Architecture

When asked to design a system for research purposes, we approached the problem in stages:

First, we were looking for a task management system that would be free, accessible and easy to work in order to manage user stories. After searching, we came across a free tool called Trello (by Atlassian, that also developed Jira), which coordinates list-shaped tasks according to the Kanban methodology.

The user stories were divided in Trello by task types:

- Requirements added according to customer requirements.
- Features we decided to add for user convenience.
- Bugs we found.
- Bugs that the client encountered during the development.

This way we had complete transparency throughout the project – already from the planning phase! It really helped us keeping track of the progress of the development process.

Next, we made appointments with the experimental planners and users of the application.

We kept records of the system requirements, limitations and obstacles that we may encounter during development. These records came in as the first tasks in Trello.

As part of the initial stages, we considered which technology would fit the needs and began designing the architecture:

The main task was to retrieve both physical and visual data on mobile phone users with Android operating system. Experimental entrepreneurs have already purchased cell phones in advance for the study, so our decision was to use Development for Android by using Android Studio IDE. In order to collect physical information, we researched the web and found sensor APIs for the operating system. The visual information is collected by cellphone camera interfaces. Both types of information collection work as Android Services in the background of the app, which required us to be aware of the actions in the background and their effects on the use of the application we developed. To keep track of the various actions, we created a logging system that we worked with when debugging was required for all services.

The application will be divided into 2 main activities:

- Therapist activities – from Main activity until patient list activity.

- Patient activities – from Menu activity and on. In these activities the background data collection will occur.

The therapist could view all of his patients and will have control over which patients to add/delete/edit/start a session with. A therapist could define the patient's configuration, including videos to show, which sensors does he want to monitor in the patient's sessions, language of the session and quality of video recording.

The patient will be able to access videos and games. The end session button is a part of the patient activity, but requires the therapist password so the patient won't accidently quit the session unwantedly.