

Design Exercise:

A Physical Remote Awareness System

The task is to design a user interface (UI) and system architecture which support mutual awareness between people. Similar to the awareness provided by an instant messenger but extended to the real world. The system should be integrated with the environment where it is used. The system has basically two main UI components: acquisition of the user's state and presentation of the state of the other user on the buddy list. (The administrative UI, e.g. to add someone to the buddy list, is not considered in this exercise.)

State acquisition: The state (e.g. *in* or *out*, *free* or *busy*) of the user should be acquired by the system automatically – by implicit interaction. Additionally there should be a physical user interface component to manually override the state (set state to *out* even if I am *in*). Furthermore there should be a physical user interface component where the user can explicitly set preferences on privacy.

Presentation: The state of other users should be presented physically embedded into the environment. The presentation should be realised that it is peripherally observable and aesthetically pleasant (e.g. ambient media). Representations may be acoustic, visual, haptic, or physical or any combination of these. The used representation may be adaptive to the user's behaviour and activities.

Each group may select one of the following environments to design the technology for:

- apartment shared by a couple, private usage of the technology
- driver cabin of a freight truck, work related and private use of technology
- office container on a building site, work related usage of the technology
- public place, e.g. a café, with lots of people, private use of technology

Hints and Questions

State Acquisition:

- Make a list of states that are relevant in the selected environment. Are there abstractions that enable privacy (e.g. driving speed vs. binary information driving/not driving)?
- Identify sensing technologies that can be used to recognize these states (implicit interaction).
- Create and design explicit interfaces for states that are hard to recognize or that can not be recognized at all.
- Think of situations where people would like a manual override. What physical user interfaces are suitable? How long does an override last?
- How do you deal with multiple people?

Presentation:

- Which states of remote users are you going to represent?
- Where and how do you represent states of remote users?
- What media/technologies/devices are suitable in the given environment?