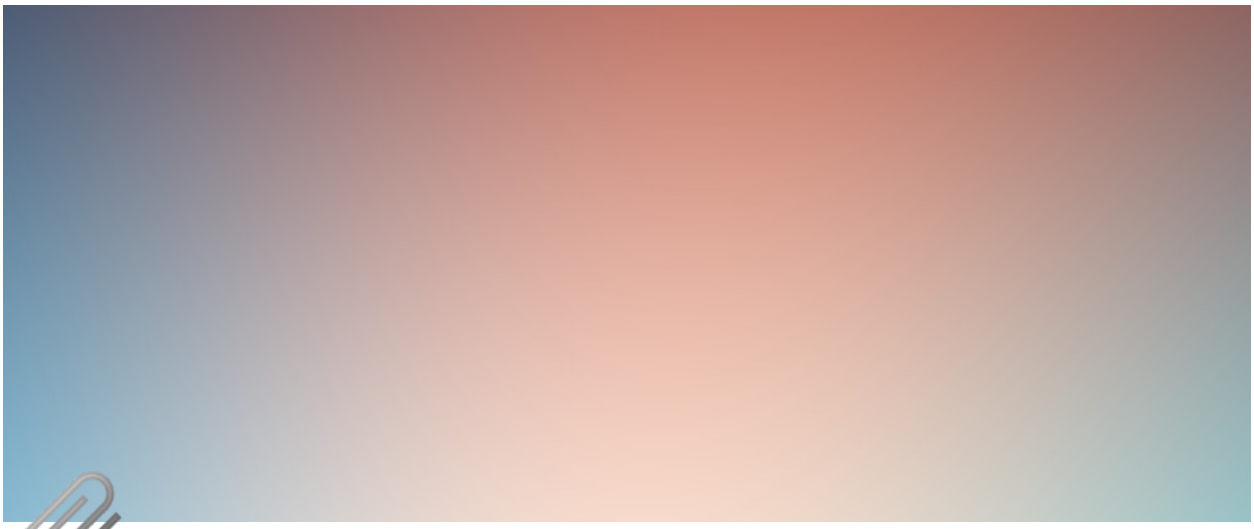


Prototyping Reflective Journal

A reflection of the material covered in KD415A Interaction Design: Prototyping at Malmo University in order to reinforce my learning.

Week 5

@February 7, 2022 → February 11, 2022

API Lab: Assignment

Assigned on @February 8, 2022, Due on @February 11, 2022 11:59 PM

Each group selects an API/library to investigate, identifying what is interesting about it for interaction designers, and creating examples that make use of it. Each group reports their findings with annotated code samples and a live demo. You may work in G8:425 until Friday to work on this.

Finding an API/Library

We decided that it would be best to choose an API/Library that would aid us in our Prototyping project. So we narrowed down our search to finance and banking. We began by thinking of a way to do tinder, but with buying things. My initial thought for an API was using one to grab images

of products, but this could also just be done with text. Our plan from here was to just use the Arduino JSON library to help us accomplish this.

- **What can it be used for? What are its inputs and outputs?**
- **How does the it work? How difficult is it to use?**
- **Could the it be useful for in your projects? Why? Why not?**

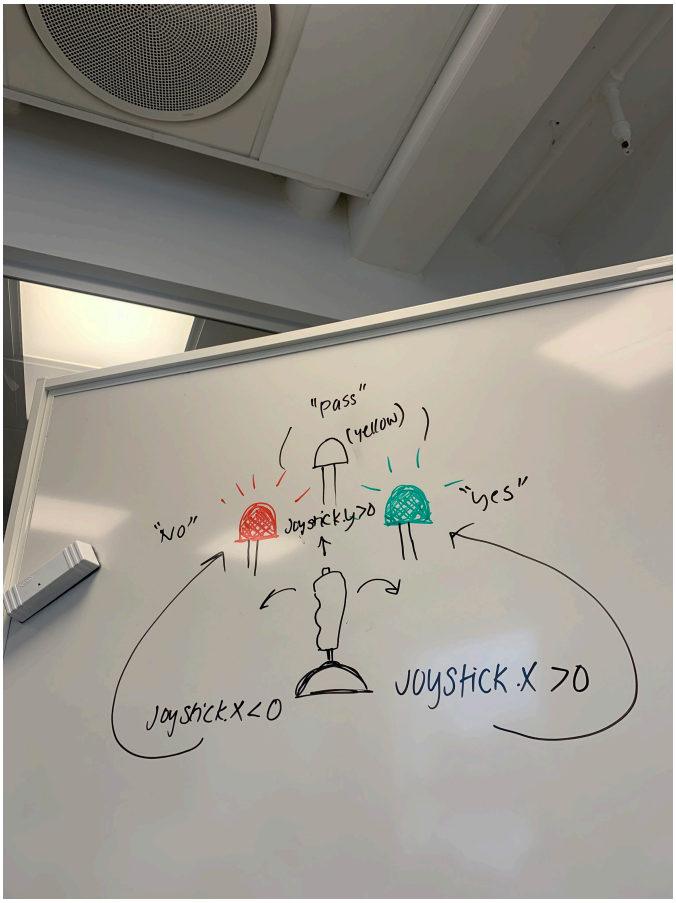
Exploration/Ideation

Idea 1

For our prototype, a swipe to the right on the joystick would buy the item, swiping to the left would be cancelling the purchase. The LED would indicate something along the lines of how much money you have left, or whether or not the purchase was smart. We knew already that Arduino JSON allows us to take in data from a JSON file and read it to the user, so we plan to make our own JSON file that includes information on each product the user can buy and display that information once it's been queried to do so. We thought that if you only display the total amount that the user has at the beginning of the program, it would emulate the user's actions during real transactions. The user doesn't always check to see their balance before EVERY purchase, so their only gauge would be the LED light, allowing them to more heavily rely on it.

Idea 2

This idea revolves around using the joystick to answer questions provided by the OpenAI API. The experience would begin by the screen prompting the user to answer a yes or no question. The user would then respond by pushing the joystick to the right for yes, left for no, and up for pass. The LED would then turn green for yes, red for no, and yellow for pass. We prompt the OpenAI to create a yes or no question, and then we display its response on the screen so the user can see.



Plan for user experience

Get the template and Assemble the Arduino

Idea 1

At this point, we set up a Github repository so that we may all access the code and contribute equally to the creation of our prototype. Upon assembling the circuit and running the program on the device that is connected to the Arduino circuit, we found that the code worked as intended and decided to begin working towards our end goal.

Idea 2

After reincorporating the Github repository, we began planning for the assembly of the circuit. This is where we began to run into issues with this idea. We planned on having three separate LEDs that were green, yellow, and red respectively, but the wiring and programming needed to get three different lamps to work correctly was overwhelming us and we couldn't quite get it to work. So what we realized we could do is just have a single RGB LED that changes colors based on the joystick's input.

Integrate the API/Library

Idea 1

At this point with APITemplate.io, I was having problems setting it up and for some reason my javascript was not reading Node JS for some reason, as it wasn't recognizing the require() function that is included with Node JS. I tried for 3 hours searching for different solutions online, but was left with no progress. It was at this point that our group realized that continuing down this path would not be worth it if we wanted to finish the project within the allotted time.

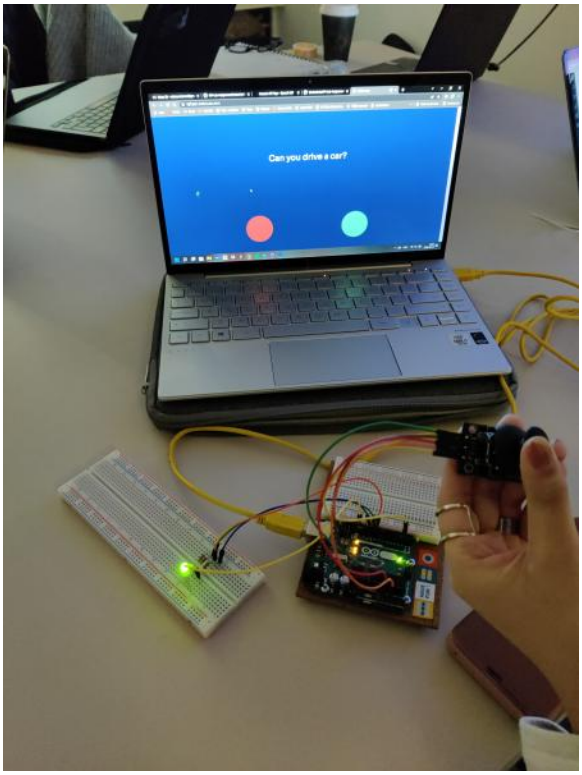
Idea 2

Upon finding the documentation for OpenAI, I felt much better about building what was necessary for the API to function. After following Love's tutorial on how to set up the API, I had found the response to the prompt in the console. We were then able to experiment in displaying the response on the screen by using the document.getElementById(); function. So now, we have been able to successfully incorporate the API into our project.

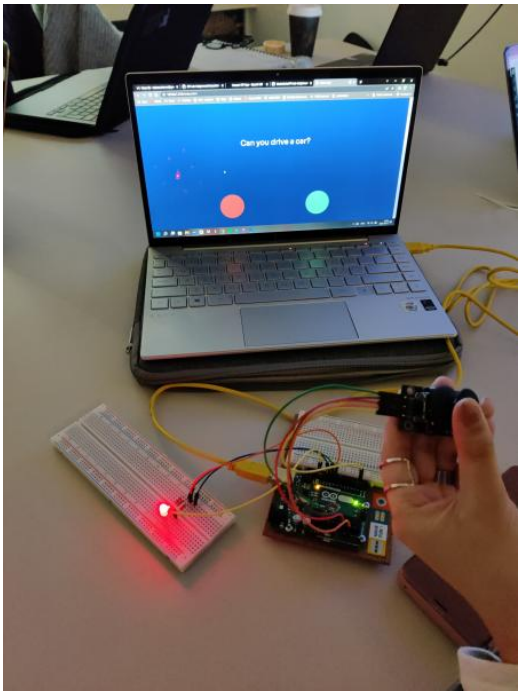
Develop a "Final" Prototype

Idea 2

Now that we had the API working the best that we could, we decided to iron out the details of the prototype idea and prepare for the presentation. This was a good feeling as we finally had gotten the Arduino circuit to be connected to the Javascript code correctly and that the LED light would light up when the joystick was pushed on the x axis. We decided that we had reached our minimum viable product and we wanted to go through the code to make sure that everyone understood how we got to where we are to this point.



When pushing the joystick to the right, the RGB LED turns green.



When pushing the joystick to the left, the RGB LED turns red.

API Lab: Arduino as API III

@February 8, 2022

In this demo, we combine the previous two circuits, being an LED whose brightness is controlled by a slider, and a screen whose pointer position is controlled by a joystick.