CONTACT: Facilitating Information Sharing between Strangers Using Hyper-local Community Wireless Networks

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UrbanIxD Symposium 2014, Venice, Italy. ISBN: 978-0-9562169-3-9

Abstract

This position paper proposes an experimental and interdisciplinary design approach for building hybrid social applications, bringing together knowledge and expertise from computer science, urban planning, sociology, arts and design. Our aim is to provide novel interfaces that stimulate strangers in the city to interact—to get in contact—in a low-threshold way. That is, without sacrificing privacy and without requiring high levels of commitment. To achieve this objective, we explore hybrid design approaches that can take advantage of special characteristics of local wireless networks, operating outside the public Internet: inclusiveness, playfulness, anonymity, low cost, and the de facto physical proximity of participants. We argue that the development of easily customized hybrid social applications designed to run on a local wireless network physically attached to appropriate urban interventions, what we call a CONTACT zone, can be a very effective incentive for citizens to participate in the creation of situations where strangers may informally connect and exchange information of various types.

Hybrid Letterbox. In this example, the prototype letterbox was installed at a busy corner in Berlin-Neukölln. Passers-by had the opportunity to share their perception of their neighborhood in written form, which was scanned and projected on site. Others could comment and engage in the discussion by text messages, which were displayed next to the initial contribution.

Introduction

Imagine a neighborhood festival in the local square, serving specific food, playing music, and gathering inhabitants of all ages. People in the event are in a neighborly mode, but most of them would have to overcome some psychological barriers in order to engage in discussions with strangers. Three CONTACT nodes, acting as local hybrid information hubs forming a CONTACT zone, are placed in strategic locations to cover the whole square and invite people to answer simple questions using their smartphone. To do this they just need to connect via WiFi to the CONTACT local captive portal, which does not require 3G connectivity or any pre-installed application. For people without a device, this input can be submitted using an additional "input" installation attached to the CONTACT node.

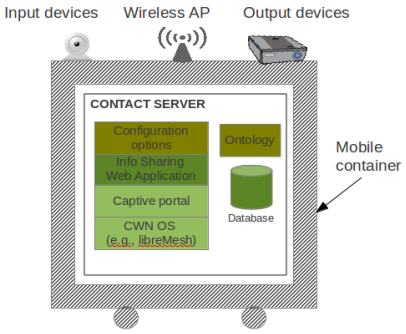
This installation can take on many forms. For example, an installation similar to a photo booth will allow individuals to participate by talking into the microphone or to the camera. For those that prefer writing, a hybrid letterbox[1], as the one shown on the left, could be available and allow individuals to just write something on a piece of paper and drop it in. The server collects all this input from the various CONTACT nodes and displays it with informative and engaging visualization on the local web page, and/or project it on the building facades of the square (see [7][8]). Individuals can then comment on the contributions, taking opportunities for further discussions and playful interactions, provided by design to increase the discursive character of public urban spaces.

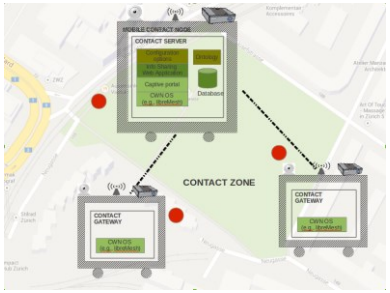
[1] http://www.design-research-lab.org/?projects=hybrid-letter-box

This is only one of the possible hybrid applications that community wireless networks can make it easier to build, deploy, and engage with. Wireless technology is an important alternative to existing solutions relying on the public Internet [3][4][9] because 1) it ensures that all connected users are in de facto physical proximity, 2) it offers opportunities and novel capabilities for interesting combinations of virtual and physical contact, playfulness, and potentially even the appropriation of the hybrid space, 3) it enables the serendipitous gathering of diverse people without the need to install a specific application or provide credentials, 4) it allows for purely anonymous and privacy-preserving virtual interactions creating more intimate hybrid spaces, and 5) it can create feelings of spatial ownership and independence, since the generated data is exclusively processed locally and never leaves the physical space.

However, although technically feasible today, it is not easy for a non-savvy person to organize such a spontaneous hybrid interaction and customize the required hardware and software according to the specific context. Nor is it obvious how we can learn from previous experiences to build advanced tools that will empower local communities to make informed design choices.

To address these challenges we have initiated an interdisciplinary collaboration between the projects nethood.org (ETH Zurich) and Neighborhood Labs (Design Research Lab, Berlin University of the Arts). In the following we elaborate on our plans to provide a prototype implementation of a hybrid information sharing application in public spaces, including free and open source social software, off-the-shelf hardware, and blueprints of urban interventions, which can be easily adapted to custom needs or interests.





CONTACT ZONE. A CONTACT zone is built by one or more CONTACT nodes equipped with input/output devices and a wireless access point, while one of them hosts a captive web portal: a local web page that appears automatically when a user connects to one of the CONTACT nodes and launches a web browser. In airports and cafes such pages welcome users before connecting them to the Internet. In the case of CONTACT they will be the main e-places of local hybrid interactions.

From disconnected strangers to contact interfaces

Proximity of city dwellers is not necessarily sufficient for stimulating exchanges and meaning-creating interactions. Online neighborhood communities, such as *NextDoor* and *i-neighbors*, and popular locative media, such as *Foursquare*, try to achieve this objective. Yet they allow users to browse and filter their physical environment, thus rendering "invisible" those without common interests or Internet connectivity [3][9]. Moreover, they require the disclosure of personal information to remote servers, raising important privacy and surveillance concerns.

Some key questions that we wish to address in this work are the following: Can ICTs be designed to support inclusive information sharing among strangers, acting as triangulation elements and privacy respecting mediators, within a shared locality fitting naturally and safely in our daily life? Will the ownership of the elements defining the hybrid space within which interactions take place, such as the physical artifacts and the software, by local participants influence the identity disclosure behavior of strangers and how?

Jane Jacobs (1961) famously argued [5] that sidewalks are very important elements in the city because they allow informal contacts between strangers, and further play a critical role in building safe streets and convivial neighborhoods. We believe that wireless technology allows building local applications that can operate in ways similar to the sidewalk, and allow strangers to share information without commitments and without dependence on Internet-based companies, which design for "addiction" and commercial benefits through the exploitation of private information.

Design principles

In short, the goal of the project CONTACT is to design and build hybrid social applications using open source social software, which are to be hosted on hyper-local community wireless networks using off-the-shelf hardware, such as a Rasberry Pi or a portable wireless router (see occupyhere.org and piratebox.cc) or more sophisticated, mesh networking, solutions (see commotion.net). Attached to carefully designed physical artifacts, such technology may create hybrid urban elements that will stimulate strangers to interact with those in their immediate proximity, either synchronously or asynchronously.

Against the backdrop of the ongoing diversification of urban environments, we search for new possibilities in the design of experimental interfaces capable to form temporary publics. In the actual design of the software functionality and the mobile artifact hosting the CONTACT nodes, we will give particular focus on the following aspects:

Anonymity: Local wireless networks have the capability to guarantee complete anonymity in virtual interactions. This can be a key factor for stimulating informal exchanges between strangers. Part of our experiments will be to offer various options to express individual identity, and then evaluate their role in the representation of the shared identity.

Playfulness: The urban interventions and the presentation of the input are to be organized in ways that generate curiosity and provoke citizens to find out more, and ultimately engage actively. A playful shared activity that is fun to engage with is crucial for the success of such installations. To this end, the existence of a physical element with local web capabilities can become a very effective triangulator [10].

Customization: It is important to build our prototype as an innovation platform that can be appropriated by local actors who have better knowledge of the target environment.

Discussion

Our work falls into the emerging fields of urban informatics [4] and urban interaction design [6] having a concrete application in mind, i.e., information sharing between strangers in public spaces, and using as infrastructure a community wireless network in a simpler set-up than typically considered, i.e., operating outside the Internet, covering a small geographical area, and possibly for short periods of time.

Empowering citizens and local communities to build and configure their own ICT frameworks that shape their hybrid space is not only an end but also a means to enable experimentation, participatory design, and social learning. This is a subtle point of our research approach promoting the use of off-the-shelf wireless technology and open source social software. We believe that the development of an easy to install, configure, and deploy CONTACT zone will first stimulate and empower citizens to use their creativity and become the "self-appointed public characters" [5], and at the same time will form the basis of a global experimental framework for generating open knowledge on how to design CONTACT nodes based on local values and objectives (see also [1]).

Acknowledgements

This work was partially supported by EINS, the Network of Excellence in Internet Science, FP7 grant 288021.

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