

Connecting Interaction with Smart Urban Objects for Individual Support in Neighborhood Participation

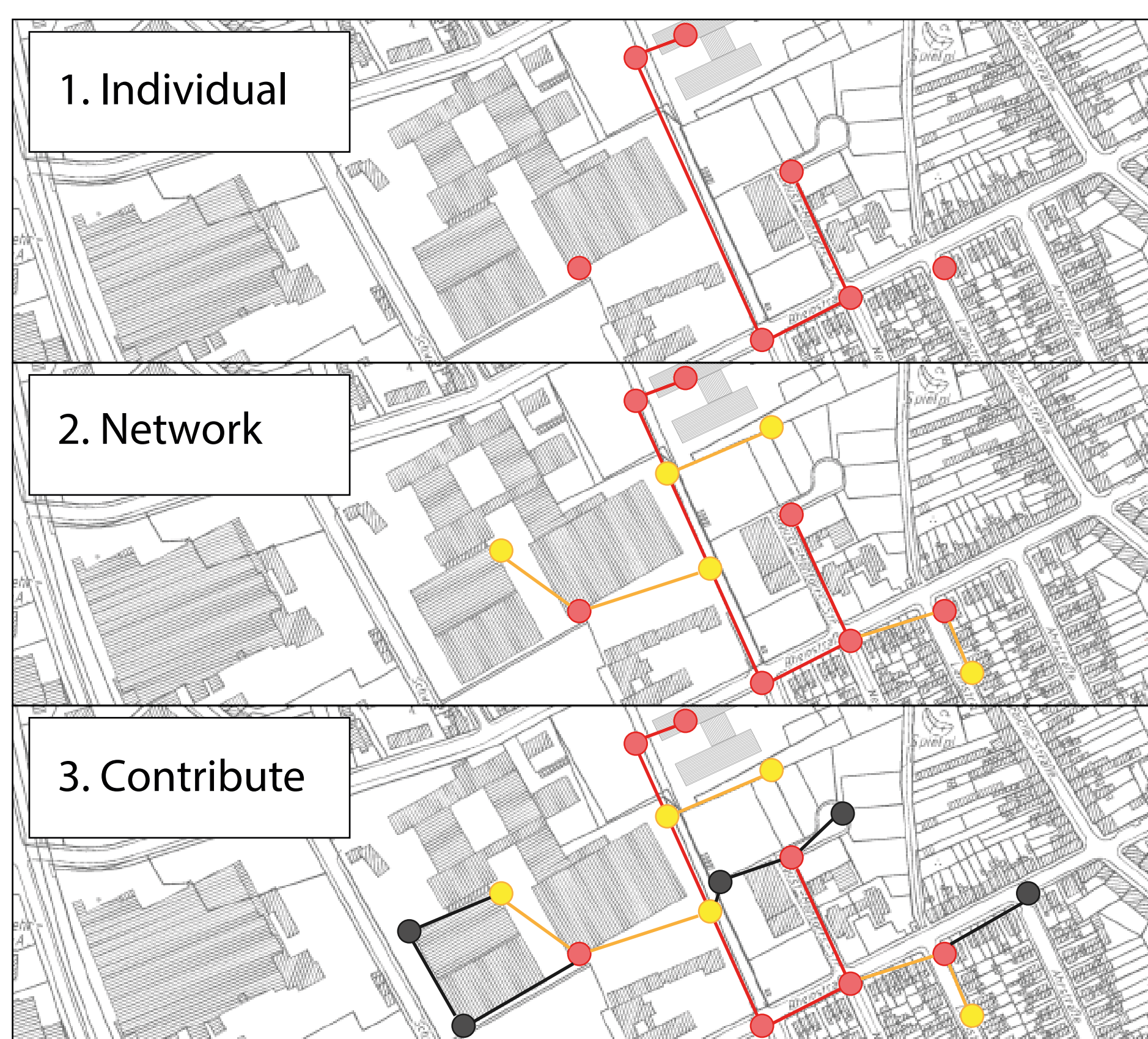
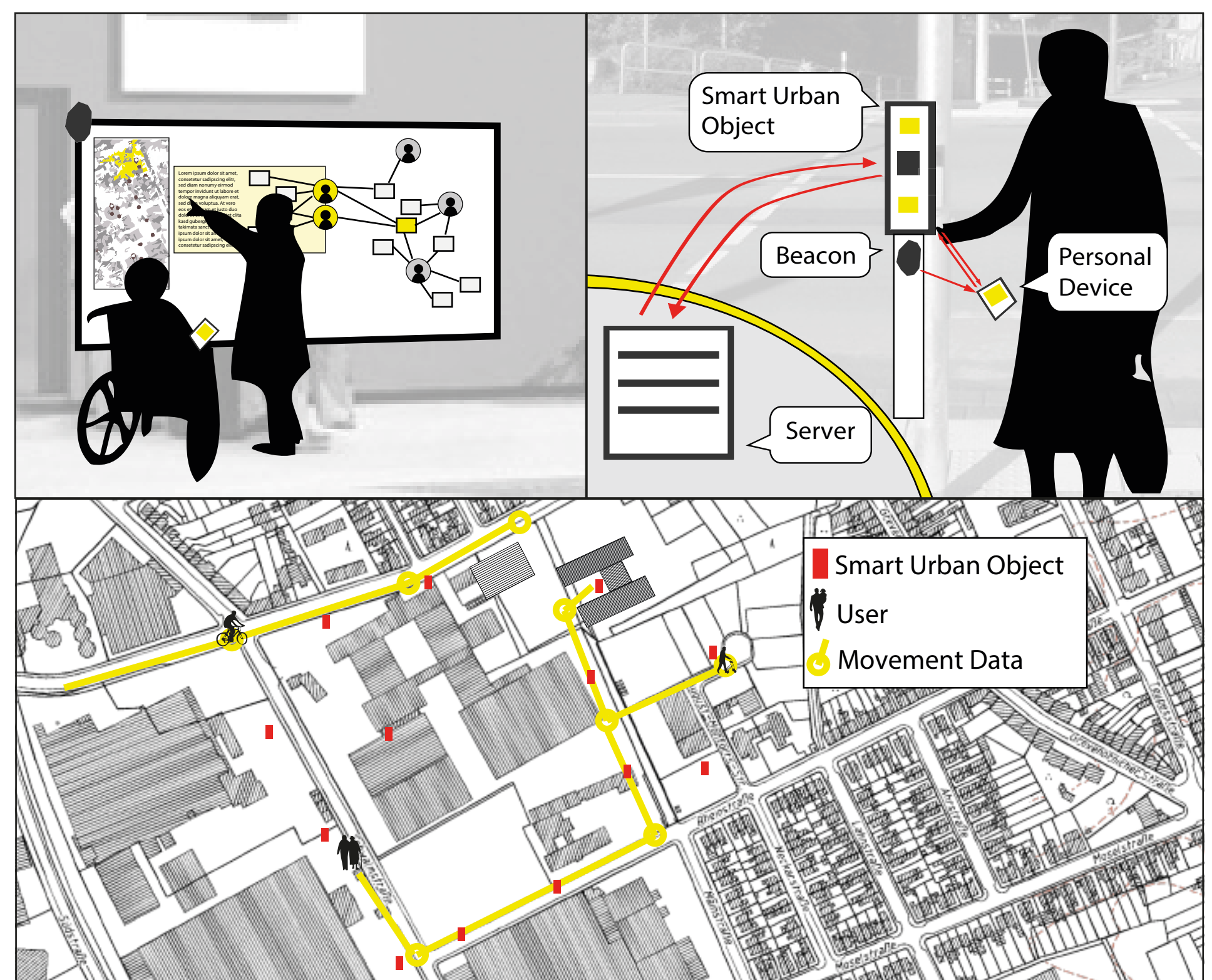
Anna Kötteritzsch¹, Julian Fietkau¹, Katrin Paldan², Michael Koch¹

Smart Urban Objects

Objects of urban infrastructure that integrate digital **information systems** have the potential to provide in situ support and **increase awareness** for inhabitants of urban neighborhoods. HCI should take into account that users are heterogenous in terms of requirements for ICT, perceived barriers of participation, and activities. Smart urban objects [1] **connect information** from multiple sources and locations in an **IoT network**.

In order to support individual users, they ...

- ... collect data on the individual comfort zone [2].
- ... contextualize information.
- ... transfer data from different sources.
- ... store and analyze community data.
- ... match data and use case.
- ... support individuals according to their comfort zone.



Exploring Neighborhoods

There are many situations in which a person needs to (re-)orientate oneself in the own neighborhood environment. We propose **three levels of support** that smart urban objects provide to **expand the own comfort zone**:

1) Individual

- Support to orientate for activities of daily living (e.g. navigation support to find a doctor)
- Uses movement data of one user

2) Network:

- Suggests interesting ways to connect with people (e.g. places that people with similar interests visit)
- Uses and compares movement data of multiple users

3) Contribute:

- Challenges to explore and evaluate the living environment (e.g. rate a new café)
- Uses local information on the neighborhood

Expanding the Comfort Zone

Smart urban objects will provide information on the way or potential new places to visit in accordance to one's own comfort zone. As soon as a **user interacts** with a smart urban object, information on their **comfort zone will be updated**, and information will be provided according to how familiar a person is with the situation.

Thus, when designing connected technology, we need to ensure **adaptivity** of all system components and **allow for integration** of various information sources and services. Only then will we reach optimized support for people in their neighborhood environment.



References

- [1] Fietkau, J., Kötteritzsch, A., Koch, M. (2016). Smarte Städtebauliche Objekte zur Erhöhung der Teilhabe von Senioren. MuC Workshop-Band 2016.
- [2] Kötteritzsch, A., Koch, M., Wallrafen, S. (2016). Expand Your Comfort Zone! Smart Urban Objects to Promote Safety in Public Spaces for Older Adults. Proceedings of PURBA Workshop at Ubicomp 2016.

Acknowledgements

The presented work was conducted in the scope of the research projects UrbanLife+ (16SV7443) and PAnalytics (16SV7110), both funded by the German Federal Ministry of Education and Research.