

From labs to cities: Mapping the social impact of ubiquitous technologies

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University of Oulu

28 March 2012, University of Zurich, Switzerland

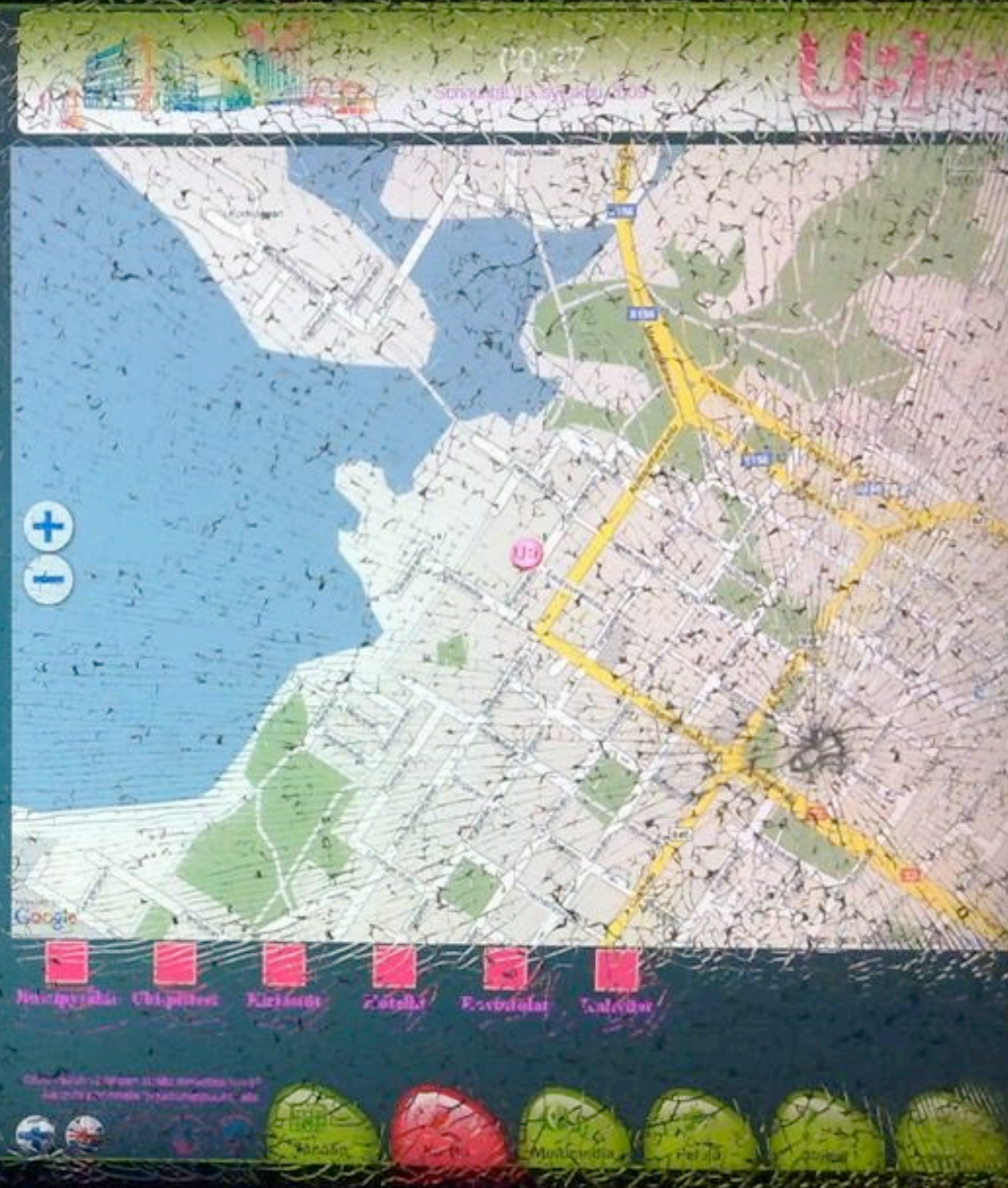


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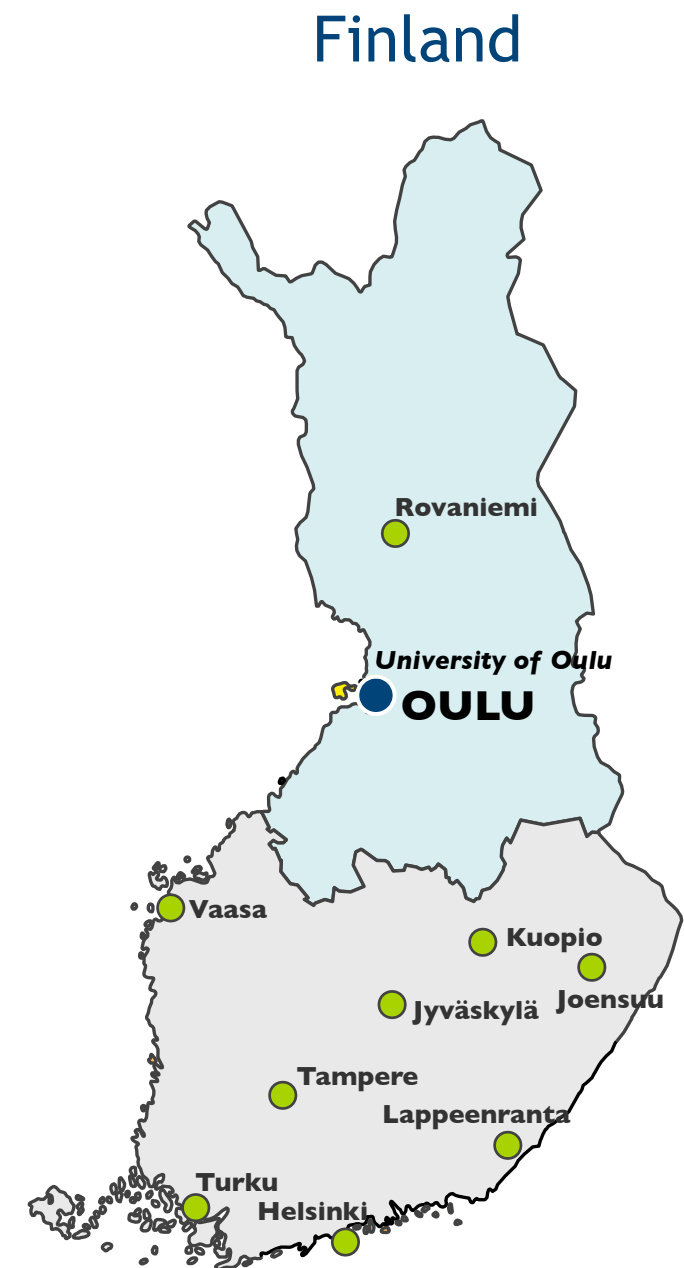






University of Oulu

- Founded in 1958
- 6 faculties
- 16 000 students
- 2900 employees
- Total funding EUR 226 million
- Four research focus areas:
 - Information Technology
 - Biosciences and Health
 - Cultural Identity and Interaction
 - Environment, Natural Resources and Materials



Active exchange programs





*Department of Computer
Science and Engineering*

Tietotekniikan osasto

- Ubiquitous computing (MediaTeam)
- Machine vision
- Intelligent systems and security
- Biomedical engineering



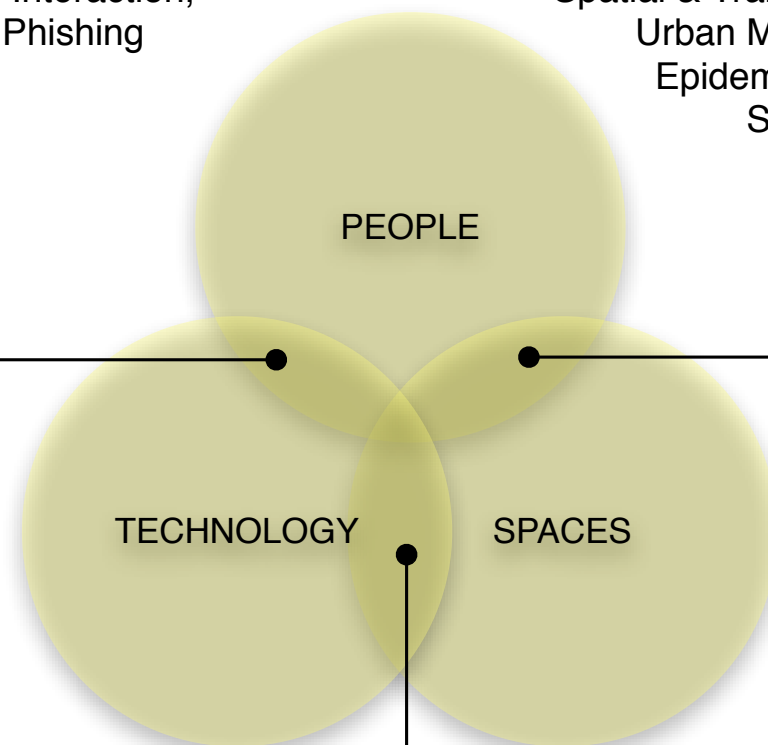
Impact



Ongoing work

Human Computer Interaction,
Trust, Privacy, Phishing

Spatial & Transpatial Social Networks
Urban Mobility & Encounter
Epidemiology & Diffusion
Space Syntax



TECHNOLOGY

PEOPLE

SPACES

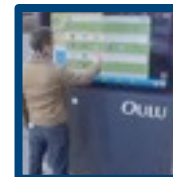
Augmented Spaces
Situated Services
Delay Tolerant Networks



Social and complex networks



Sensing for public transport



Public interactive displays



Instrumenting mobile platforms



Security and privacy



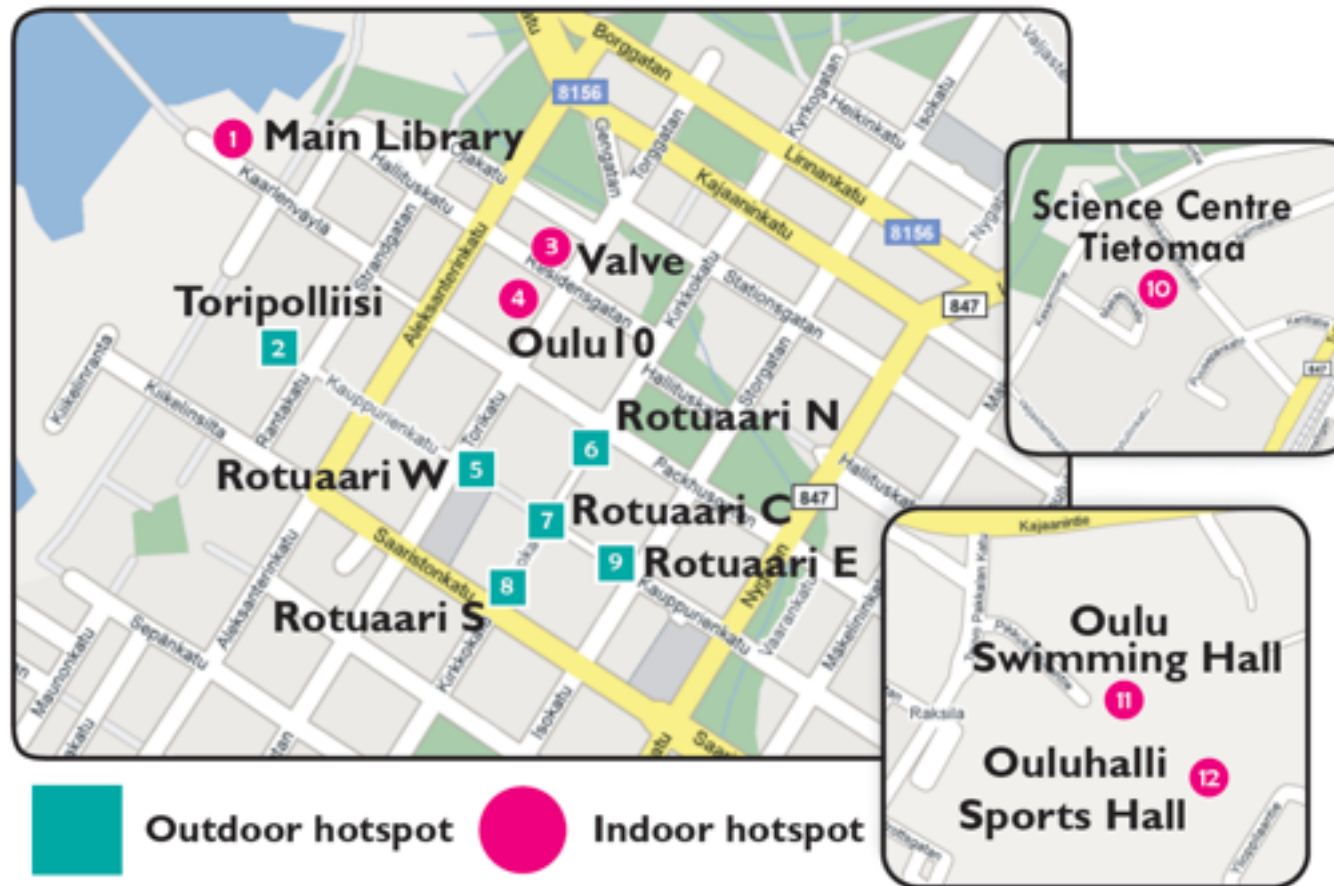
City-scale lab



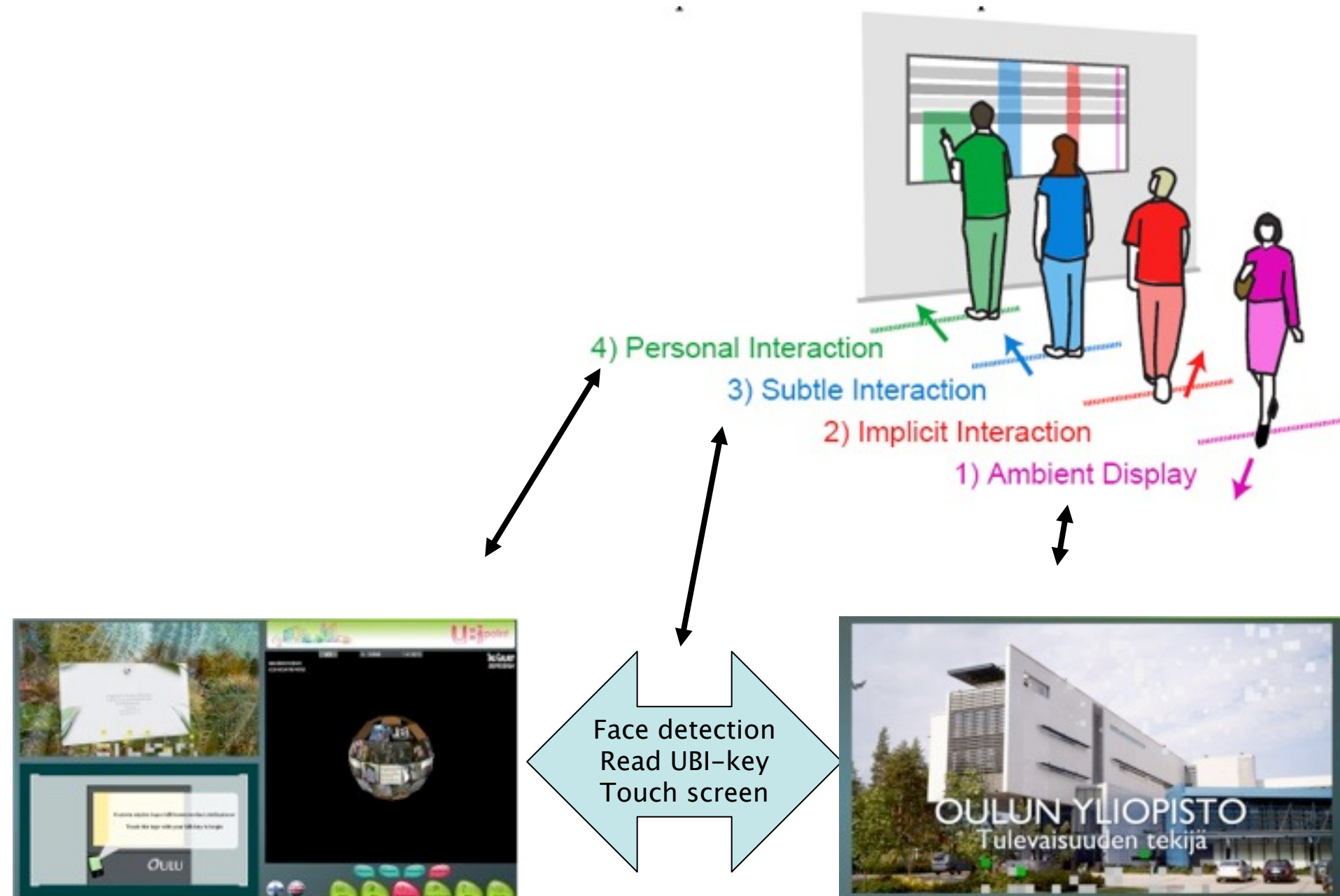
Slide 10

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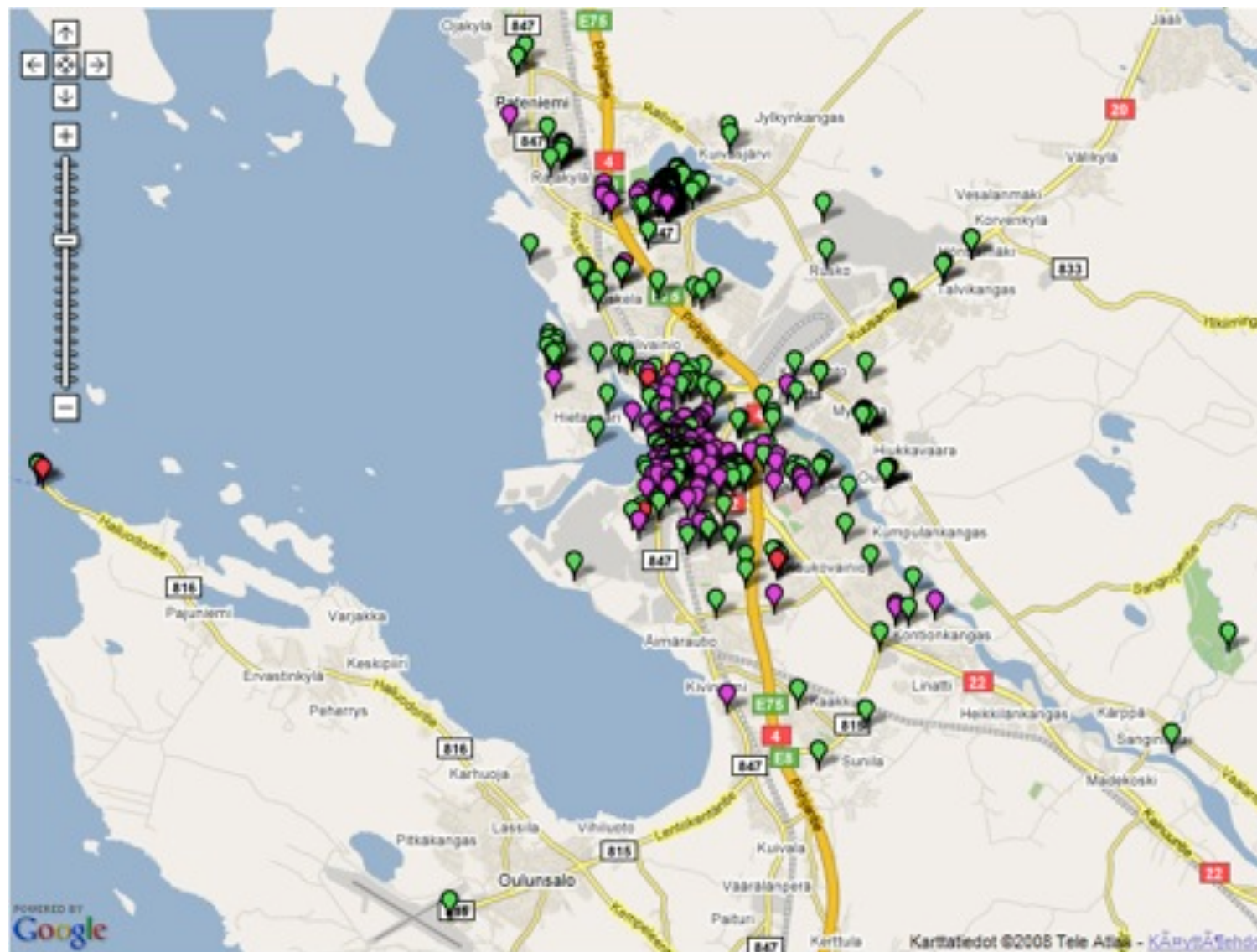
Interaction model

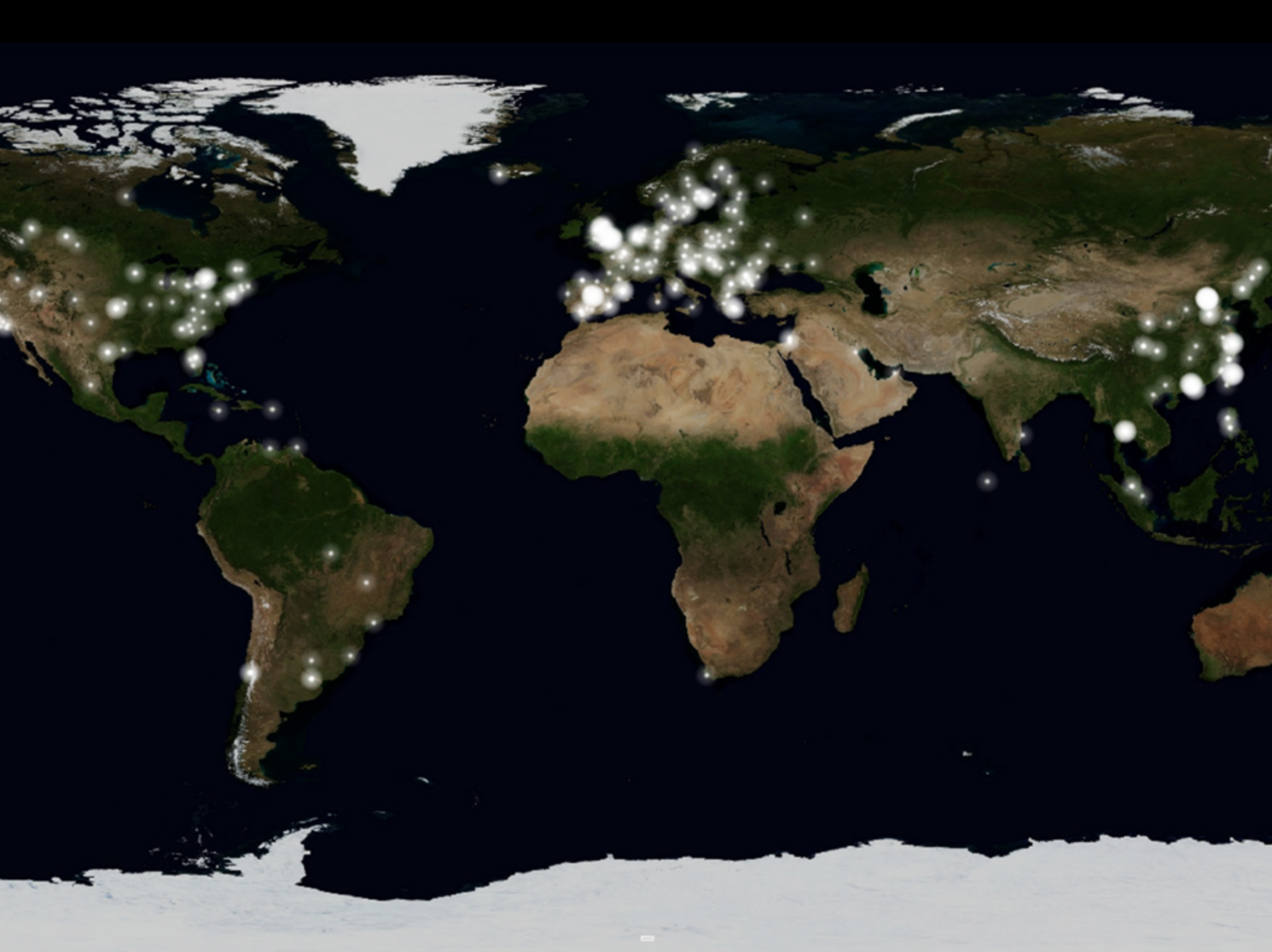


Interface

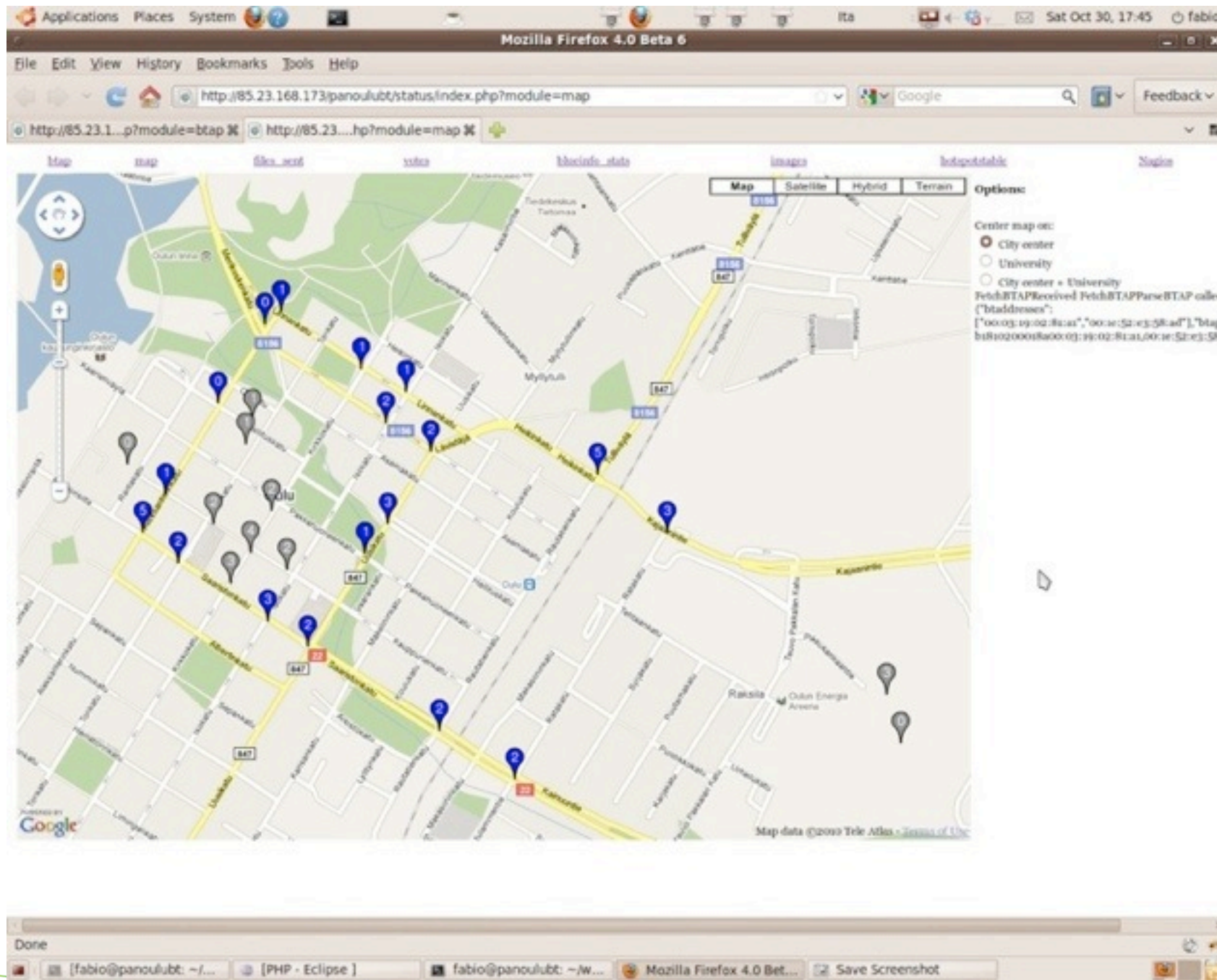


panOulu WiFi





Bluetooth network



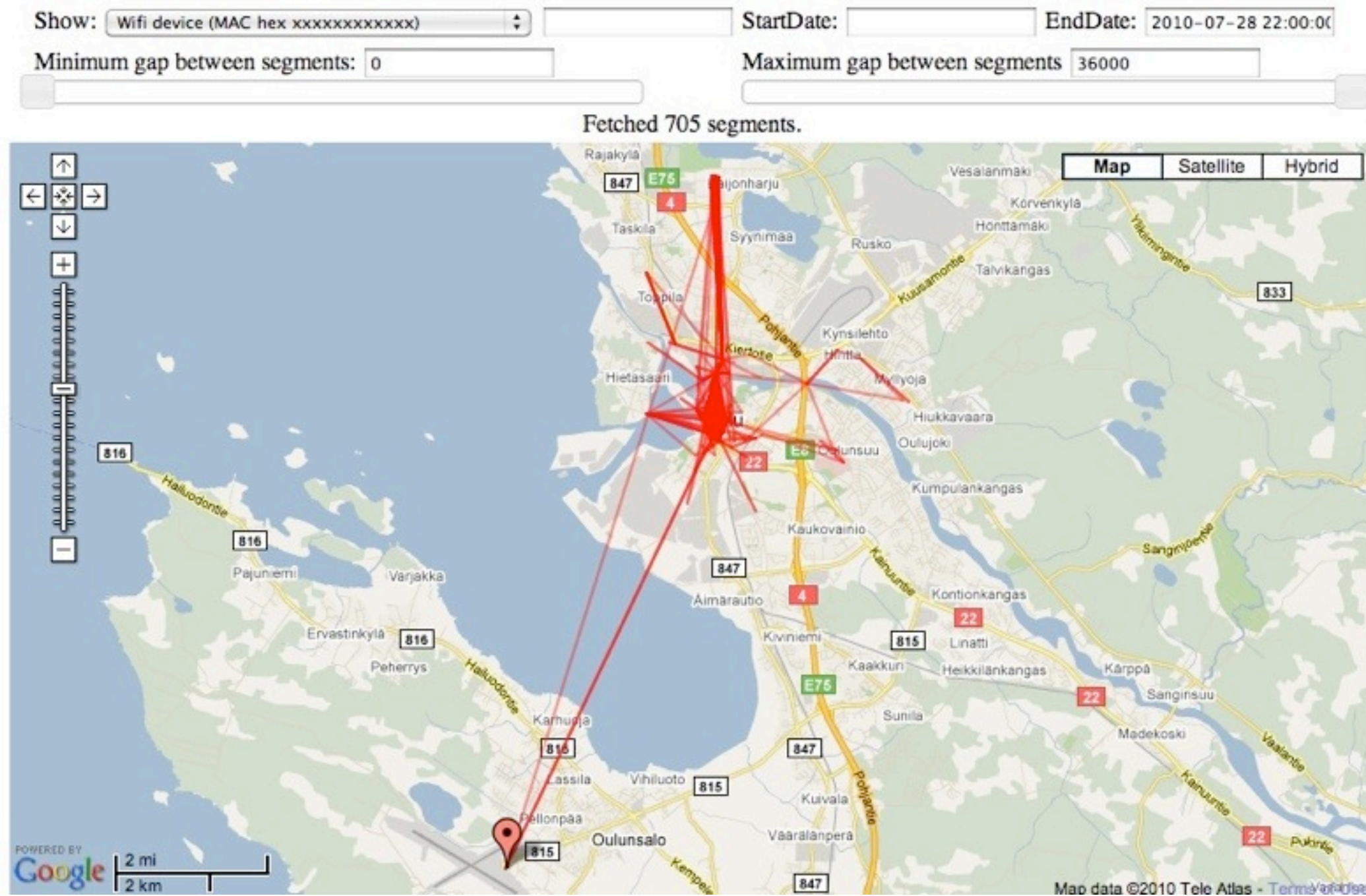
3D Oulu



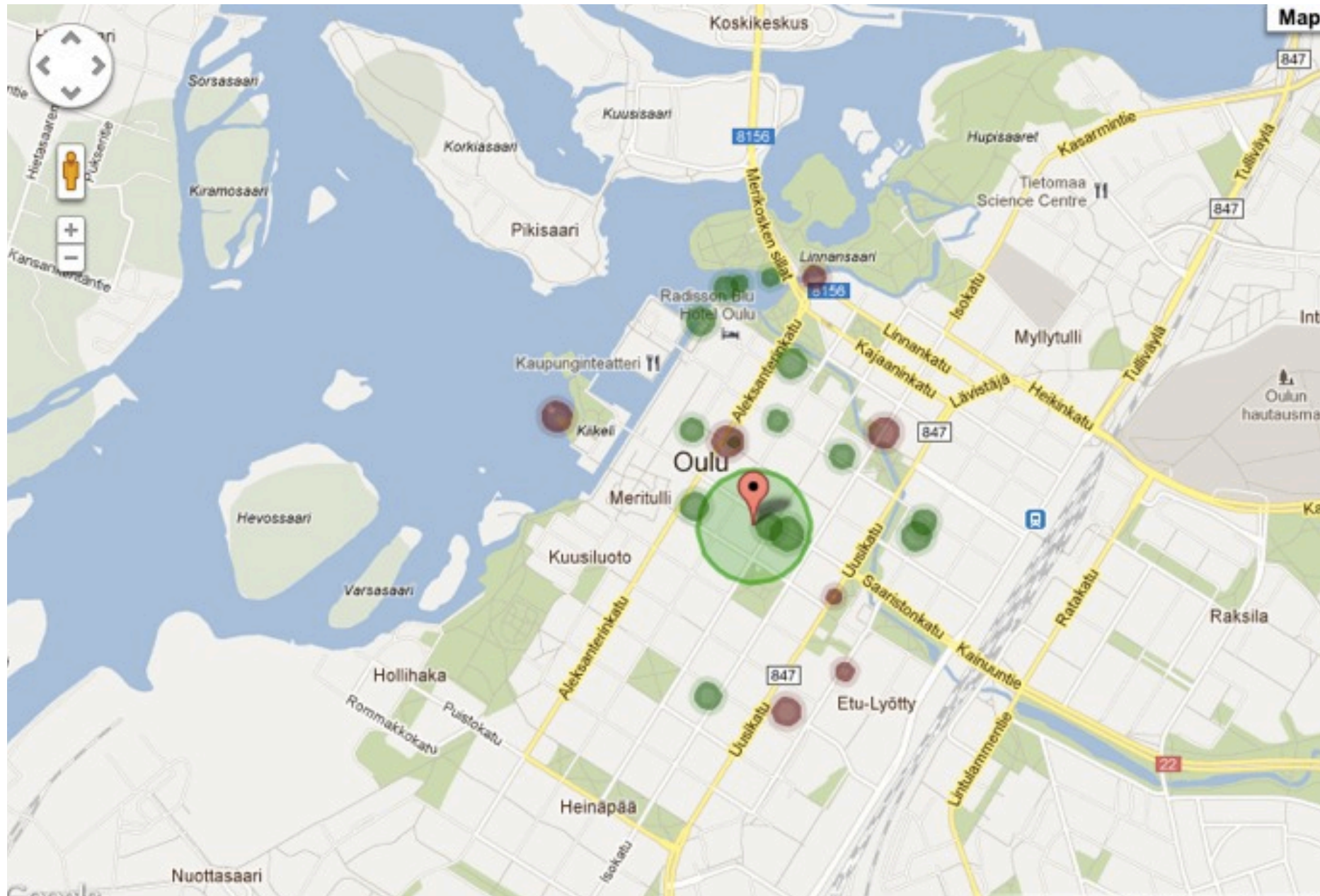
Which half is real?



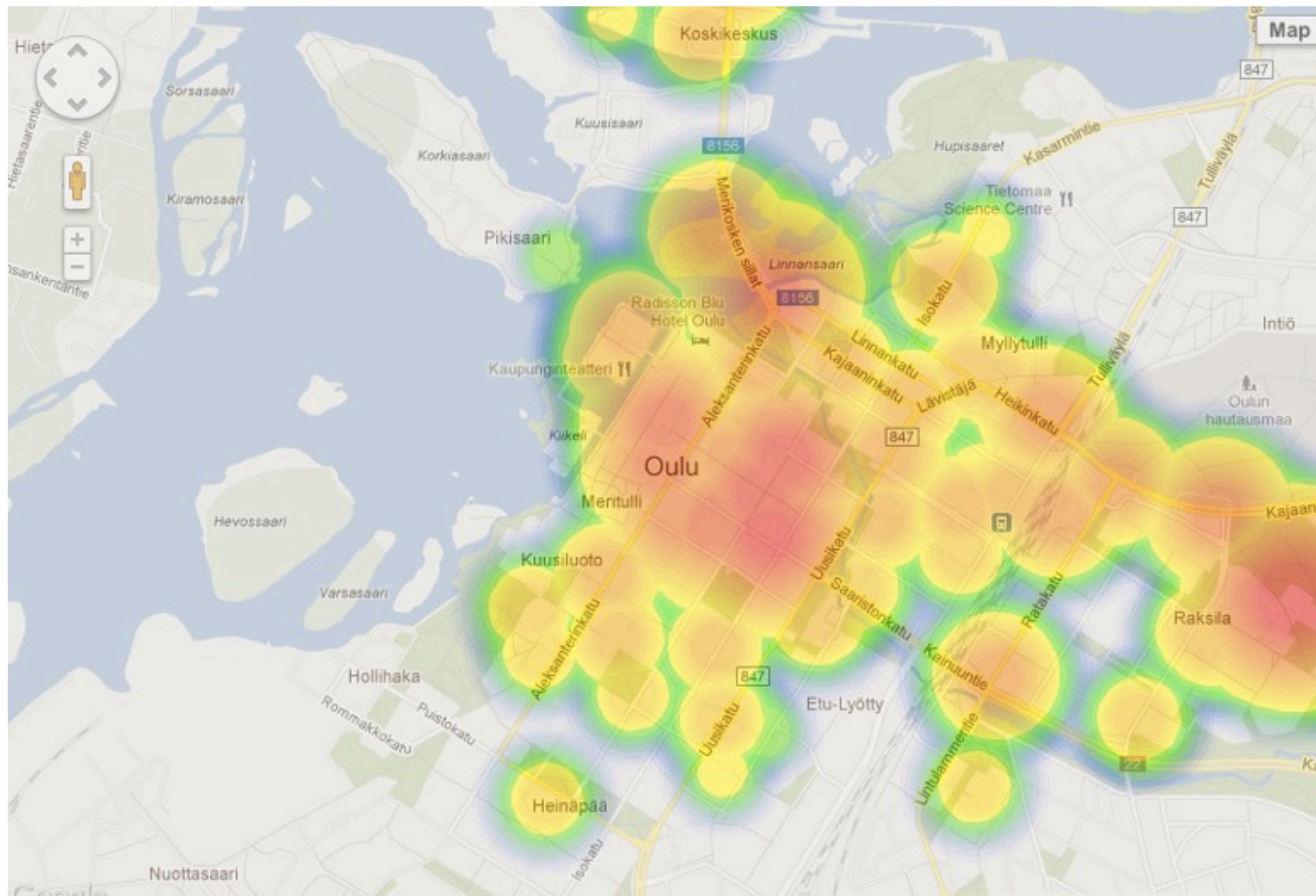
Reconstructing movement



Catchment areas



Where is it busy now?



Live demo?

[Click and pray!](#)



Open to the community: UbiChallenge



Ojala, T. and Kostakos, V. (2011). UBI Challenge: Research Competition on Real-World Urban Computing. In proceedings of **Mobile and Ubiquitous Multimedia 2011**, Beijing, China, pp. 205-208.



Lessons learned



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Analysis of user needs

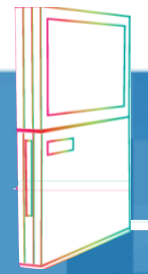


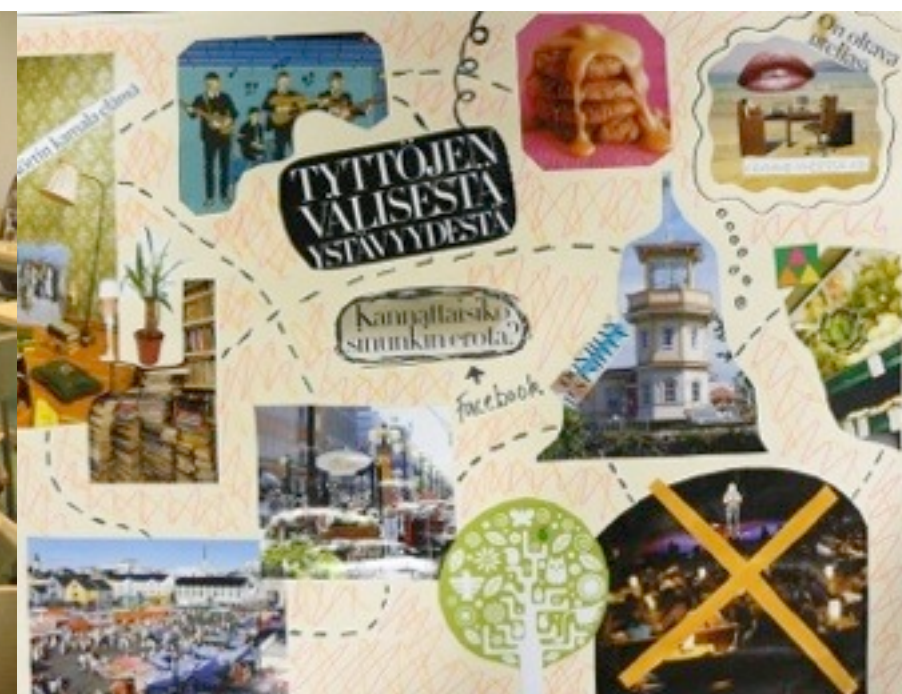
Brainstorming



Ethnographic studies

Storytelling













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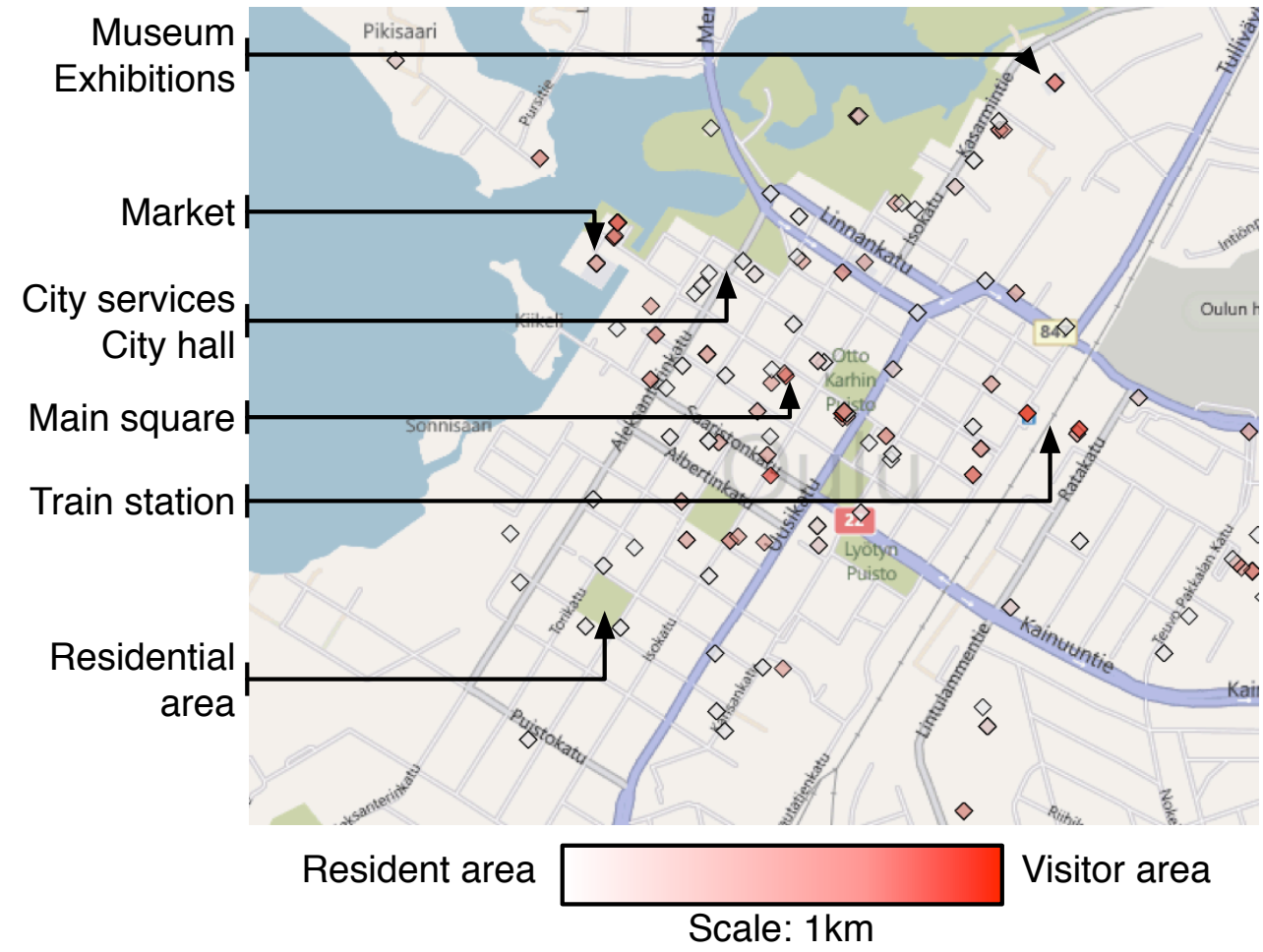
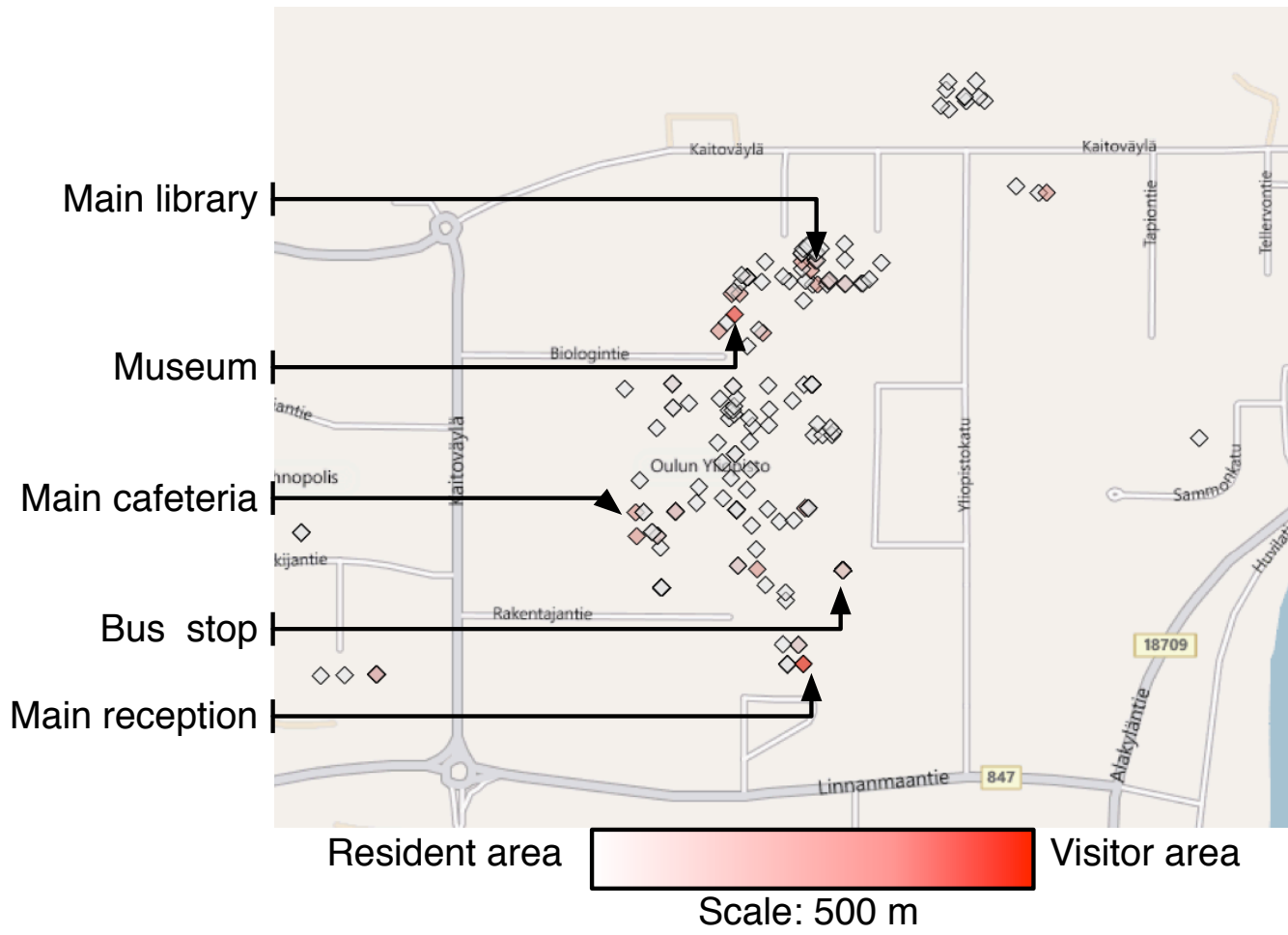


Location, location, location





Kukka, H., Kruger, F., Kostakos V., Ojala, T., and Jurmu, M. (2011). Information to Go: Exploring In-Situ Information Pick-up “In the Wild”. In Proc. **INTERACT**, pp. 487-504.



Successful services

UbiPostcard



Hangman

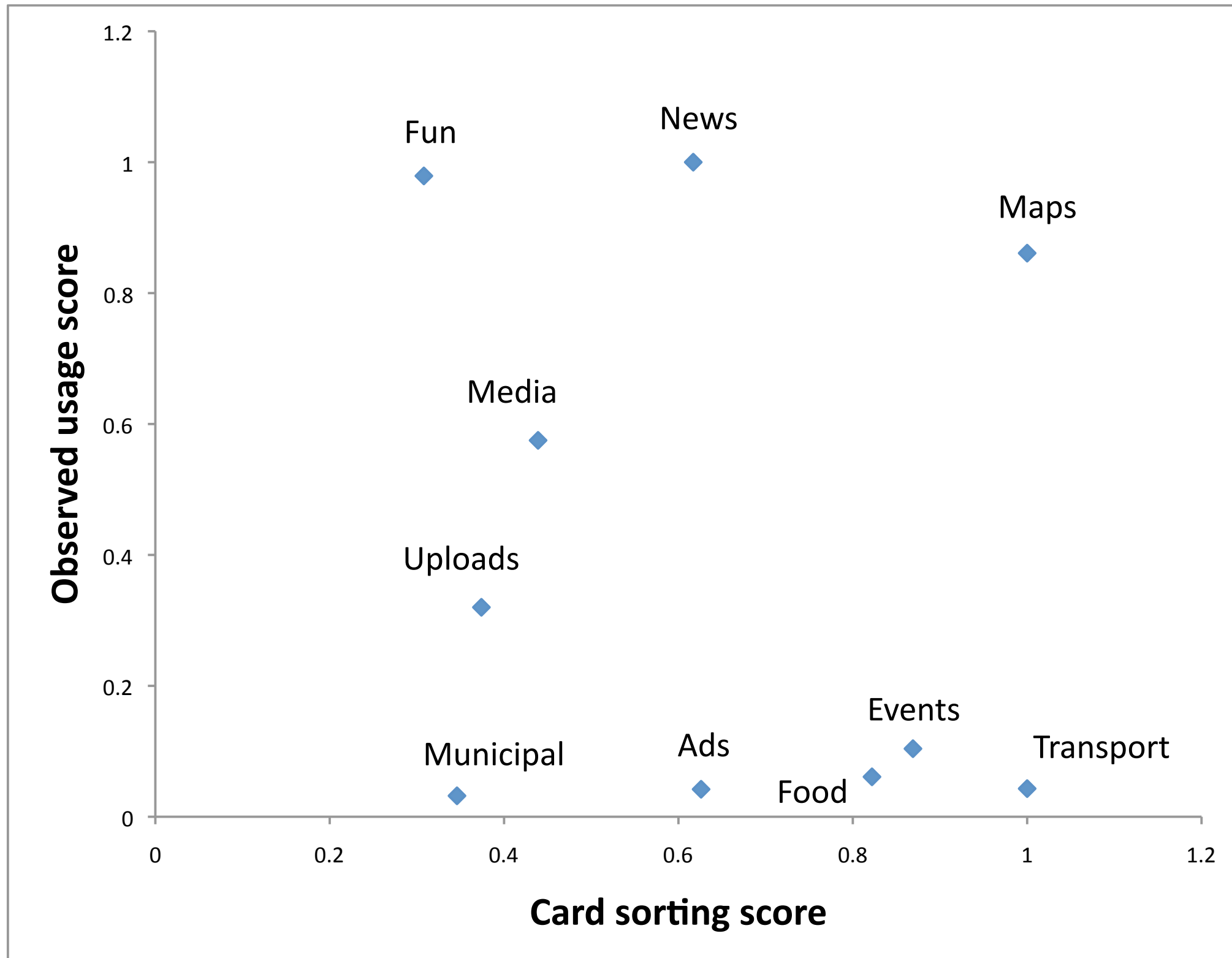


Ubinion



Hosio, S., Kostakos, V., Kukka, H., Jurmu, M., Riekk, J., Ojala, T. (2012). From School Food to Skate Parks in a few Clicks: Using Public Displays to Bootstrap Civic Engagement of the Young. In Proc. Pervasive 2012, Newcastle, UK.

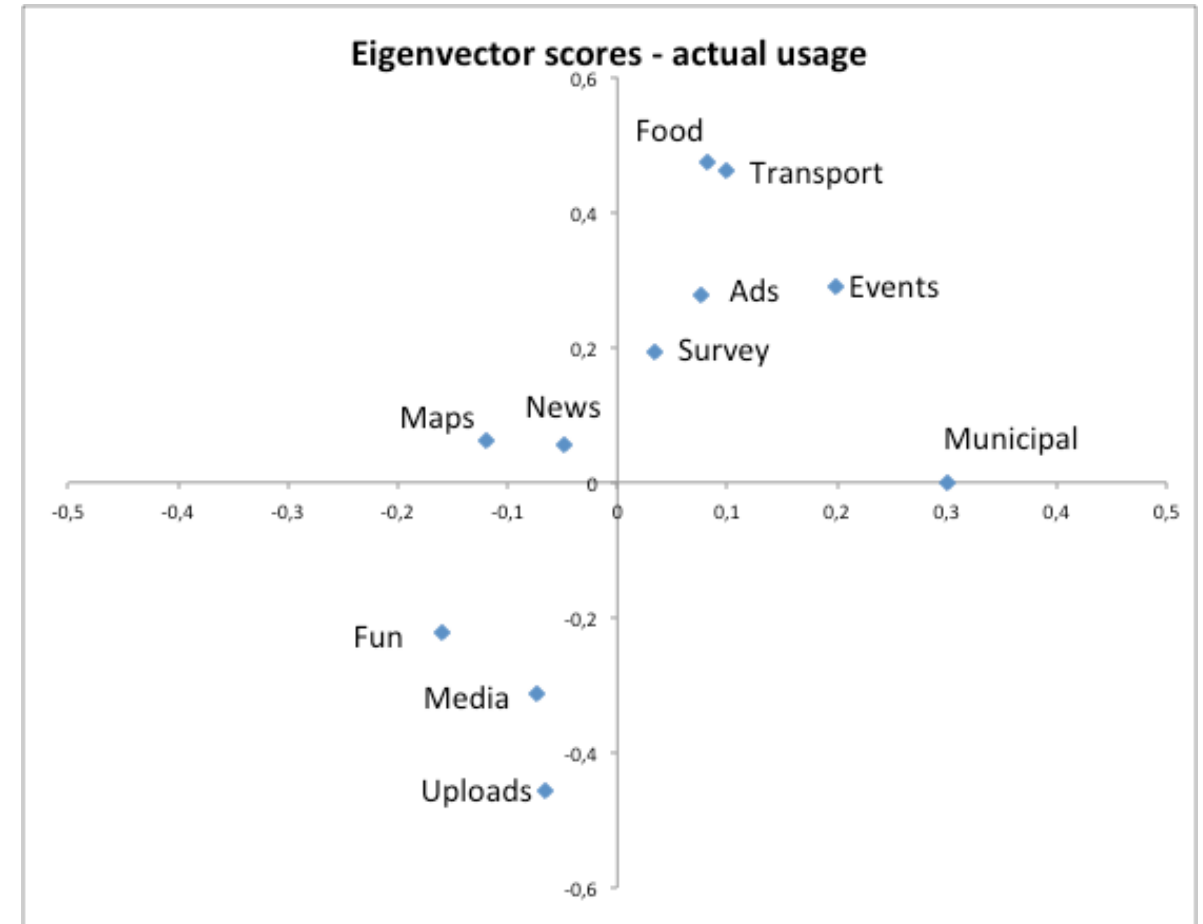
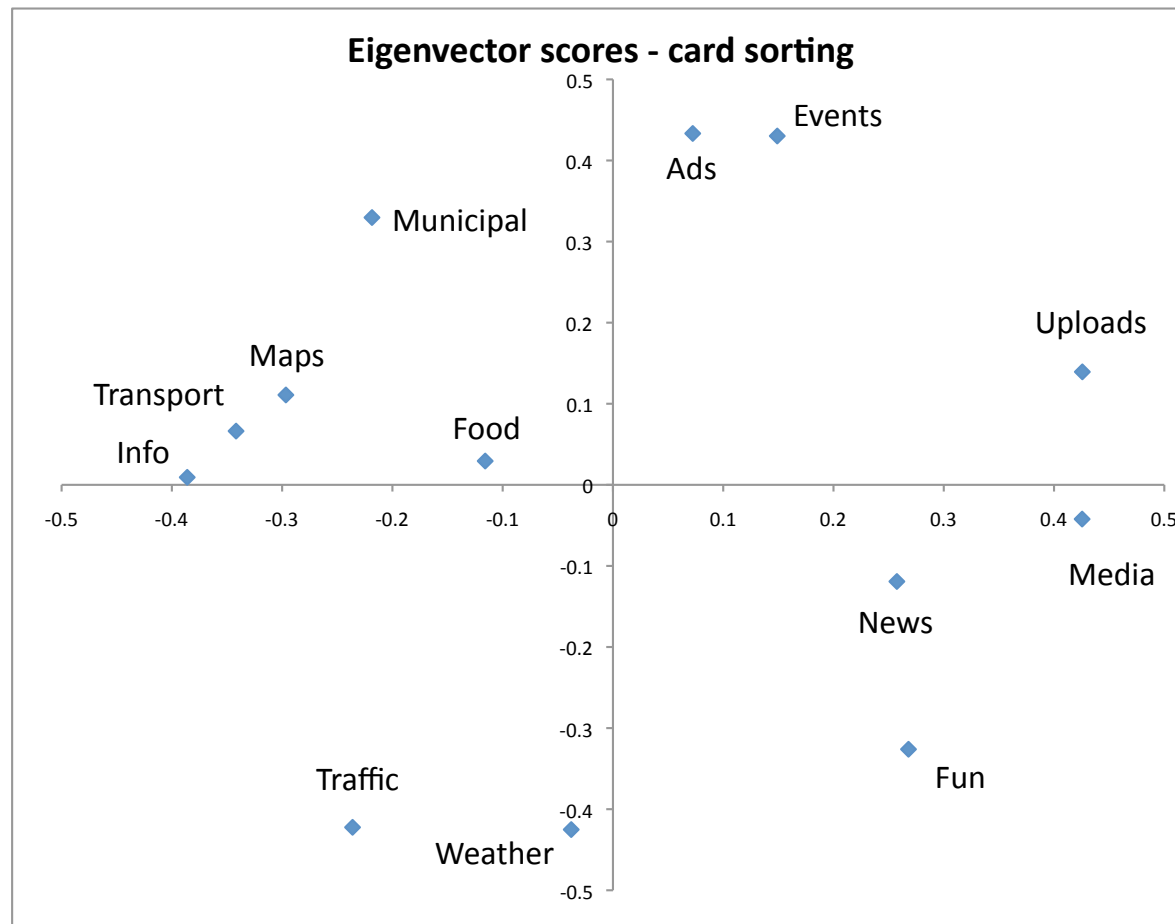




Kukka, H., Kostakos, V., Ojala, T., Ylipulli, J., Suopajarvi, T., Jurmu, M., Hosio, S. (2011). This Is Not Classified: Everyday Information Seeking and Encountering in Smart Urban Spaces. *Personal and Ubiquitous Computing* (online first)



Users don't know what they want

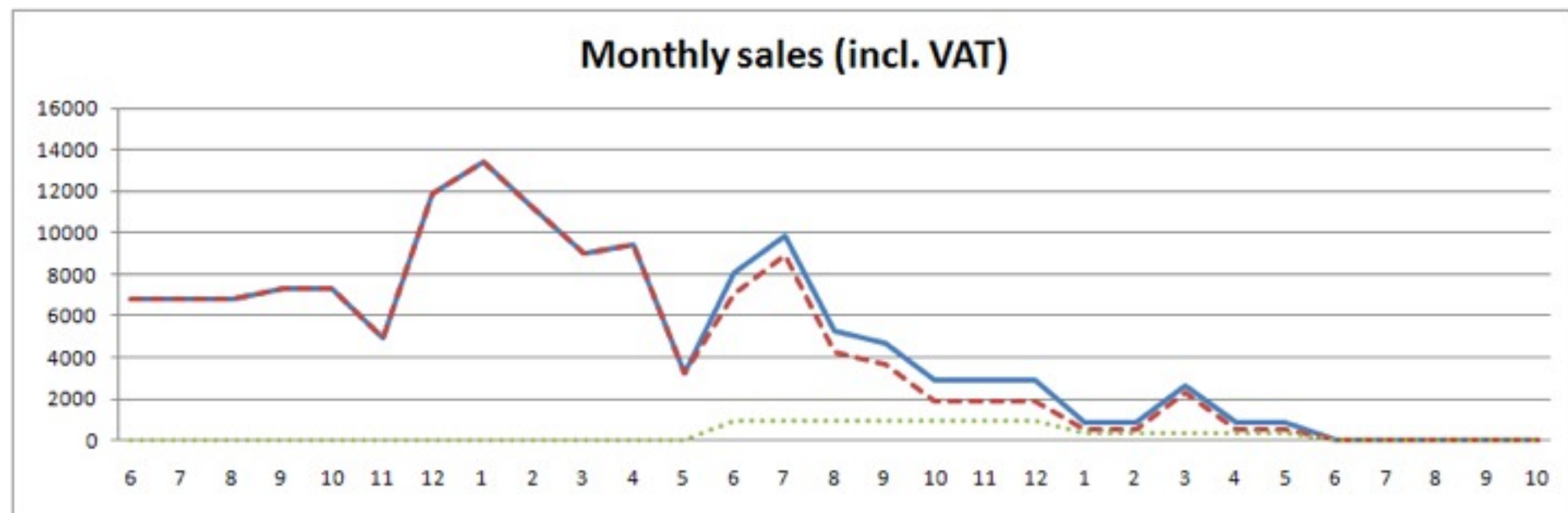


Kukka, H., Kostakos, V., Ojala, T., Ylipulli, J., Suopajarvi, T., Jurmu, M., Hosio, S. (2011). This Is Not Classified: Everyday Information Seeking and Encountering in Smart Urban Spaces. *Personal and Ubiquitous Computing* (online first)



Sustainability

140 880 €



Ojala T, Orajärvi J, Puhakka K, Heikkinen I & Heikka J (2011). panOULU: Triple helix driven municipal wireless network providing open and free Internet access. Proc. **Communities & Technologies** (C&T 2011), Brisbane, Australia, 118-127.

UbiOulu

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Maintenance & Moderation



Curiosity



Novelty



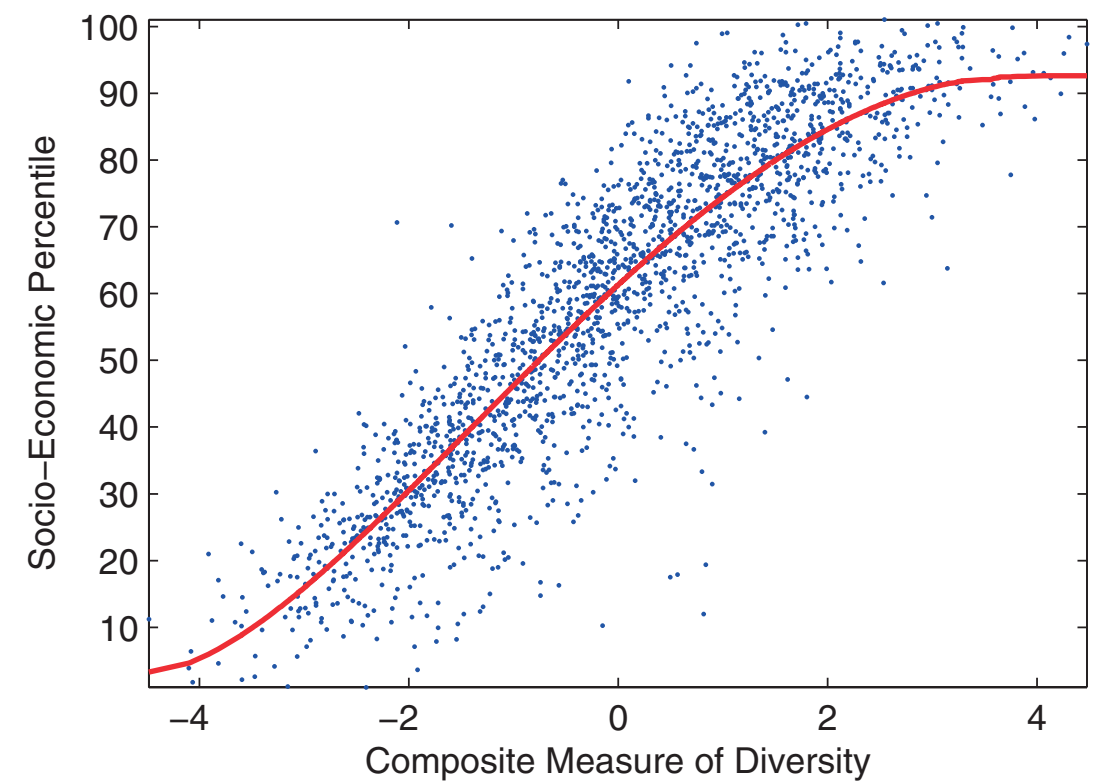
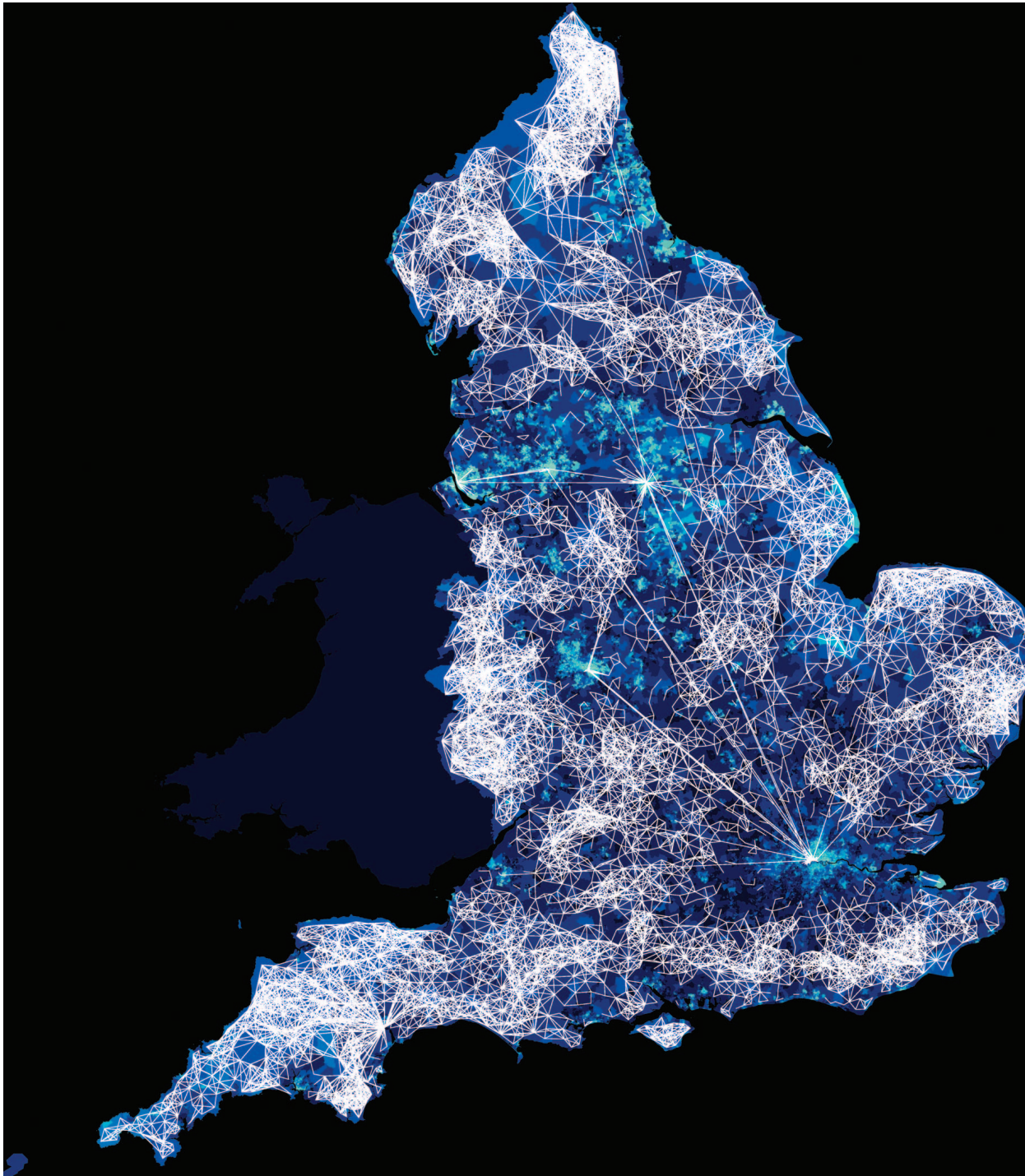
Interaction blindness



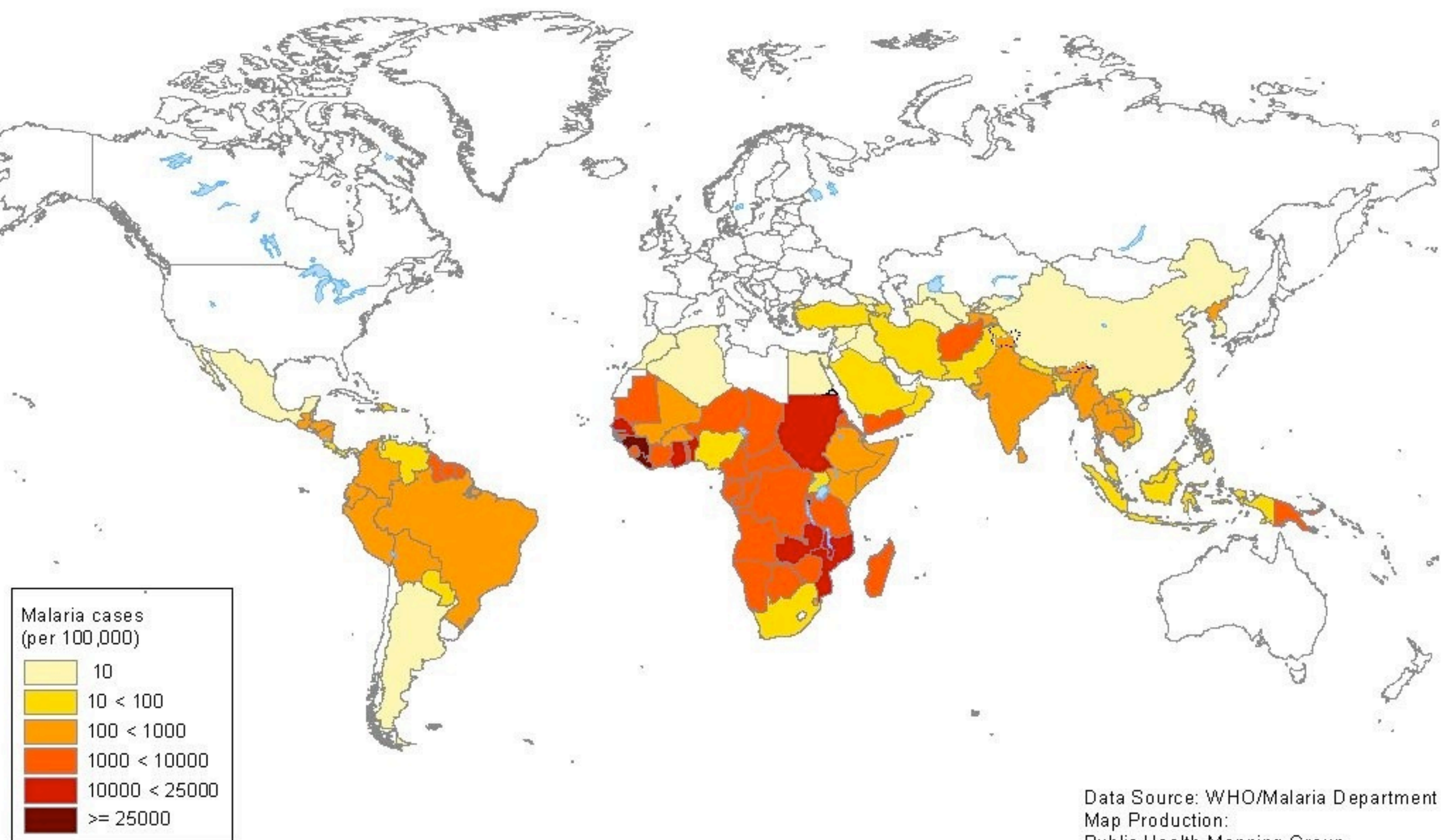
Ojala, T., Kostakos, V., Kukka, H., Heikkinen, T., Linden, T., Jurmu, M., Hosio, S., Kruger, F., Zanni, D. (to appear). Experiences from the long-term deployment of multipurpose public interactive displays in a city center. **IEEE Computer**.



Privacy - Who benefits?



Malaria cases (per 100,000) by country, latest available data



Data Source: WHO/Malaria Department

Map Production:

Public Health Mapping Group

Communicable Diseases (CDS)

World Health Organization

© World Health Organization, January 2004

The presentation of material on the maps contained herein does not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or areas or of its authorities, or concerning the delineation of its frontiers or boundaries.



PLEASE ROB ME



Raising awareness about over-sharing

Check out our [guest blog post](#) on the CDT website.



The end

- 3rd Ubi Summer School 2012
 - <http://www.ubioulu.fi/en/UBI-summer-school-2012>
- Researcher in Residence program
 - <http://www.ubioulu.fi/en/UBI-RIR-program>
 - UbiChallenge: <http://www.ubioulu.fi/en/UBI-challenge>
- Special issue of IJHCS on Social Networks and Ubiquitous Interactions (May 2012).
- Or just come visit!

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