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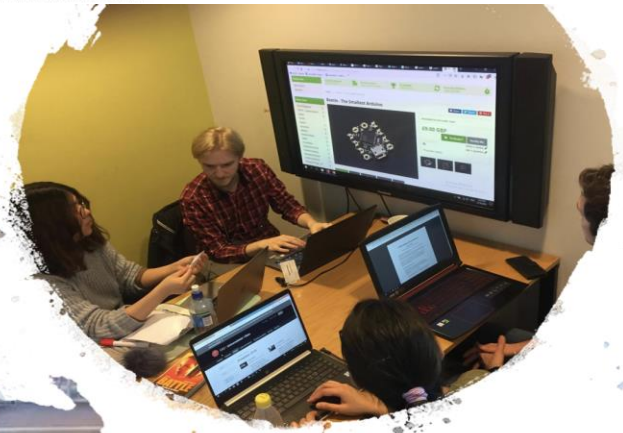


INF1060 – Presentation 2

Group: AHAA®

SUBJECT:

- Professional musicians and noise-induced hearing loss

TARGET GROUP AND USERS:

- Professional musicians -> DJ

ISSUE:

- *Use of Arduino for prevention of the musician's ear damage as a result of loud noise*

Taking the interview, we identified following crucial points:

- *low technological skills of the musicians* due to:
  - the lack of time to learn how to use innovations (for example, musicians which are students, have children or have a professional job in the office, etc.)
- *ignoring/not paying attention to the loud music* as a result of:
  - concentration on the playing music
  - involvement in the music due to passion for music and/or big requirements to the quality of the performed music

Taking the interview, we identified following crucial points:

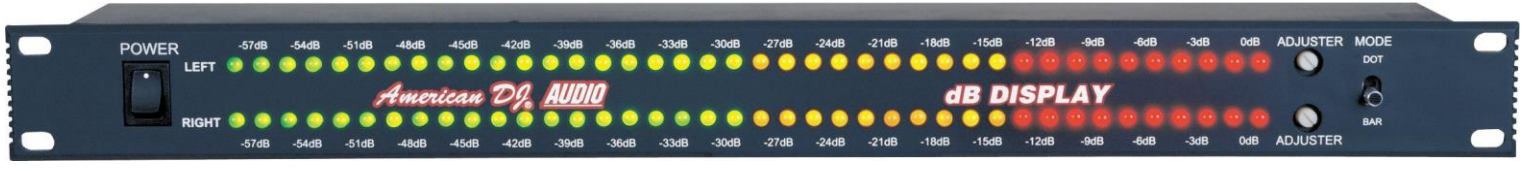
- Concentration on the DJ booth and not on the room due to the demand of high attention to the technical characteristics of played music

User requirements to the prototype:

- to give warring when the music is loud;
- do not disturb/distract in the process of playing the music;
- to be light if it is on the body;
- to be environmentally safe (no radiation, etc.)
- either to look attractive or do not be visible; (to audience)
- to be used both with cables and without

Overall, the main task of our prototype is:

- to notify the musicians automatically when the music reaches “harmful level”; so, the precaution measures can be taken by the musician in order to protect the ears.



Concepts (vision) which we employed for our prototypes:

- **invisible/not-noticeable** for the musician when the prototype is passive **but visible/noticeable** when it is active due to the reaching the line/border “harmful level”;

Types of the prototypes:

- A watch
- Headphones
- LEDs
- A wristband
- A pin for an arm

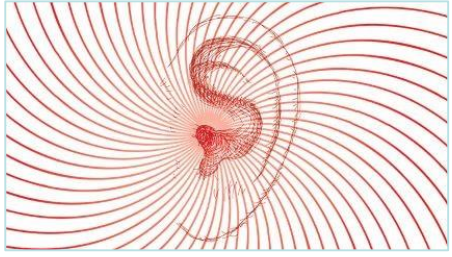
Watch that show dB on the screen and, only give warning through light or vibration

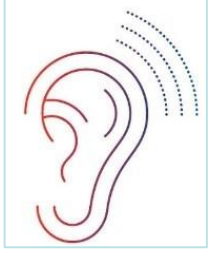
Headphones monitor that reduce sound level (and the harmful level can be changed regarding user's requirements)

Headphones with watch

Headphones with separate device (case with a screen)

Form-concept of our prototype: Watch



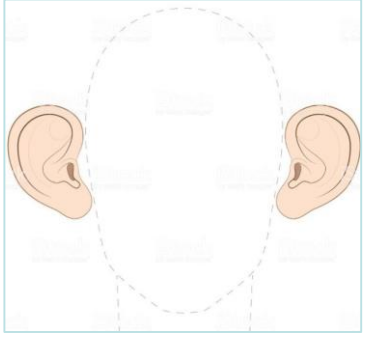


like “ear-waves”

like “Bass-cleff heart”

like “ear-butterfly”

Form-concept of the prototype “LED”



like “Topple-Cheburashka”

like “Bunny-ears”

like “Roman Ear-column”

Form-concept of the prototype “Wristle”:

like a “Medical snake”:

like a “Kitten ears”:

like a “Bass clef”:

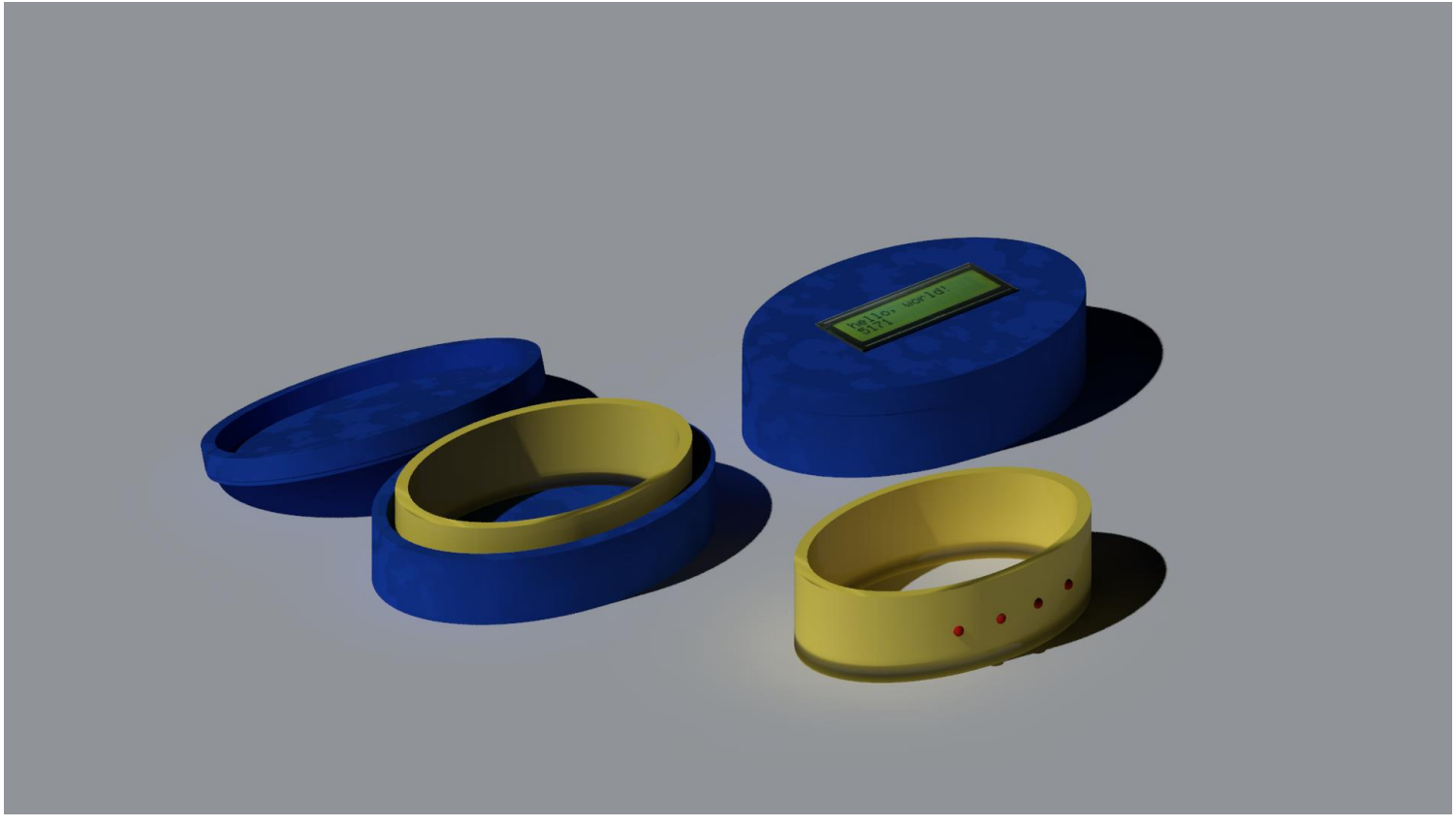
Form-concept of the prototype “Pin for an arm”

Like “Bass clef w/Bass guitar”

Like “Medical snake”:

Headphones problem:

Wristband with LEDs and box (case):

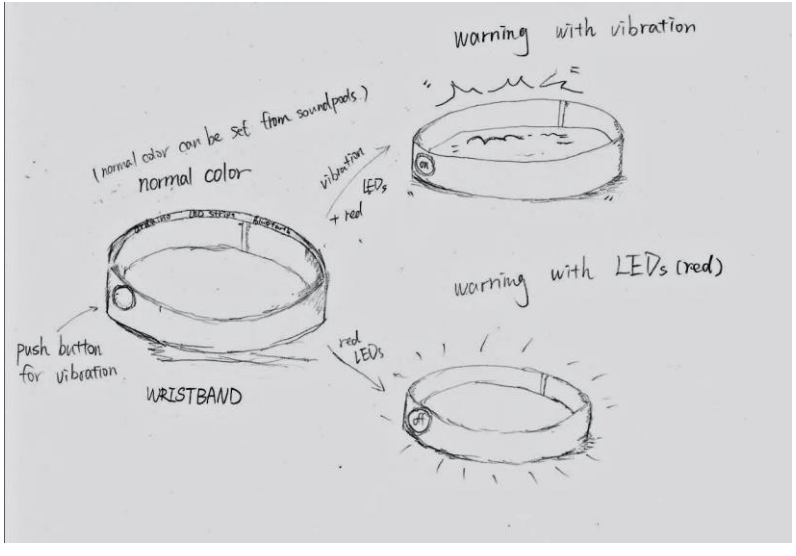


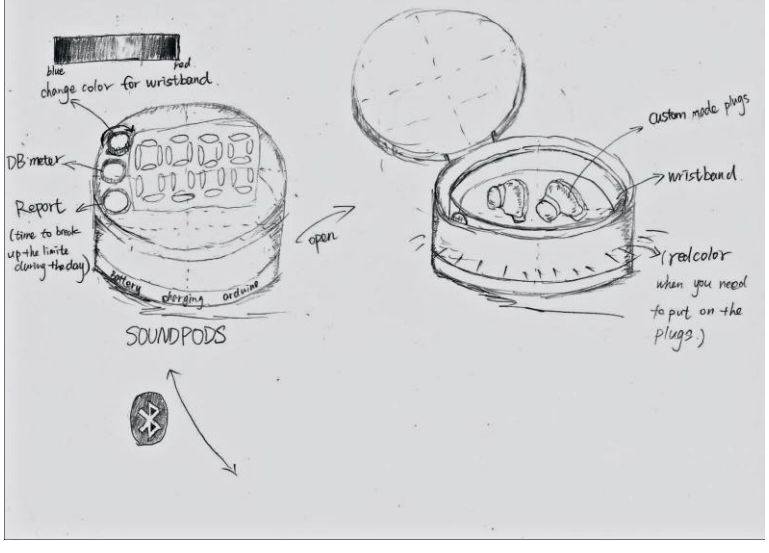
Wristband:

- Can give warning with LEDs or vibration, it depends what user chose.

Box:

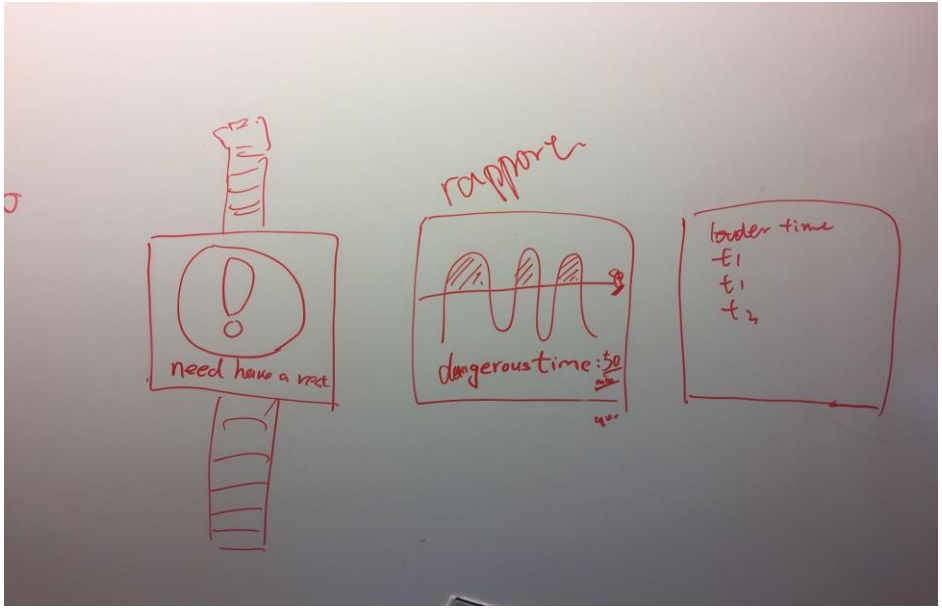
- Can charge wristband
- Will show dB level in the room with screen or 7 segment display.
- Can edit some settings in wristband

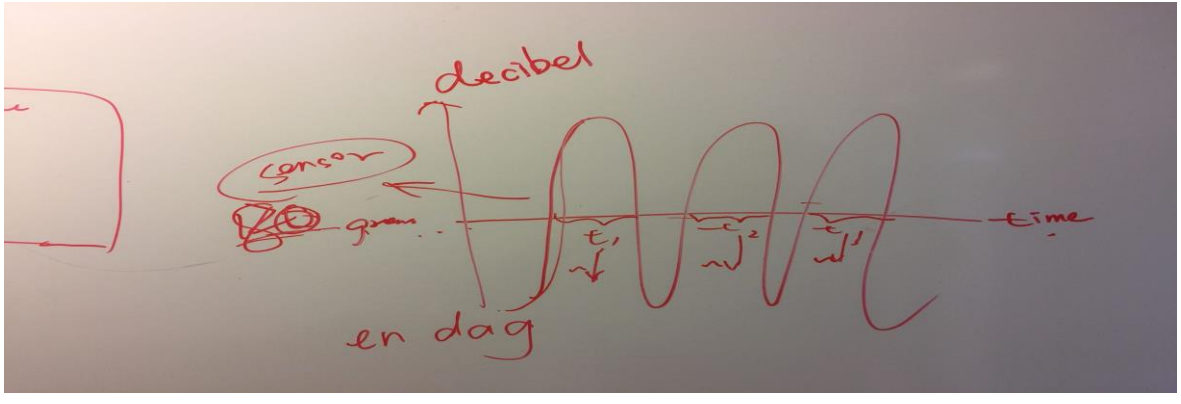




Prototype 2: Watch

- Sensor
- Show information (vibrate)
- Give a report





Planning / finding target group
Information gathering
Identifying requirements and needs/think of solutions (low resolution prototype)
Create a high-resolution prototype
Evaluate/ test our prototype with DJ
Make prototype better if needed
Final product