TWEETING ANTENNAS (UN)DEAD MEDIA IN THE URBAN LANDSCAPE

IVAN VUKSANOV

In collaboration with
Francisco Salgado

mail@ivanvuksanov.com

1 UBIQUITOUS TECHNOLOGY IN THE CITY

Contemporary cities are being shaped by the growing ubiquity of technology, which influences the way we experience and interact with the city (Greenfield 2006; De Lange and De Waal 2012; Townsend 2013). The development of cities is being largely influenced by visions of big *tech* companies and governments that propose systems of embedded digital and network technologies as an answer to the growing urban complexity (Haque 2012; Townsend 2013; Powell 2014). Those visions are focusing mainly on the positive effects of technology, such as safety and efficiency. On the other hand, the same technology can produce all sorts of side effects, for example, in relation to privacy, anonymity and spontaneity, among others (Townsend 2013; Brynskov et al., 2014; Nissenbaum and Varnelis 2012). Reacting to this context, all around the world, various organizations, collectives, individual artists, designers and researchers are exploring the potential of digital technologies and new media art as tools to visualize digital layers of the city, ignite discussions, and question the future of cities based on these dominant visions (Andersen and Pold 2013; Greenfield and Shepard 2007; Bleecker and Nova 2009).

In accordance with these views, the aim of our research project is to explore the possibilities of digital technologies in order to create urban interventions that can render the city a more playful, unexpected and heterogeneous place[1].

---

1. *Tweeting Antennas* was started at Master's course in Communication Design and New Media at the Faculty of Fine-Arts, University of Lisbon, under the supervision of Luísa Ribas, Sofia Gonçalves and Miguel Cardoso, with the collaboration of Francisco Salgado from the Engineering Institute (Instituto Superior Técnico), University of Lisbon. It then became the starting point for the further research that we are now developing in the Masters.

2 CONCEPT

Under the motto of old and new media in urban space, the project *Tweeting Antennas* seeks to explore the following dualities:

1) visible vs. invisible communication processes

2) contemporary vs. dead media

3) digital vs. physical spaces

Two key factors for the project's idea and development are:

a) Approaching the current trend of embedding everyday objects with internet connectivity — a concept best known as the *Internet of Things*. More specifically, investigating how ubiquitous connected devices can influence the functioning and the appearance of future cities;

b) Exploring specific sites and landscapes, in this particular case, the historical part of the city of Lisbon — a city built on many hills. In this characteristic cityscape, the buildings are usually not very high, hence the rooftops are easily accessible and very visible, as well as the obsolete antennas that pervade them.

The project seeks to take advantage of existing objects and structures that are characteristic of the cityscape of Lisbon, namely, its emblematic rooftop antennas. The majority of these are broadcast television receivers, which became obsolete with the emergence of cable and digital television, can now be seen as *monuments* to broadcast television, that in this age and particular location, become a sort of *dead media.*

Tweeting Antennas thus re-purposes rooftop antennas, as obsolete communication structures in the context of contemporary cities, enabling them to receive and send information again, in a new and unexpected way. The idea is to render visible fragments of social digital media communication in physical space and in real time, through the kinetic motion of the antennas.

The project transforms the tweet messages one sends using social media, (which are usually global and remain in the cloud, delocalized), into local and ephemeral events. It encodes this information, rendering it visible but at the same time encrypted,[2] anticipating the necessity of alternative means of communication in future cities where surveillance is omnipresent.

2. We assume that the semaphore code is not immediately legible to the common citizen, although it can be perceived as a code (a codified message).

3 IMPLEMENTATION

3.1 INPUT

As data source, we decided to use *Twitter*; more specifically, geo-located tweets that are fetched in real time in a physical proximity to the installation site. *Twitter* was chosen for several reasons: it is one of the most common channels for immediate distribution of information and it is widely used from mobile devices; meaning we could visualize tweets from people that are in public spaces surrounding the installation. Finally, the limitation to 140 characters made their translation into motion feasible and faster.

3.2 TRANSLATION

In order to translate tweets into movements that would make sense (considering different possibilities of encoding the information), we had to find a way to represent each character in a tweet as a unique sign that would be translated into the position of the antennas. The solution was the flag semaphore system — a telegraphy system for visually conveying messages over distance that normally includes a person holding two flags, one in each hand. Therefore, when the flags are in fixed positions they represent a single character in the tweet message.

3.3 OUTPUT

The final output is a system of two modified antennas connected to stepper motors and an *Arduino* controller that, through a program written in *Processing,* translates each character of the nearby geo-located tweets into the corresponding position of the flag semaphore code (Fig. 1).

Fig. 1.
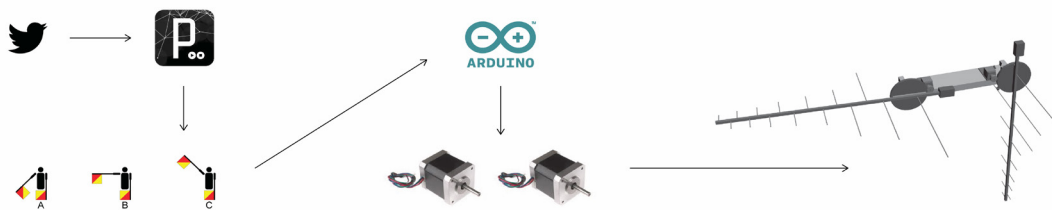
The project *Tweeting Antennas* is a work in progress and, so far, two prototypes have been developed and exhibited. The first prototype was exposed at *Fabrica Features* in Lisbon[3]. The second prototype was produced for the New Media and Digital Art Festival *PLUNC*[4] in Lisbon, in September 2015 (Fig. 2).

The second version was adapted for xCoAx having the piece reacting to any tweet containing the keyword xcoax in addition to nearby geo-located tweets.

Fig. 2. Second prototype of Tweeting antennas.
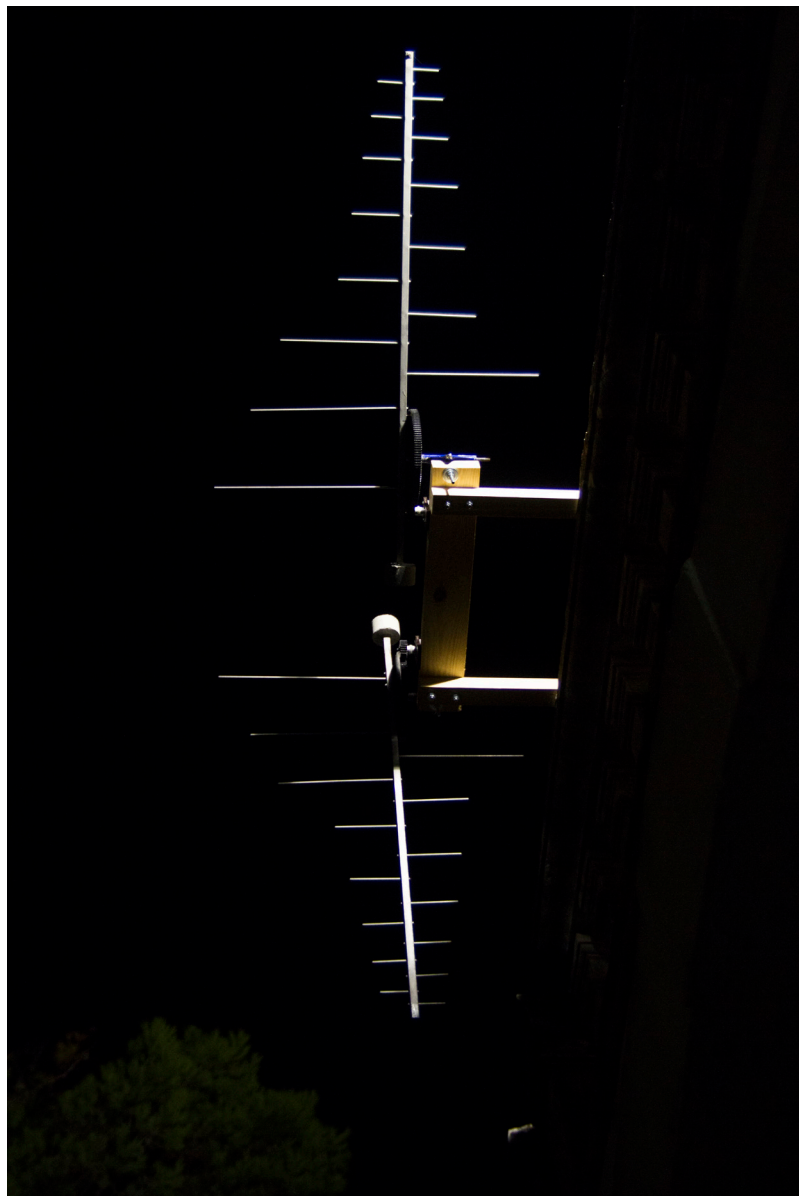
4 RESULTS

The current project was conceived as an urban, and site-specific, intervention that seeks to emphasize the ubiquity of digital technology in an urban context. At the same time, it aims to reveal and incite a reflection on the ways in which invisible layers of digital information are changing both our personal experience and the physical appearance of today's cities.

Tweeting Antennas is influenced by the local and invisible layers of information that surround them. If no one sends tweets in the proximity, the installation remains static. Therefore, it requires participation, even if the participants are usually unaware of their active role, or of the potential impact of the flows of information they help create. In this manner, we believe the installation becomes a metaphor for the invisible data gathering processes that are currently occurring within the city, eventually, without our full awareness. By appropriating dead media, *Tweeting Antennas* also proposes a play of contrasts from visible to invisible communication processes, from contemporary to dead or forgotten media, and from digital to physical environments.

REFERENCES

Andersen, Christian Ulrik, and Pold, Søren Bro. "The Patterns of Software Cities". *APRJA - A Peer-Reviewed Journal About: Public Interfaces.* 2013. http://www.aprja.net/?p=718

Bleecker, Julian, and Nova, Nicolas. *Situated Technologies Pamphlets 5: A Synchronicity: Design fictions for asynchronous urban computing.* The Architectural League of New York, 2009.

Brynskov, Martin, Bermúdez, Juan Carlos Carvajal, Fernández, Manu, Korsgaard, Henrik, Mulder, Ingrid, Piskorek, Katarzyna, Rekow, Lea, and de Waal, Martijn. *Urban Interaction Design: Towards City Making.* Amsterdam, 2014. https://issuu.com/urbanixd/docs/urbanixd_towardscitymaking

de Lange, Michiel ,and de Waal, Martijn. *Ownership in the Hybrid City.* Netherlands: Virtueel Platform, 2012. http://issuu.com/virtueelplatform/docs/vpownership_en_issuu/1?e=0

Greenfield, Adam. *Everyware: The Dawning Age of Ubiquitous Computing.* Berkeley, CA: New Riders, 2006.

Greenfield, Adam, and Shepard, Mark. *Situated Technologies Pamphlet 1: Urban Computing and Its Discontents.* The Architectural League of New York, 2007.

Haque, Usman. *What Is a City that It Would Be 'Smart'.* Volume #34: City in a Box, 2012.

Nissenbaum, Helen, and Varnelis, Kazys. *Situated Technologies Pamphlets 9: Modulated Cities: Networked Spaces, Reconstituted Subjects.* The Architectural League of New York, 2012.

Powell, Alison. *Coding alternative modes of governance: learning from experimental "peer to peer cities".* Code and the City Workshop. National University of Ireland Maynooth, 2014.

Townsend, Anthony M. *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia.* New York: W. W. Norton & Company, 2013.