

SITUATING ENGAGEMENT: UBIQUITOUS INFRASTRUCTURES FOR IN-SITU CIVIC ENGAGEMENT

MATTHIAS KORN

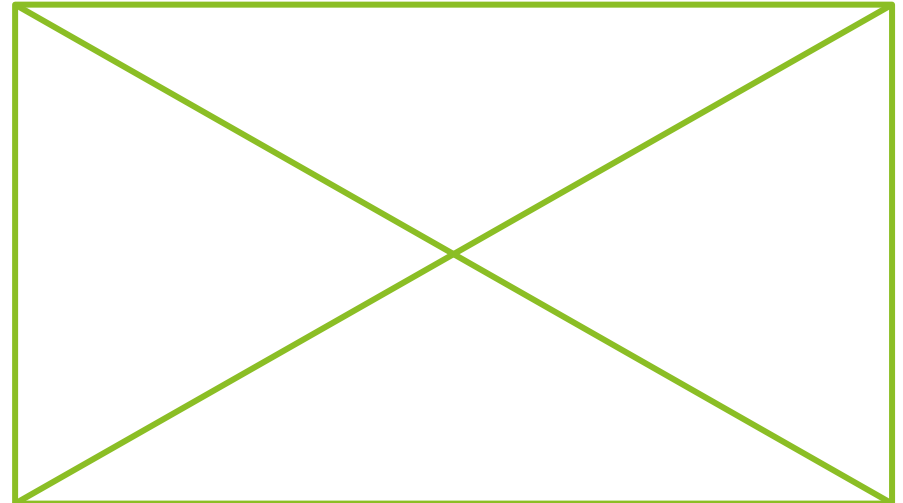


CONTRASTING USES OF MOBILE TECHNOLOGY

Leisure & Entertainment



Political Movements



MOTIVATION

- › Ubiquity of mobile phones in everyday life (de Souza e Silva, 2006; de Souza e Silva & Frith, 2012; Farman, 2012)
 - › New practices of locating things and people around US (Gordon & de Souza e Silva, 2011; de Souza e Silva & Frith, 2012)
 - › Ubiquitous computing as a potential shared access medium (Dourish & Bell, 2011; Weise et al., 2012)
 - › New forms of participation
- => Supporting local neighborhoods and communities

SITUATED ENGAGEMENT

- › To engage people *where* they are
- › To ‘situate’ civic engagement in the local places of personal interest
 - › Any action is always already situated, “contingent on specific, unfolding circumstances” (Suchman, 1987/2007)
 - => To situate engagement in the *right* contexts
- › To better interweave participation with citizens’ everyday lived experience
- › Different means to contribute in different situations

AGENDA

- › Motivation
- › Situated Engagement
- › Method
- › 2 Design Experiments
- › Methodological Challenges
- › Individual Contributions
- › Summing Up
- › Conclusion

METHOD

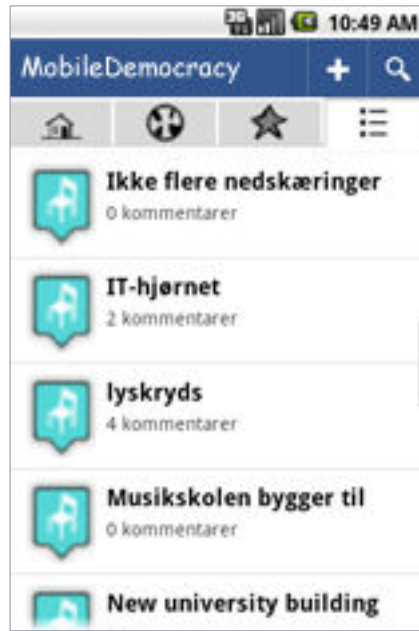
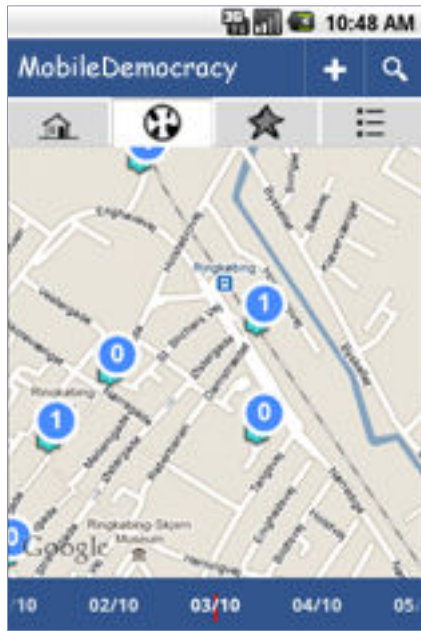


Experimental, exploratory and designerly (Brandt & Binder, 2007)

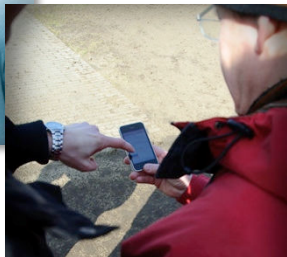
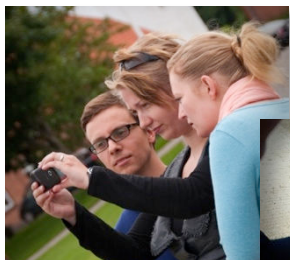
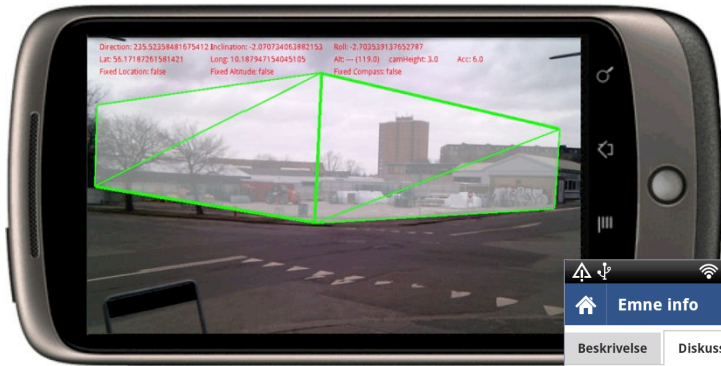
1. Research Through Design (Zimmerman, Forlizzi & Evenson, 2007; Zimmerman, Stolterman & Forlizzi, 2010)
2. Participatory Design (Bjerknes, Ehn & Kyng, 1987; Greenbaum & Kyng, 1991; Simonsen & Robertson, 2013)
3. Prototyping (Lim, Stolterman & Tenenber, 2008; Bødker & Grønbaek, 1991)

DESIGN EXPERIMENTS

MOBILE DEMOCRACY



IN-SITU + EX-SITU REFLECTION AND ACTION



Emne info AR

Beskrivelse Diskussion Billeder

Tilføj kommentar

No!

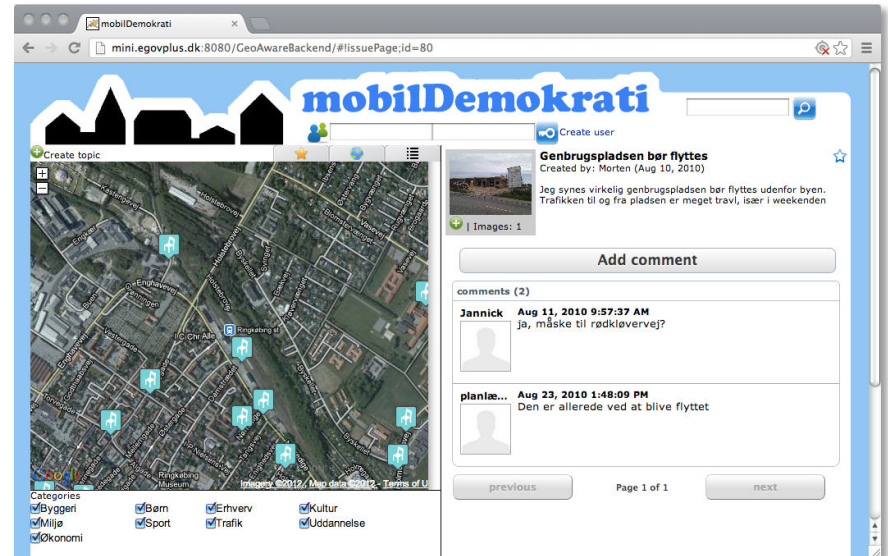
Hvad føler du omkring dette?

😊 😞 😡

Jeg er

f.x. [eager](#), [anxious](#), [worried](#), [alarmed](#), [shocked](#)

Gem Annuller



WALKSHOPS



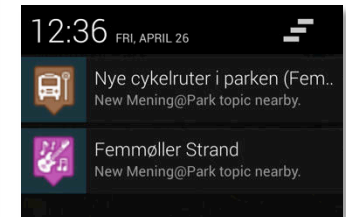
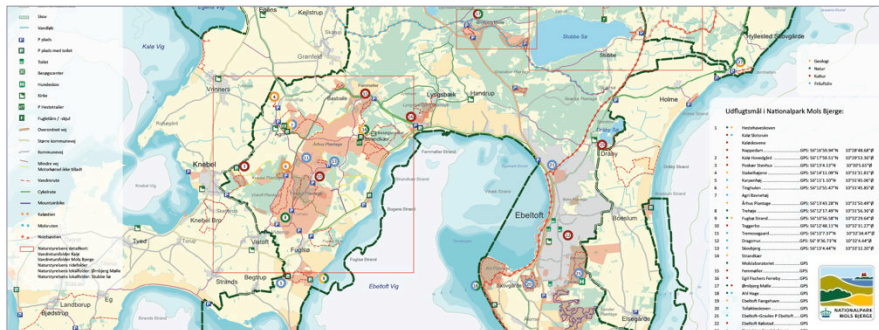
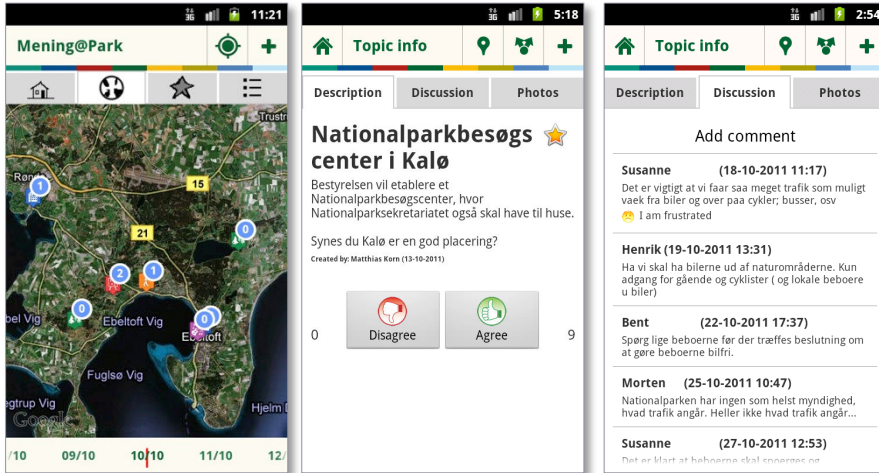
CONTRIBUTIONS

1. Argues for in-situ and ex-situ reflection and action
2. Explores qualities of *being there*
3. Understands place as a resource
4. Proposes the walkshop technique for hands-on co-exploration in the field

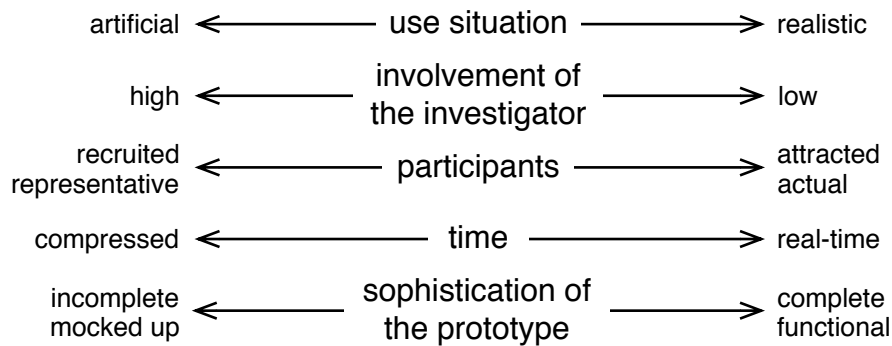
MENING@PARK



MENING@PARK



EXPLORATORY FIELD TRIALS



- › A model for methods studying ubicomp systems
- › How to use sophisticated prototypes for further exploration in the field?
- › Exploratory field trials for looking ahead rather than back



CONTRIBUTIONS

1. Evaluates and discusses the coupling between physical and digital spaces
2. Analyses means of access and representation
3. Questions appropriate forms of engagement
4. Reflects on exploratory field trials as a part of rather than an assessment of an iterative design process

SUMMING UP

- › A plethora of different means for citizens to engage with planning issues in a plethora of different contexts and situations
- => A notion of a situated engagement *infrastructure* ...
(Star & Ruhleder, 1996; Dourish & Bell, 2007)
... made up of mobile, stationary, ubiquitous, and remote systems
- => Allow citizens to act *wherever* and *whenever* it is meaningful and relevant to them

CONCLUSION

- › Methodological challenges when studying situated and interwoven practices of everyday life

Situated Engagement:

- › In-situ engagement at the site of interest as an initial trigger + place as a resource
- › Providing many different means to contribute in many different situations

SITUATING ENGAGEMENT: UBIQUITOUS INFRASTRUCTURES FOR IN-SITU CIVIC ENGAGEMENT

MATTHIAS KORN



BACKUP

MATTHIAS KORN



INCLUDED PUBLICATIONS

Public Deliberation in Municipal Planning: Supporting Action and Reflection with Mobile Technology

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ABSTRACT

This paper reports on an exploratory participatory design process aimed at supporting citizen deliberation in municipal planning. It presents the main outcomes of this process in terms of selected prototypes and an approach to the use setting. We support and discuss different ways for citizens to act and reflect on proposed plans: in-situ, while physically close to the planning object, and ex-situ, when citizens are remote from this. The support of in-situ and ex-situ participation allows citizens to engage in continuous reflection and on-action as a collaborative activity with other citizens, hereby inspiring citizens to increase their democratic engagement.

Keywords
Communities and e-governance, map-based discussion, geographical annotation, public deliberation, reflection and action, situatedness, participatory design.

INTRODUCTION

"Peter is out on his weekly run in the forest when his mobile phone starts buzzing in his pocket. He takes it out and sees that it is a notification from the Mobile Democracy application. The notification tells Peter that there is a proposed change in the municipal plan nearby. He clicks on the notification to find a description of the plans to build a new wastewater plant at his current location. Peter does not think much of it, but clicks the 'show me' button. Pointing the phone at the designated building ground as if to take a picture, Peter sees a 3D model on top of what the camera is actually registering. Peter walks around the site looking at the model from different angles. It almost looks like the building is already there and it is much bigger than he had imagined. It gets him thinking. Annoyed, he switches to the discussion tab and sees that three other people have already commented. He switches to the image tab and takes a picture. He adds the comment 'This beautiful forest would be ruined with a wastewater plant'. The topic is automatically bookmarked, so he continues his run. Later that evening he checks Mobile Democracy again, this time using his desktop computer. He looks at his bookmarks to find the wastewater plant discussion. He sees that more citizens have

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From Workshops to Walkshops: Evaluating Mobile Location-based Applications in Realistic Settings

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ABSTRACT

Many open questions on how to best observe the mobile user experience remain – at the stage of design time as well as use time. In this paper, we are focusing on the stage of design time and describe our experiences from evaluating a mobile application for citizen involvement in municipal land use planning. Due to the problems and issues identified after conducting several user workshops in our exemplary case process, we propose "walkshops" as a complement to traditional workshops and prototype field studies specifically to evaluate mobile location-based applications (and similar context-aware systems). We report some problems with workshops and outline how a walkshop may be carried out. The first trials of the new method are promising and have generated valuable feedback, insights and discussions about using the mobile application within the intended context.

INTRODUCTION

How to evaluate the mobile user experience both at design time and use time poses many open questions. Specifically, conducting user evaluation with mobile location-based applications is difficult as most evaluation methods are not contextual and/or not suited for systems used in outdoor contexts. With this paper, we focus on a new technique for design-time evaluation of mobile location-based applications. Our purpose is twofold: 1) to illustrate situations where workshops, well suited for stationary computing, raise problems in a mobile context and 2) to show how this can be in part alleviated by, what we coined as "walkshops", given the right staging.

Methods for evaluating systems directly in the context of use exist. For example in prototype field studies the software is deployed and the use of the system over time somehow monitored or observed from a distance. They can be strong in their ecological validity, but in themselves they provide no access to how users think about the use.

Workshops address what field studies lack: the concept of "workshop" as an evaluation activity has become an umbrella concept for a range of method prescriptions and activities involving groups of users who meet, where perhaps the participatory design workshop is the most well known type. Under the label of "workshop" we find a number of evaluation activities that vary in how they are conducted, what they evaluate, and perhaps also their epistemological underpinnings. Workshops are, however,

8 From Workshops to Walkshops: Evaluating Mobile Location-based Applications in Realistic Settings

Looking ahead – How field trials can work in iterative and exploratory design of ubicomp systems

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gical concerns are the issues of critical mass, and that designers' intuition is even more flawed than usual when addressing collaborative technologies.

Both of these authors and many more saw prototyping a possible means of better understanding the future use situation—for users as well as designers. Bardram [2], however, points to new difficulties regarding prototyping of specific sets of applications (CSW in his case) due to more complicated use settings. Common to these early experiences with the deployment of prototypes in realistic use settings is that the deployment happened within rather well-established use situations and even more well-established communities of practice.

With the new millennium came a new wave of technological and methodological challenges [5]. The technology became increasingly mobile, use situations moved from work to the rest of human lives, and the idea that technologies were designed and deployed as systems one at a time no longer functioned as a basis for design.

Grudin [11] addressed some of these new challenges of ubiquitous computing in particular that applications are no longer about the "here and now", meaning that use situations stretch into everywhere and forever. This has consequences for the methods with which we analyze and design ubiquitous technologies, because many of the methods deployed hence far were addressing situations where people act, perhaps together, within quite well-understood settings, time spans, and locations. Ubiquitous technologies are often designed for use situations that are not well understood and in the making. Bødker and Christiansen [6] suggested using prototyping to explore what questions to ask in such emergent settings.

Iterative design and prototyping has dominated our research. Accordingly, we see all designs as part of an iterative design process, where the prototypes, for a period, hold on to design decisions [21] and are vehicles for communication in the project and for users' hands-on experience [7]. Prototypes accordingly are intermediate outcomes that in various forms capture what we know about the product, the use situation, and the design process. Some of these prototypes are versions of the final product that in various ways fully functional, while others at the other extreme are experimental and throw-away prototypes formed in materials and software that has little to do with a final product (e.g. mock-ups or paper prototypes).

Making Sense of Green Boxes: A Study on People's Understanding of Augmented Buildings on Mobile Phones

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ABSTRACT

Mobile augmented reality (MAR) is a promising tool for urban planning as it allows a wide audience to experience future changes to the cityscape firsthand through their smart phones. With a study on how people make sense of visualizations of planned buildings within a real (outdoor) environment, we identify user requirements for such augmentations using a bespoke prototype system with sparsely visualized buildings. We employ an in-the-wild study that involves encountering virtual buildings through the prototype system on a 45-minute walk in a planning area. Based on in-depth, qualitative data, we found that distinct qualities of augmented objects are important to provide among other things and that people relate virtual objects to existing structures in the real world. Our findings are generally applicable beyond urban planning whenever augmentations seek to imitate or represent real objects.

Author Keywords
virtual buildings; sense-making; participatory urban planning;

ACM Classification Keywords
H.5.1 Information Interfaces: Multimedia Information Systems—Artificial, augmented, and virtual realities.

General Terms
Human Factors; Design; Experimentation.

INTRODUCTION

The advent of the smart phone generation of mobile phones is bringing augmented reality (AR) to the masses. With their sensors, camera, and high processing power, smart phones present the most widely distributed and well equipped platform for AR. Much work has already been done in mobile augmented reality (MAR) systems [4] and AR in the architecture domain [1, 9]. Additionally, numerous commercial AR applications for smart phones exist (Wikitude and Layar are two of the earliest and most prominent examples).

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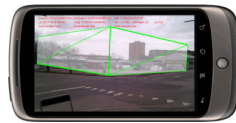


Figure 1. Screenshot of the ARCity system showing the outline of a planned building through the camera of the phone.

A domain where a wide-spread adoption of MAR systems could help is participatory urban planning. Although, changes to the cityscape are usually announced in the press and other outlets by the municipality, citizens are still often unaware of them or the implications they may pose. Architectural drawings and textual descriptions are often unhelpful or insufficient in communicating these plans to interested residents, who may not always be able to read and understand them. Furthermore, they are often published for the city as a whole rather than being filtered according to the area a citizen may be interested in (e.g., close to home or work). Architectural models can neither appropriately communicate the actual impact new buildings might have within lively and real rather than stylized surroundings. We envision that a MAR approach to urban planning may improve the awareness and understandability of municipal plans by visualizing planned buildings anchored in reality and aligned with the actual current surrounding cityscape in real-time.

For this purpose, we are building the ARCity system (see Figure 1). We employ AR building visualization in order to engage more people to experience and participate in urban planning of their own everyday living environment. We use a fairly basic approach for building visualization for it to perform well on general-purpose smart phones. We rely solely on already built-in GPS and inertial sensors for registration and tracking—i.e., only on the capabilities already in the phone. This enables augmented buildings in every person's pocket without any required calibration or preparation of the site as would usually be the case with other AR techniques such as feature-tracking and model-based approaches. We seek to enable citizens to just point their phone at any future building site and see what is planned to be built there.

Talking it Further: From Feelings and Memories to Civic Discussions In and About Places

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... nice tree in the middle of it, where I used to climb when I was younger.

I answered the comment: 'Maybe we need a tree as well, or some other kind of nature thing. It would make the place so much nicer for the kids playing here now.' Maybe my comment will lead to change in the future, who knows."

In this fictitious scenario the location-aware mobile phone application *I'm Your Body* (iYB) is used to share thoughts and feelings in and about a place. In the iYB project, we explore the use of collaborative storytelling and story experiencing as a political and artistic instrument. Our aim is to empower the inhabitants, especially youth, of a largely immigrant and lower-income area in Stockholm, Sweden by increasing their social capital [21]. As part of a larger participatory arts project, the mobile application lets participants collect their stories, present them to others, and experience the stories of others. We report on findings from the iYB system for the first time in this paper.

The goal of iYB is to design a leisure-oriented experience tied to a specific place and related to its cultural and political meaning. Thus, one way to describe iYB is as a location-based cultural experience. As Benford et al. [6] in their work on cultural applications, games, and performance, we use the singular word "experience" to refer to such staged installations that encourage participants to engage.

Although the implemented system is generic, it was specifically designed to be used in a particular area. This area, Jarva (a part of Stockholm), is politically challenging. Large cultural divides and different agendas among inhabitants, commercial forces, and politicians create tensions. Thus, it is crucial that the experience creates close ties to the physical area in which it is staged.

We broadly subscribe to the traditions of action research, participatory design, and in the wild studies in our research and design process. As iYB is implemented, tested, and used on location, in real use contexts, and with real users, the reality of the situation means we have to take an active part in the community to be able to design for it, i.e., there already is an existing community that we add on to. Our partners in the project act according to their artistic and political backgrounds. And so do we as researchers and designers who want to be a part of that community change.

In this active role, we consequently take a participatory action research approach in the steps of Levin [1]. The

RESEARCH OBJECTIVES

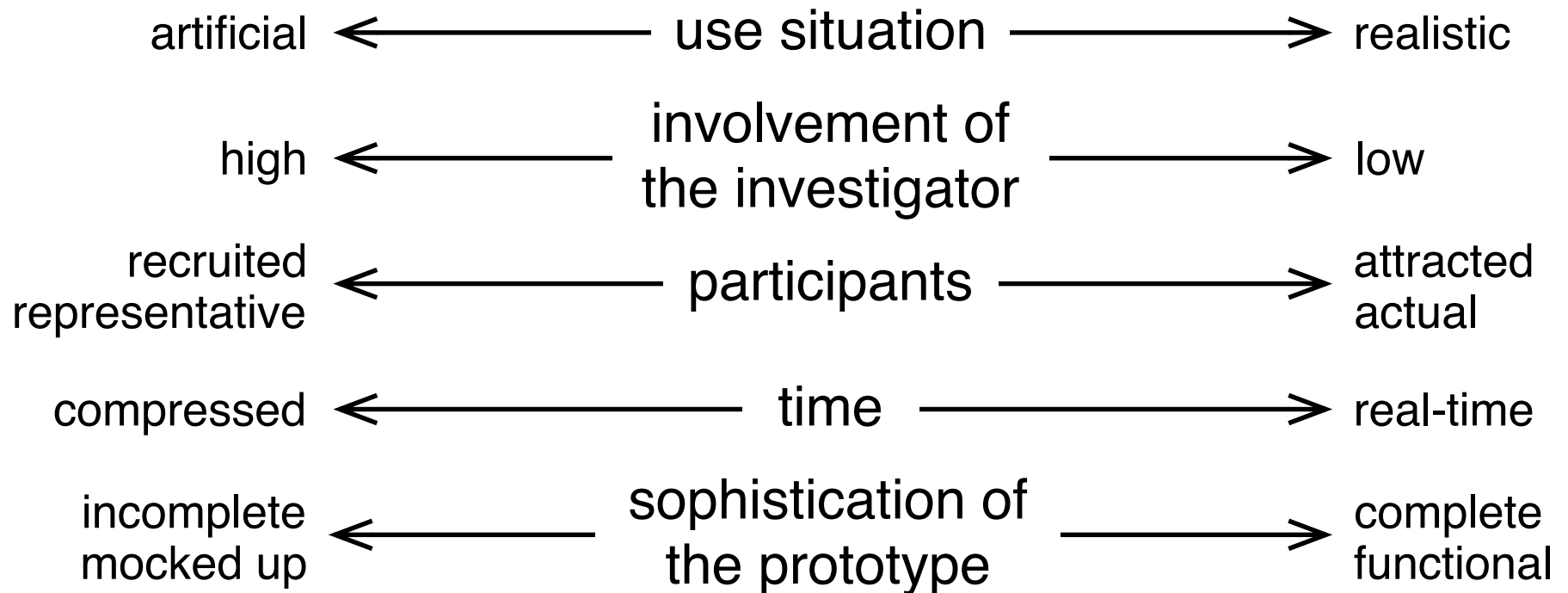
Conceptual Research Objectives:

- I. To explore (and conceptualize) the design of technology-mediated civic engagement opportunities in participatory land use planning that are better integrated into people's everyday lived experience.
- II. To explore (and conceptualize) how such engagement activities can be made more pervasive (i.e., enabling engagement everywhere and through various means) and co-located with the referred-to places, i.e., the places that are personally meaningful and matter to citizens.

Methodological Research Objective:

- III. To enrich our available methods and techniques that enable us to capture practices involving mobile behavior and allow for exploration of the field with sophisticated prototypes in the wild.

UBICOMP METHODS



DESIGN EXPERIMENTS

Experiment	Empirical Focus	Methods
Mobile Democracy	co-design process	extensive participatory design process
AR City	field use	analytical workshops
Mening@Park	co-design process/ field use	exploratory field trial, interviews, workshops, exploratory workshops
I'm Your Body	actual usage	field trial, analysis of usage data, reflection on design

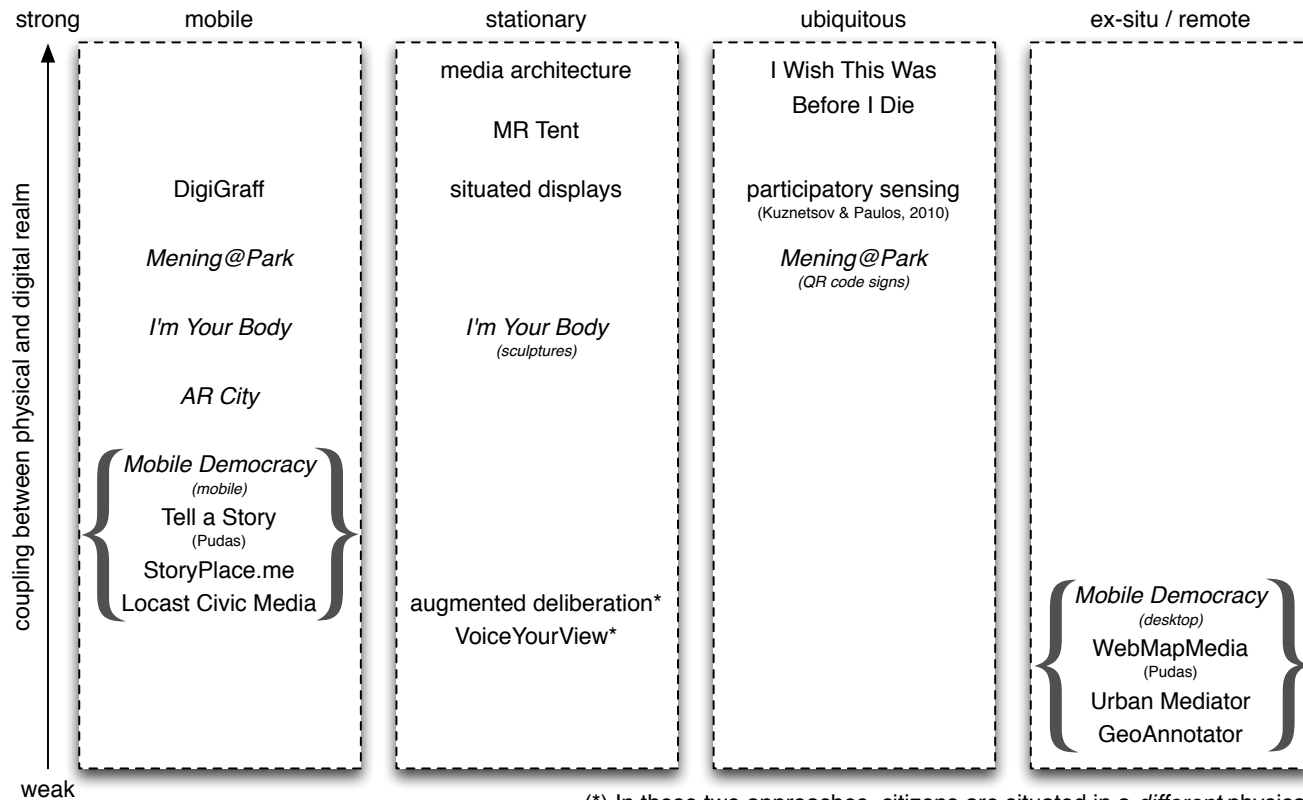
ACCESS AND REPRESENTATION

access (from place to topic)	representation (from topic to place)	action
QR code signs	topic location	creating a topic
notifications	in topic title	agree / disagree
map	in topic description	commenting (incl. mood)
lists	photos	uploading a photo
sharing / recommending	AR view	sharing a topic
my location		favoriting a topic

CONTRIBUTIONS

Experiment	Contribution Themes	Infrastructural Perspective
Mobile Democracy	in-situ and ex-situ reflection and action; qualities of <i>being there</i>	additional desktop interface for 'remote' access
AR City	better impression of plans in-situ; place mediation	visual component for place mediation
Mening@Park	links between physical and digital spaces; access and representation; appropriate forms of engagement	physical artifacts in the environment as links to the digital infrastructure
I'm Your Body	storytelling, playfulness, and emotions for civic engagement; stories developing geographically	artistic and playful expression through physical artifacts (sculptures) and performances (theater play)

RELATED WORK



(*) In these two approaches, citizens are situated in a *different* physical and/or virtual context than is referred to.

I'M YOUR BODY

- ((at a public park downtown))
“Looking up at Karl the XII and think of how it used to be, during this person’s time. Cannot help thinking how I would look like as a statue.” [female]
- ((in the suburb, behind the mall))
“Oh how fun. Unfortunately, there are no statues here.” [male]
- * ((in the suburb, residential area))
“I agree, there are no statues here either. Really sad that there are no statues and other fine things which cheer up the streets everywhere!” [female, original poster, resend with typos corrected]
- * ((in the suburb, behind the mall))
“No, I do not see any statues here just shopping installations” [male]

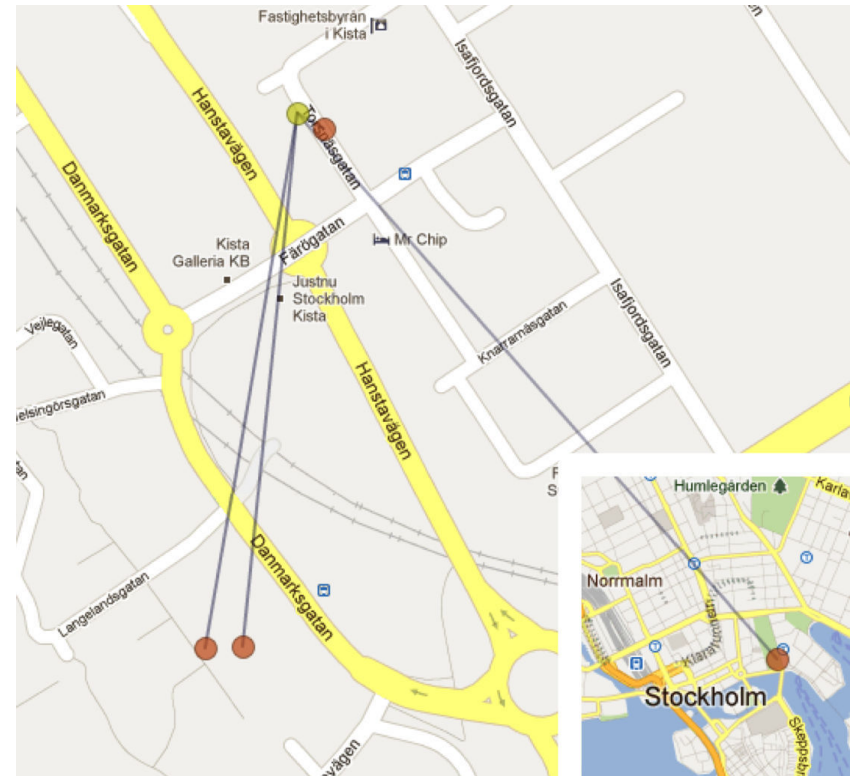


PHOTO ATTRIBUTIONS

- › Slide 2 (left): Foursquare User Chris Z. at Café Le Coq, Aarhus <http://4sq.com/17zsbLw>
- › Slide 12: Nils Jepsen / CC-BY-SA-3.0, via Wikimedia Commons <http://bit.ly/10SsVbK>
- › Slide 13 (bottom left): Nationalpark Mols Bjerge <http://bit.ly/19ytjeZ>
- › Slide 14 (bottom left): Ebelfestival <http://ebelfestival.dk/>
- › Other photos by Nikolaj Gandrup Borchorst, Mikkel Baun Kjærgaard and Matthias Korn