Supervision 1 - HCI 2016/2017

The tasks below are concerned with the following design problem: You work for a company that is creating IoT devices for home environments (e.g. smart lights, home monitoring system (camera, temperature/energy sensors etc.), wifi speakers, smart window blinds). You are asked to design a mobile application that allows users to visualize, control and automate their home using some of these devices.

Task 1. Prototyping

(Presented in Lecture 4, more details in Lecture 7 in Lecture notes), (Rogers, Preece & Sharp 2011, Ch 11.2)

First, create a low-fidelity prototype for the application. You can use storyboards, paper prototypes, index card based prototypes etc.

Think about what is the first view when the user opens the application, and what they can do from there. Select a couple of IoT devices that the user can interact with and prototype their respective views. Think about how to address the three things mentioned in above (*visualize, control* and *automate*) through the interface. The prototype should describe the ways in which the user interacts with the application, so it should include multiple screen images, and how the user transitions from one another.

Task 2. Visual Representation

(Lecture 2 in Lecture notes), (Rogers, Preece & Sharp 2011, Ch 2.2-4)

Describe three aspects of the visual language (marks, symbols, regions, surfaces) used in the design of your prototype. For each aspect, explain the nature of the correspondence between the visual appearance and its meaning or purpose within the interaction design.

Task 3. Mental Models & Usability Testing

(Lecture 4 in Lecture notes), (Rogers, Preece & Sharp 2011, Ch 3.3)

Prepare and conduct a small, informal study using the Wizard of Oz technique and think aloud in order to investigate the mental model of your users and the usability of the application you designed in Task 1. Select a few tasks of various difficulty that your participants should try to accomplish during the study, aiming for each study to take around 15-20 minutes.

Use the prototype created in Task 1. You can recruit a few of your friends for this, or use your supervision colleagues. You can choose to take notes during the study or record (audio and/or video) the study. Even though yours is not a controlled experiment, read the [Research](#) [Guidance](#) on treatment of participants, informed consent, briefing and debriefing etc. You may also find other materials on running usability studies online.

Before conducting the user study, you must submit your experiment plan discussing the ethics implications, participant recruitment, tasks and a description of how the study will be run. Be prepared to revise your experimental design. You can submit the prototype at the same time.

After conducting the study, submit a report on the results of your study, discussing the following issues:

- Were there instances where the user's mental model or expectations were different to how you designed the application? Why do you think that is?
- Did you observe the same or different explanations between users?
- How accurate are your participants' mental models to the way in which your application works?
- Are there any interface features revealed as being particularly problematic? Did multiple users have difficulties with them?
- What design interventions do these suggest?