Research Plan

Internet of Bikes and People (IOBAP)

Tim von Oldenburg

March 17, 2015

1 Research plan summary

2 Introduction and background

, cycling does not take place in isolation. It happens in all weather, in and around multiple infrastruc- tures, in complex choreography with other multi-modal road users. It is interwoven with the urban fabric, every- day practice and the lives of others.

- Bicycling has started to be recognised as a
- cycling is not only solitary, but can be a very social activity
- bike is one of the most simple transportation devices, hasnt changed much in recent years; don't put too much technology in, don't change the being of the bike

While some research has happened very close to the project, namely Esbjörnsson, Juhlin, and Östergen (2003) on motorcycles, Mcllvenny (2014) on direct social interaction (and *intentional* bike formations), and Cromwell (2013) from an urban perspective, nobody seemed yet to have touched the possibilities the Internet of Things might have for this.

3 Research focus

- How can Internet-of-Things technologies support cycling as a social activity?
- How can we make use of the phenomenon 'temporary cyclist formation' in urban traffic (maybe using IoT technologies)
- How can the cycling experience be properly conveyed/represented? maybe focusing on 'temp cyc form' as well?

Objectives:

1. To describe the phenomenon tempCycForm and its characteristics
2. Explore social interaction patterns within that phenomenon
3. Explore design openings that make use of it
4. Design for better/nicer commutes with respect fo tempCycForm

4 Literature overview and related work

The range of existing work I base my research on can be generally divided into two sources: social sciences and design, with the former accounting for the gross of examples.

4.1 Social sciences

Social interaction and meaning-making in a velomobile environment

- Actor-network theory: Bruno Latour et al ▸ group forming
- Marc Auge, place, space, non-space, urban spaces, place-specific computing
- Kat Jungnickel, Rachel Aldred
- McIlvenny, Jensen 'mobile with'
- Justin Spinney vs Auge/non-place

Wie war das mit indirect und direct interaction?

4.2 Design, Architecture

- Design Noir
- IoT
- vllt was von wegen 'design for serendipity, encounters'? TODO: literatur vom ersten kurs nachschauen
- Esbjörnsson et al Motorcycling & social interaction Esbjörnsson, Juhlin, and Östergen (2003)
- Cromwell und sein social act of bicycling Cromwell (2013)

Jensen (2010) proposes that we study what he calls the "mobile with." Jensen argues that "in the mundane and ordinary everyday life we make multiple 'temporary congregations' as we are slipping in and out of different 'mobile withs' . . . 'Mobile withs' might be exemplified by groups of recreational runners or cyclists [italics added]" (p. 341).

In regard to interactional formations, Kendon (1990b, p. 209) describes how "people often group themselves into clusters, lines, or circles, or into various other kinds of patterns. These patterns may be highly fluid or they may be relatively sustained. When such a pattern is sustained it will be referred to as a formation."

Once moving together, co-riders need to sustain a shared pace, otherwise co-presence cannot be maintained, the mobile formation dissolves, and talk or interaction is no longer possible. As we shall see later, formations can be stretched without breaking, and thus interactions have an elasticity that requires co-riders to attend to their mobility as and with their talk-in-motion.

5 Methodology

beccy ist toll

- Workshops
- Bodystorming - group storming
- Game prototyping

Observation: go and observe bycicle-heavy roads; or go full ethnographic, and go into traffic, maybe following others

Role play: prototype bike traffic with multiple people by means of role play. Not even in real traffic. Just 'play'.

6 Collaboration

- Sigma Connectivity
- IOTAP - ECOS - Jonas Lowgren
- Andere Personen:
- Francesco
- Roberto

7 Expected results

- How to prototype IoT stuff in a velomobile environment
- tempCycForm

8 Activity plan, schedule

Milestones:

9 Pilot experiment

Jungnickel (2014) describes a method of creating time-lapse videos of bicycle rides with the aim of presenting the being-there, feeling-there, seeing-there, making-there.

The aim of this experiment was to find out how temporary bike-a-licious sociality during a bike ride --- the feeling of being 'with' --- could be visually represented. It is based on work by Kat Jungnickel, who describes how she uses time-lapse video techniques to capture 'the view from the saddle', and extended by a time-warping/distorting component.

9.1 How?

- Ride a tour around the city
- record, by time and gps, the route as video as well as with how many people i am
- the latter has to be wizard-of-oz'ed

9.2 Setup

After a few short tests with several time-lapse apps, using a smartphone camera proved not to be a feasible solution. The smartphone bike mount that I had access to was, while securing the phone to the handlebars, not made for holding it steady or even holding it in an upright position (so that the camera could point forwards). The images it caught were shaking extremely, alternating in brightness a lot, had blurs (probably because of refocusing) and were - worst of all - not very interesting, as they showed mostly my front wheel and part of the road in front of me. Instead, I used an action camera (in this case a GoPro HD Hero 2). The camera came with a proper bike mount for the handlebars, and is made for 'action' situation, i.e. short exposure, bad lighting conditions, and heavy shaking. Before starting the ride, I set to camera to time-lapse mode, which means that it captures a picture in defined intervals. I set the interval to be 500ms, which is the shortest interval supported by the camera, but it also seemed sufficient for the purpose (Jungnickel used 2-second intervals).

In addition to the equipment for capturing pictures, I used my smartphone to record audio. Using a simple audio recording app and a headset with the microphone placed near my neck, I could record any thoughts and remarks I had during my ride, and thus record any non-visual impression, such as 'how many people are in a formation around me'.

9.3 Execution

- Start gopro and audio recording at exact same time
- go on ride
- try to ride at a more or less constant pace, not too fast
- whenever the number of people around me changes, i say the number so it's recorded

9.4 Post-production

- Create video from images n = number of people in group, me including m = max people i have ever been with during ride (including me) fps = (m+1-n)/5
- how else? blur the outside when i am alone...

9.5 Result

- Dynamic-speed time-lapse video of a cycling experience. Sense of being-there, seeing-there, feeling-there.

10 Potential risks

- People do not like to be in a formation with strangers
- they do not like to interact with strangers
- tempCycForm is not a thing, or is hard to design for
- might have to shift focus to intentional cycling formations, then more referring to Paul McIlvenny
- might have to shift focus to other encounters, such as 'meeting' or 'passing', more looking into Esbjörnsson et al.

References

Cromwell, Peter (2013). 'The Social Act of Bicycling Designing Bicycle Facilities to Foster Social Interaction'. Master's. United States – Washington: University of Washington. URL: http://search.proquest.com.proxy.mah.se/docview/1426400351/abstract/9C5A58291A8E49FBPQ/1?accountid=12249 (visited on 03/11/2015).

Esbjörnsson, Mattias, Juhlin, Oskar, and Östergen, Mattias (2003). 'Motorcycling and Social Interaction: Design for the Enjoyment of Brief Traffic Encounters'. In: *Proceedings of the 2003 International ACM SIGGROUP Conference on Supporting Group Work*. GROUP '03. New York, NY, USA: ACM, pp. 85–94. ISBN: 1-58113-693-5. DOI: 10.1145/958160.958174. URL: http://doi.acm.org/10.1145/958160.958174 (visited on 03/11/2015).

Jungnickel, Katrina (2014). 'Jumps, Stutters, Blurs and Other Failed Images: Using Time-Lapse Video in Cycling Research'. In: *Video Methods: Social Science Research in Motion*. Ed. by Charlotte Bates. New York, NY, USA: Routledge.

McIlvenny, Paul (2014). 'Vélomobile Formations-in-Action Biking and Talking Together'. In: *Space and Culture* 17.2, pp. 137–156. ISSN: 1206-3312, 1552-8308. DOI: 10.1177/1206331213508494. URL: http://sac.sagepub.com.proxy.mah.se/content/17/2/137 (visited on 03/04/2015).