, vol. 46 (2004) no. 1, 10-14.
3. abcnews.go.com/Technology/gaydar-facebook-friends/story?id=8633224.
4. See Mike Crang and Stephen Graham, 'Sentient Cities: Ambient Intelligence and the Politics of Urban Space', *Information, Communication & Society*, vol. 10 (2007) no. 6, 789-817.
5. www.nytimes.com/2007/07/09/nyregion/09ring.html.
6. See Greg Stevenson, 'Archaeology as the Design History of the Everyday', in: V. Buchli and G. Lucas (eds.), *Archaeology of the Contemporary Past* (London: Routledge, 2001), 53.

Tags

Media Society, Privacy, Urban Space, Design

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