

ART 40638 - PRINCIPLES OF USER EXPERIENCE (UX)

HOMEWORK 5 : PROJECT DESCRIPTION

October 30, 2016

REST

The actual re-education methods for an upper-limb trauma are repetitive muscular exercises. Those are laborious, and discouraging. Most people give up before full recovery. The lack of motivation in this process is fateful especially for children.

REST is a little game box with an antenna on it. You connect it to a display, and you have few games that you have to control by approaching and moving your hand or fingers to the antenna. It is designed to motivate (mostly kids) through re-education of the upper limbs.

Games are designed with medical specialists, and they accompany the patient to the full recovery through different games and levels. The box have to be designed to be really easy to use for anyone, with the minimum of buttons and calibrations.

The theremin, created in 1919, is the first electronic instrument, and is the only instrument played without touching it. It is played by moving hands close to the antennae. We created REST by hacking this musical instrument from its original purpose. By using this technology, our digital circuit allow to measure with great precision, both small gestures of fingers grand gestures of arms, at a cheap cost. fig. 1 shows a schema of the actual prototype, and the actual prototype (antenna not included).

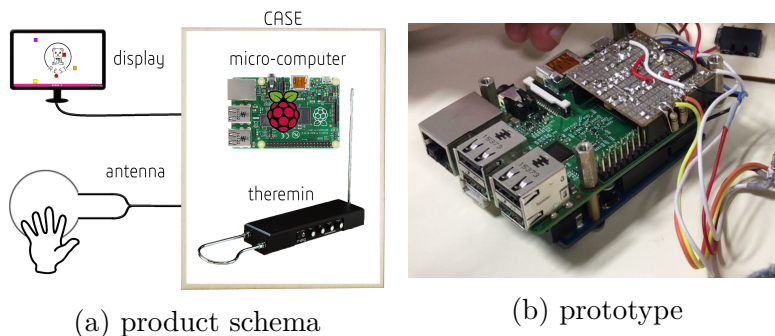


Figure 1 – The actual working prototype

fig. 2 shows some examples of the mini-games. For the first game, the user can move the red circle horizontally by moving his arm back and forth to the antenna.

The goal is to avoid the falling squares. This game helps the patient recover control synchronisation between a gesture and movement.

The second mini game is played by keeping an arm or finger at a stable position. The arm gestures change the disc diameter, and the disc diameter has to remain between the two circles for a certain amount of time. This game helps the patient recover stability and precision.

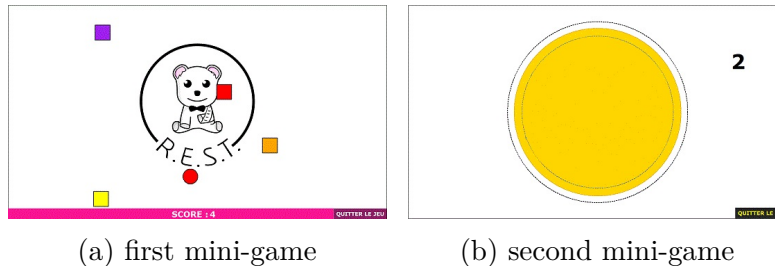


Figure 2 – Some of the mini-games

The users

REST is designed to help patients into their re-education. It is a link between the psychomotricien that follows the patient and the patient. As rehabilitation sessions with the psychomotricien are generally spaced 2 weeks, REST should have the ability to give back feedback of the patients progress between sessions.

The patients

When starting the project, we assume that users would mostly be children, recovering from an upper-limb trauma. But most people give up their re-education because of the constraining aspect of the muscular exercises. And even if the recovery is less critical for adults, we received some feedback that even them would use REST.

The trauma could be anything in the upper limb, from the fingers and wrists to the shoulder.

The psychomotrician

The psychomotrician are generally following multiple patients, and are always busy. They should have a simple way of monitoring each patient's progress, in order to adapt every session.

Practitians also need to be sure the users wouldn't hurt themselves using REST, and that the exercises should be adaptable to the needs of every patient.

User centered design

Guidelines

playful and fun

The primary goal of REST is to make re-education something fun. Even if one doesn't need re-education, REST should be fun enough for him to want to play with it.

motivation

REST should also motivate users to keep improving with a motivational levels system.

simple to use

REST should be manipulable by a small child with an impaired arm mobility.

adaptability

The games should be able to adapt different medical conditions and re-education.

easy monitoring of patients

Medical specialists should have a way of monitoring the progress of several patients rapidly.

Approach

To propose a user-centered design, I will try to iterate through the UX wheel, using the resources I have, but I will focus mostly on the physical aspect of the project.

- I will define user needs and persona
- I will sketch ideas to implement the guidelines, and will submit each idea to critics
- I will try to submit ideas to medical specialists for feedback, and iterate