



# University of HUDDERSFIELD

## University of Huddersfield Repository

Ntampiza, Kalina and Zioga, Polina

The Interconnected Object: Are You at Home in a Network?

### Original Citation

Ntampiza, Kalina and Zioga, Polina (2014) The Interconnected Object: Are You at Home in a Network? In: Proceedings of 1st International Academic Conference Places and Technologies 2014. University of Belgrade – Faculty of Architecture, Belgrade, Serbia, pp. 936-943. ISBN 978-86-7924-114-6

This version is available at <http://eprints.hud.ac.uk/id/eprint/30130/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: [E.mailbox@hud.ac.uk](mailto:E.mailbox@hud.ac.uk).

<http://eprints.hud.ac.uk/>

# 1ST INTERNATIONAL ACADEMIC CONFERENCE PLACES AND TECHNOLOGIES 2014

BELGRADE, 3-4. APRIL 2014 | KEEPING UP WITH TECHNOLOGIES TO IMPROVE PLACES

EDITORS:

Eva Vaništa Lazarević, Aleksandra Đukić,  
Aleksandra Krstić - Furundžić, Milena Vukmirović

conference proceedings



Proceedings of INTERNATIONAL ACADEMIC  
CONFERENCE ON PLACES AND  
TECHNOLOGIES

APRIL 3-4, 2014, BELGRADE, SERBIA

# PLACES AND TECHNOLOGIES 2014

## PROCEEDINGS OF FIRST INTERNATIONAL ACADEMIC CONFERENCE ON PLACES AND TECHNOLOGIES

International Academic Conference on Places and Technologies, Places and Technologies 2014, will be the first conference organized by University of Belgrade – Faculty of Architecture, Professional association Urban Laboratory and University of Belgrade – Faculty of Philosophy.

Editors: Dr Eva Vaništa Lazarević, Dr Aleksandra Krstić-Furundžić, Dr Aleksandra Đukić and Dr Milena Vukmirović

For publisher: Dr Vladan Đokić

Publisher: University of Belgrade – Faculty of Architecture

Design: Stanislav Mirković

Place and year: Belgrade 2014

ISBN 978-86-7924-114-6

# THE INTERCONNECTED OBJECT: ARE YOU AT HOME IN A NETWORK?

## **Kalina Ntampiza**

PhD Candidate, School of Architecture, Faculty of Engineering, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece, ntampiza@arch.auth.gr

## **Polina Zioga**

PhD Ft Research Student, Digital Design Studio, The Glasgow School of Art, The Hub, Pacific Quay, Glasgow, G51 1EA, UK, p.zioga1@student.gsa.ac.uk

## ABSTRACT

*Interconnected devices and objects pervade our everyday lives with an increasing trend. These digital objects, connected through wireless and cable networks, exchange information in various levels, producing diverse types of interactions between them and their users. The paper explores the aspect of interconnectivity as a key-attribute of the contemporary digital artefacts that populate our everyday environments. It explores the notion of home, place and network by focusing on the effects of digital interconnectivity in the way we perceive private and public space. In this context, "HOME network", a collaborative project, is presented. The project is a portable, netless (without an Internet connection) Wi-Fi network, a free access unlocked digital platform, transmitting within the urban environment of various cities during a series of specific time periods and events. The artists carry the network through space and time, as an unrevealed, private, performative act within the realm of the public urban space, leaving only temporary transmitted digital traces/data within the vicinity of the transmission range, thus producing interactions and exploring the boundaries between the private and the public, the physical and the digital space and challenging the notion of surveillance in urban environments. New action patterns are introduced, which look into new ways of performing the physicality of the body within a digital nomadism. At the same time the artists address themes and invite the visitors of the network to engage, participate in and reflect on commonly shared experiences and contemporary questions regarding our sense of belonging in both the private and the public sphere.*

*Keywords: interconnection, home, netless, Wi-Fi, network*

## INTRODUCTION

The starting point of this research was the attendance of a workshop, by one of the authors, in May 2013, in Athens, Greece. The workshop's title was "Covert Computing" and it belonged to a cluster of workshops about networks, data and their invisible flows in the urban environment. It was held in the context of the

conference “Hybrid City II-Subtle Revolutions” under the title “Datenspiel” (The HYBRID CITY II: Subtle rEvolutions | Hybrid City 2, n.d.). The theme was to develop novel and unexpected means for the generation and distribution of digital information in the city. In this context, ordinary everyday objects were used, that were embedded with digital features and networking capabilities. These features could generate and collect information from digital networks pervading the physical space, and store, distribute or manipulate it due to the owner’s intentions. Significant knowledge regarding key features and technical aspects of the following research was gained at the time.

A second workshop in November 2013, under the title “Gün: Women’s Networks”, organized by Goethe-Institut in Athens, was the meeting point for the authors of this paper and the artists (Kalina Ntampiza, Natalia-Rozalia Avlona and Polina Zioga) of the “HOME network” project. The workshop developed around the notion of *home* in our era and it was “dedicated to a collective exploration around online and offline social networks discussing their connotations to issues of identity, gender, nationality and technology” (Frown, n.d.). The current research lays out the initial theoretical framework around which “HOME network” is developed. It describes the key features and provides insight about the future research and further development of the project.

## INTERCONNECTED OBJECTS: THE ROLE OF THE NETWORK

In our contemporary era, Information and Communication Technologies (ICT) play a significant role in most aspects of our lives. A wide variety of objects, making use of ICT, inhibit our everyday lives providing us with various services at different aspects of activity. An increasingly common attribute of devices making use of ICT, is their ability to interconnect at most times through networks in order to exchange, store, and distribute information. The use of the Internet, as a digital platform for the interconnection of devices and all kinds of objects, is widely researched by diverse disciplines (Dunkels & Vasseur, 2010, Zhuge, 2011).

Different kinds of networks, such as home networks in the domestic sphere, as well as work networks in the professional sphere, interconnect computers and devices and their respective users, acting as complementary structures that usually interact with the World Wide Web. Whereas in the physical space the distinction between the private and the public is a relatively viable option, in the case of the virtual digital space created by the various networks pervading space, the limits appear blurred at times. This fact poses a significant challenge in the way we perceive our interactions through a network and the network itself, and raises issues around our feeling of *home* and *belonging* in a converged physical-digital environment (Venkatesh, Kruse & Shih, 2003, Venkatraman, 2013). The role of digital networks in interconnected environments and social contexts is of particular significance in our research. The “HOME network” project challenges some of the traditional notions and functions of a wireless digital network, as we will analyse further.

## “HOME NETWORK”: THE ROLE OF FUNCTION

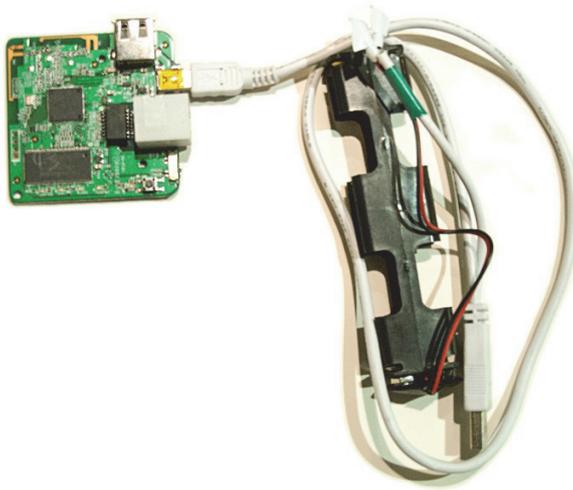
The “HOME network”, regarding its physical structure, consists of a Wi-Fi router and a battery holder attached to its power supply USB cable. A wireless (Wi-Fi) router is a device that performs the functions of a router but also includes the functions of a wireless access point. It is commonly used to provide access to the Internet or a computer network and the connection is made wirelessly, via radio waves. The Wi-Fi router, as an object, is a special case of digital device. Rather than providing a service which involves some kind of multimedia digital interaction with the user, it acts as an enabler. In the case of the “HOME network”, the Wi-Fi router is not connected to the Internet, but functions as a wireless access point and a self-contained network. The user interconnects his device in order to be redirected through the Wi-Fi router’s interface, view/experience the transmitted material and then perform interactions of various types, as we will analyze further.

Regarding the notion of function, research has produced various conceptual models for the analysis of an object. Norman describes three levels of designing a system, namely the physical (visceral), psychological (behavioral) and social (reflective) (Norman, 2004). Different categorizations regarding the function of an artifact can be helpful in the analysis of immaterial functions, especially in the case of a digital device such as a Wi-Fi router. The categorization of Ligo refers to five different levels of function, the “structural articulation”, the “physical function”, the “psychological function”, the “social function” and the “cultural-existential function” (Ligo, 1984).

In the case of “HOME network”, the intervention is realized both in the “structural articulation” of the actual physical object (Wi-Fi router), as well as in the “physical function” of the object, which concerns its digital features. In the first case, we alter the existing method of power supply by attaching an AA battery holder to the existing cable, thus giving the object the option to move in space while in use (figure 1). In the second case we do not connect the router to an Internet source, but rather use its features as a wireless access point. Moreover when a user connects to it, he is redirected through a browser pointing to a specific page created by the artists, by implementing the use of a captive portal function. Therefore, the page acts as the initial interface. By altering the object’s function in the above levels we make the assumption that the level of “psychological function” also changes significantly. This refers to the user’s response in the interaction with the object’s features.

Researchers have found that we can stimulate the user’s behaviour by disrupting an object’s function, thus raising awareness and reflection while causing mindful interaction to take place (Niedderer, 2008). As Niedderer puts it “We need to break through established patterns of perception and experience in order to achieve mindfulness in new situations”. In the case of the “HOME network” we alter the above different levels of function of the Wi-Fi router, thus causing a disruption. Moreover, specific actions have been taken into consideration regarding the “social function” of HOME network. The uses of social media, as a facilitator in the process

of reflection and engagement with the network, have been implemented in the project, and will be analyzed further in the paper.



**Figure 63: Avlona, Natalia-Rozalia, Kalina Ntampiza and Polina Zioga. 2013. *The physical structure of the “HOME network”*. Digital image.**

## WE INHABIT, WE BELONG, WE INTERACT

“HOME network”, the project’s title itself, was inspired and decided upon the discourses produced during the “Gün: Women’s Networks” workshop, in relation to the notions of *home*, *network* and *belonging*, but also because *home* in our digital era is commonly used and refers to the launch page of various networks, websites, weblogs, as well as social media. By choosing the specific title, the artists make a direct statement regarding the issues that they address: the private versus the public, the domestic versus the urban, and the interconnectivity.

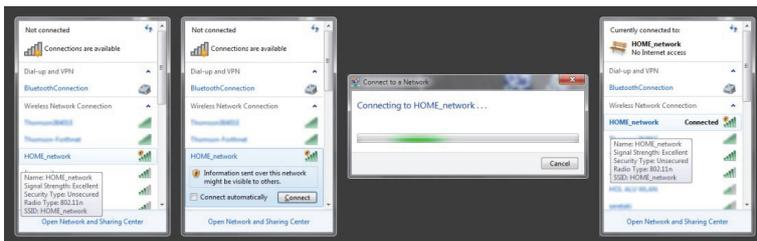
For the realisation of the project, the artists decided to organise a series of time and space-specific events, related to different aspects of the aforementioned notions. The first event “Connect and Pray\_”, took place on Friday, January 24, 2014, from 10:00am until 18:00pm, at AUTH Faculty of Engineering, in Thessaloniki, Greece. It was announced in the World Wide Web, via weblogs and social media. Indicatively on Facebook, during the date of the event, one hundred fifty one people saw the page’s announcements and posts and a total of four hundred seventy people were reached by the dissemination of the page’s activity. In the case of the first event the content of the page were two GIF files playing a loop, referring to our sense of belonging, the notions of home and spirituality in the modern digital era. As it is mentioned in the event’s description “Digital technology and the Internet have led to new expressions of spirituality in relation to our domestic environment. The traditional home shrine, mostly religious-oriented but not strictly, found in different cultures, used to

enhance our sense of belonging and identity in the special place we call home. However, a nomadic lifestyle, adopted by an ever-increasing number of people, arouses new questions about the notion of home and what we consider it to encompass.” The artists ask: “Is the network the home shrine of our era?” (Avlona, Ntampiza & Zioga, 2014).

## From the “HOME network” to the World Wide Web

Accordingly one of the project’s challenges, as a work of live art in progress, is the realisation/manifestation of the interactions produced, as well as the digital recording and representation of the overall work. In the field of preservation of interactive artworks and performances researchers have proposed so far several approaches on the matter. In the case of the first event of “HOME network”, “Connect and Pray\_”, the artists have not tried to capture the liveness of the project-event itself, but rather reflect it through the use of secondary networks, such as weblogs and social media, as qualitative, subjective methods of capturing opinions. The visitors are invited to privately connect to the network and then to publicly interact by sharing thoughts, ideas and emotions. The visitors/users respond to the transmitted content in the form of meta-information and structured guides given to them through web pages.

More specifically, two weblogs (Tumblr and BlogSpot) and two social media accounts (Facebook and Twitter) were created connected to each other. A series of time-event-specific posts were made, either giving information about the project to the visitors/users, inviting them to participate, providing instructions on how to participate (figure 2) and giving hints about the theme of the first event. But the actual content of the transmitted data was not revealed beforehand or during the event, nor the notions/questions to reflect on. In fact a documentation of the first event’s transmission was released only 13 days after its completion.



**Figure 2: Avlona, Natalia-Rozalia, Kalina Ntampiza and Polina Zioga. 2014. *Instructions for participating*. Accessed January 23, 2014. <http://home-network.tumblr.com/post/74277924924/instructions-for-participating>.**

The artists’ particular choice of creating weblogs and social media accounts, for documenting the performance and interaction, has resulted in the expansion of the initial netless network, its context and consequently the audience involved. What started as an approach to the project’s documentation and manifestation of interaction, developed as a significant factor reflecting to the content of the project itself and accordingly the transmitted data. Appropriating Marshall McLuhan’s

renowned quote "The medium is the message" (McLuhan, 1964), we argue that in the case of "HOME network" the interaction is the message, in the form of mediated action by both the artists and the users (Garrido and Sey, 2010). But do the weblogs and social media function as a public actuator in reply to the network acting as a private sensor? The answer would be partially, because reactions to the network's function and transmission in reality are being produced first of all in the visitors/users' cognitive level of perception, regardless of possible manifestations through the World Wide Web or other routes, raising awareness and reflections on the notions communicated by the artists. The possible manifestations of interaction through the World Wide Web act more as an implementer to the "HOME network", providing useful foresight and enhancing creativity and social interaction. (Cachia, Compañó & Da Costa, 2007)

### **From the private physical performance to the public digital interaction**

The specific interactive project is also a private performative act within the public domain. New performative patterns are introduced, which look into new ways of performing the physicality of the body within a digital nomadism. The artists carry the network themselves in a journey through space and time, as an unrevealed, private, performative act within the realm of the public urban space. They do not announce their precise physical location, but only a general range – the network's transmission range. Yet their own corporeality is present, much alike the way the electromagnetic brain activity – commonly experienced as thoughts and emotions – can be present in a digital networked world of exchanging data, information and interactions resident in invisible remote locations. Even more, the artists do not announce the way they collaborate and work during the time-specific events, who is actually carrying the network, who is in charge of monitoring the process and who is responsible for updating the information uploaded in the World Wide Web. The process is an act of a collaborative authorship and it is in this sense that the discourse between the private and the public is manifested as an interaction between the physical and the digital.

The performative patterns presented by the artists are becoming the platform for the production of interaction, and "[...] interaction itself is a performative activity, requiring an audience to willingly suspend their disbelief." (Abbott 2012). This is not accidental, nor a unique phenomenon. Interaction and performance, two qualities that Abbott identifies in interactive works, are also two of the project's predominant qualities and present similar characteristics. One is ephemerality. The duration of the project is determined each time by the time-limits of the events, which are also the time-limits of the artists' performance. In the case of the first event, "Connect and Pray\_", the transmission started at 10:00am, when the Wi-Fi router was brought at the AUTH Faculty of Engineering, in Thessaloniki, Greece and was switched on and finished at 18:00pm, when the Wi-Fi router was removed from the location and was switched off – a total duration of eight hours. Any other information and data presented in the World Wide Web, on the weblogs and social media is only a documentation of the particular transmission. Another common characteristic between the digital interaction and the physical performance is variability. Every

event is planned to address a different theme related to the notion of *home, network and belonging*, in a different location, time and with a different coordination of roles and tasks amongst the artists (physical performance, monitoring, uploading information on the World Wide Web). At the same time the authors are planning to develop further certain technological aspects of the network, aiming at enabling an even more immediate interaction with the visitors/users. These facts attribute to the project a significant amount of variability, thus bringing the performative and interactive element of the project in a tight discourse.

## CONCLUSIONS

"HOME network" is a project in progress. The current paper described the key features and theoretical framework around which the main body of the research was developed. The authors aspire to arrange new events in diverse locations, while aiming at the further development of the interaction processes. More specifically, plans include the creation of a more immediate interaction within the Wi-Fi router's interface and possibly the mapping of secondary devices connecting the performer's body with the Wi-Fi router's transmission, giving real-time one-way feedback.

## REFERENCES

- Abbott, Daisy. 2012. "Preserving Interaction". In *Preserving Complex Digital Objects: Computer Games, Digital Art, Archaeological Simulations and Visualisations*, 61-70. Bristol, UK: JISC, ISBN 978861376209
- Avlona, Natalia-Rozalia, Kalina Ntampiza and Polina Zioga. 2014. "Event #1 Connect and Pray\_". HOME network, Last modified February 6. Accessed February 10, 2014. <http://home-network.tumblr.com/event01>.
- Cachia, Romina, Ramon Compañó and Olivier Da Costa. 2007. "Grasping the Potential of Online Social Networks for Foresight". In *Technological Forecasting and Social Change* 74. no. 8: 1179-1203.
- Frown. N.d.. "Gun:Women's Networks". Accessed February 10, 2014. [http://www.frowntails.com/en/technology\\_en/gun-womens-networks/](http://www.frowntails.com/en/technology_en/gun-womens-networks/)
- Garrido, Maria and Araba Sey. 2010. "The End User is the Message" To "The Interaction is the Message": Proposing Mediated Action as a Framework for Analyzing the Role of ICTs in Development. *International Development Research Centre Open ICT for Development Workshop*. Accessed February 3, 2014. [http://openict4d.wdfiles.com/local--files/open-development%3Aedited-volume-and-conference-2010/Mediated\\_Action\\_ICTD\\_esearch\\_Jan1210.pdf](http://openict4d.wdfiles.com/local--files/open-development%3Aedited-volume-and-conference-2010/Mediated_Action_ICTD_esearch_Jan1210.pdf).
- Ligo, Larry L.. 1984. *The Concept of Function in Twentieth-Century Architectural Criticism*. Ann Arbor, Mich: UMI Research Press.
- McLuhan, Marshall. 1964. *Understanding Media: The Extensions of Man*. New York: Mentor.
- Niederer, Kristina. 2007. "Designing Mindful Interaction: The Category of Performative Object". *Design Issues* 23, no 1: 3-17.
- Norman, Donald A.. 2004. *Emotional Design*. New York: Basic Books.

The HYBRID CITY II: Subtle rEvolutions | Hybrid City 2. n.d.. "Workshops". Workshops | Hybrid City 2. Accessed February 10, 2014. <http://uranus.media.uoa.gr/hc2/?q=Workshops>.

Vasseur, Jean-Philippe and Adam Dunkels. 2010. *Interconnecting Smart Objects with IP: The Next Internet*. Burlington, MA: Morgan Kaufmann Publishers/Elsevier.

Venkatesh, Alladi, Erik Kruse and Eric Chuan Fong Shih. 2003. "The Networked Home: An Analysis of Current Developments and Future Trends". *Cognition, Technology & Work* 5, no. 1: 23–32.

Venkatraman, Meera. 2013. "Consuming digital technologies and making home". *Journal of Business Research* 66, no. 12: 2626-2633.

Zhuge, Hai. 2011. "Semantic Linking Through Spaces for Cyber-Physical-Socio Intelligence: A Methodology". *Artificial Intelligence*, 175, no. 5-6: 988-1019.

