Project 2018.P10: Roomie

Requirements

1. A wearable device (e.g. smart watch, wrist band) that can measure user's heart rate, noise level and ambient light. It should also be programmable to communicate with a smart phone on a chosen operating system and the external sensors.
2. External sensors to measure environmental temperature, noise and ambient light level. This can be off-the-shelf sensors or raspberry-pi boards programmed to communicate with cheap sensors.

Background

Off-the-shelf wearable devices have been used mainly in exercise or sport performance. Although smart home systems assist users to control their environment according to their pre-specified settings, currently, there are no wearable devices that are specifically designed to infer user comfort and attempt to suggest or automatically control the user's immediate environment according to their preferences.

Project Outline

The aim of this project is to develop a mobile application that can be used to:

1. Collect information about the user e.g. heart rate, noise, ambient light,
2. Collect information about the environment from smart phone and external sensors,
3. Process the collected information in order to infer user's comfort and their preferences, and
4. Suggest or automatically control user's immediate environment.

It is expected that the team must carried out at least 3 rounds of in-situ user testing, with at least 5 users in the first two rounds and at least 20 users in the last round of testing.

Deliverables

1. Mobile app with the functionalities described in the project outline.
2. User feedback questionnaires.
3. User testing reports, these must clearly show:
    a. The objective of that round of user testing.
    b. How user's feedback from the previous round were used to improve the design and functionalities of the mobile app.
    c. How user's feedback from this round will be used to improve the design and functionalities of the mobile app.
    d. The critical analysis of how the user testing went.
4. Final report and any other additional documents as required by the GRP project module.