

CART360 Concordia

Prototype

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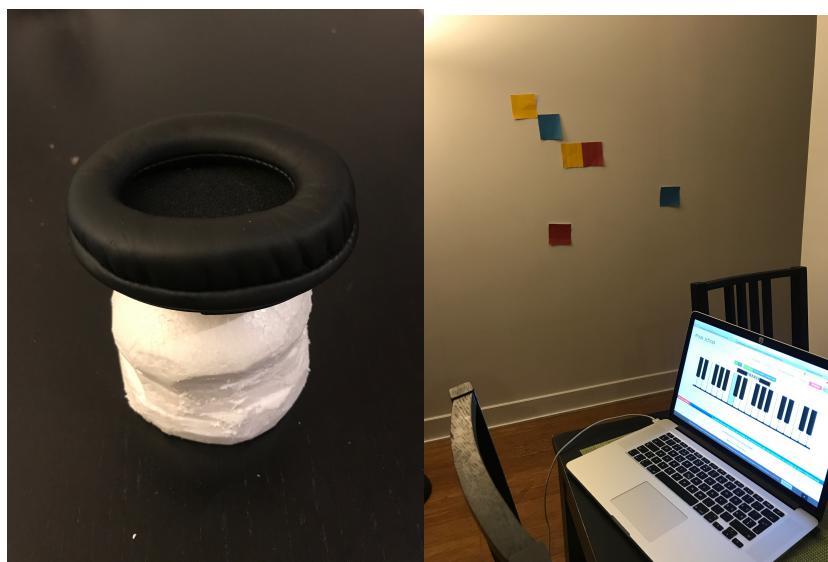
(<https://github.com/melanieabbet/CART360>)

Friday, 8 November 2019

My prototype and reading response: *Prototyping for Physical and Digital Products* BY Kathryn McElroy

For my project I imagine a first basic prototype which could be describe as Low Fidelity level in this text. I actually had in mind an idea of how people could interact with my final object, however I realise that my initial design, the embodied interaction I imagined could not be the only way of interaction to listen to colors.

So in order to be sure that the design I imagine wasn't unnatural for the user I made this first prototype. Which should allow me to decide early if I needed to "advocate" direction. There the Prototype and the way I presented it to them on top of each other:

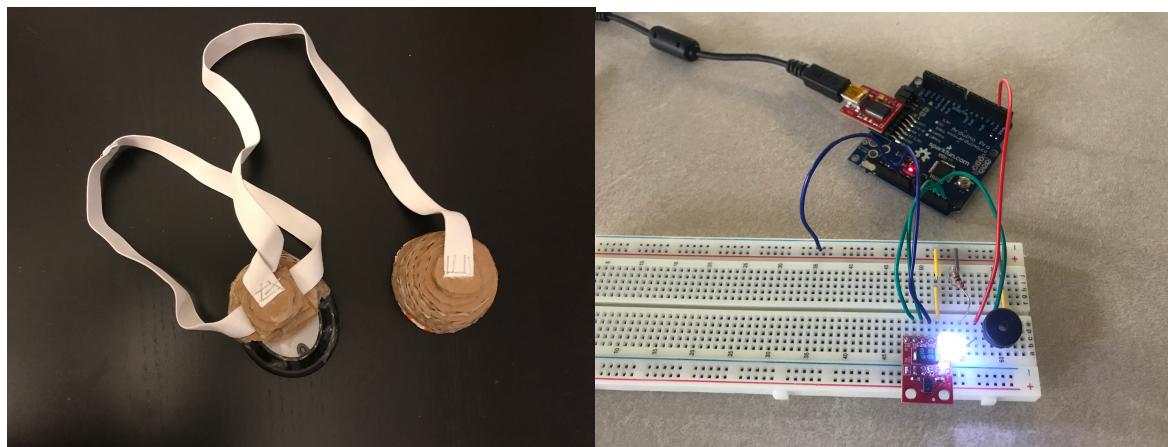


I explain that one side was to detect the color and the other to listen to it. I put some printed color on the wall and with my computer I played live some sound as they got through it.

My main goal was to see how people were interacting with the object I proposed to them. And their reaction to the main idea. There were some questions I ask myself before they tried:

- Does the person would let the two object together or separate them?
- Does the person would come close to the wall, touching it with the object?
- Does the person would look at the color they tested or going through it "blindly"?
- Does the grip afford to be hold the way I imagine and the speaker to be put on the ear?

I tested it with friends and we discuss how they feel about the way of interacting even if testers saw the object as two part the object they all feel with the object separate as be the better option, more comfortable to explore things at different height. However, I realise that keeping the two part close together involved a more intense movement of the body which I found interesting too. The question of having normal speakers that hold on the head were made and I integrate on my second prototype a way to fix it on the head to keep a hand free. This second form is going into the direction of a Mid Fidelity prototype. Testing it myself I feel like the user could be less involve which this second physical prototype so I probably won't keep this direction.



This prototype however gives me the opportunity to test with which length the object should be separated and get a feedback on the affordance related to the way the object should be transported. I realise that the object need to be heavier and the link more solid to be put on the shoulder.

Beside those observations I made on my board a prototype with the sensor I would use. This definitely allowed me as describe in the text to get a good idea of what I really need to add as electronical component. The sensor needs a clean and constant lighting to work with more smoothness.

Technical evaluation of sensors and affordances

The sensor I would use is a RGB and Gesture Sensor – APDS – 9960 from sparkfun. It allows the three colors detection red, green and blue. It has too an ambient light detector, a proximity sensor and a gesture detector. However, it is working a 3.3 voltage to read the information and to use it, that the reason I need to use associated to it an Arduino Pro. That this board that would define the size of my final prototype. I also realise that it works in a range of 10-20

centimeter which could be problematics for my project. The colors sensor part which I would use is can give the intensity of each color and calculate the temperature color. But it is really sensitive to the light and the color change by moving the same color in front of the sensor. That the reason why I need to implement a lighting display in my prototype to get better results. I was thinking of making a circle of white LED around the basis of my object to have a more homogenous lighting. In the case I decide the user apply the prototype to the surface, the led should not be to powerful or it could be that there is too much reflection, but in the other hand if the user keep a certain distance with the surface the LED need some sufficient power, be bright enough to illuminate from the distance.

I would also probably need to map some sound for colors but did not figure yet how I would be mapping the colors with the sounds. I am also balancing between just playing the sound that is affiliated to the color or make a simulation off ongoing sounds like if they were playing simultaneously.

Prototype conclusion and project evolution

My prototype idea does not change that much; however, regarding the testing, I take distance with some side functionality like having it fixed on the head or make something so that people cannot see the colors they hear. I should decide for the next step how much investment from the body user I want which is determined by the distance of the sensor part and the speakers part. But in the context of exploring the environment I think I would keep a certain distance between those too so that the user can reach more easily different area.

The part with the speaker afford quick easily the fact to be put on the ear but for the other part I need to define a good grip, which I tested a bit already with my prototype. The light use for the sensor also a plus, I think it afford the idea to light something and probably the user would instinctively approach a surface with the object, therefore getting a feedback with sound and as result understand how the object work. As said before I believe my object should have a certain weight, so that the affordance to be put on the shoulder to be carried is more efficient. For that I would probably use woods as material to build my object. Wood is also warm in the hand which is a good point. I have to figure out to a way to have a certain thickness to the cable between the two part and use something that is comfortable for skin contact to wrap it up.