IXD: Physical Comuputing

Project 3: Prototyping

DESN 30146 – P03

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Project Statement

In Module 3, I upgraded the crocodile teeth game I had in the previous project. I created several different prototypes to test my game. To add to its physical interactivity and fun, I added more triggerable endpoints and made a large game pad out of cardboard. My players could trigger game interactions by stepping on different game pads. I've added more sound effects in this version, and my players don't need to keep staring at the screen to make sure they've triggered the game pad.

Subsequently, I tried to explore more ways of interaction by adding RGB LED lights to my prototype to sublimate the game's interaction.
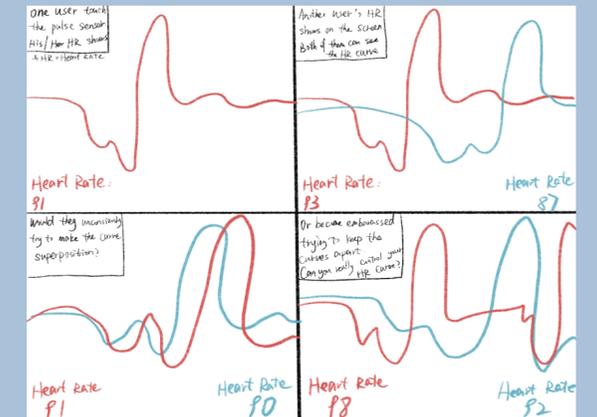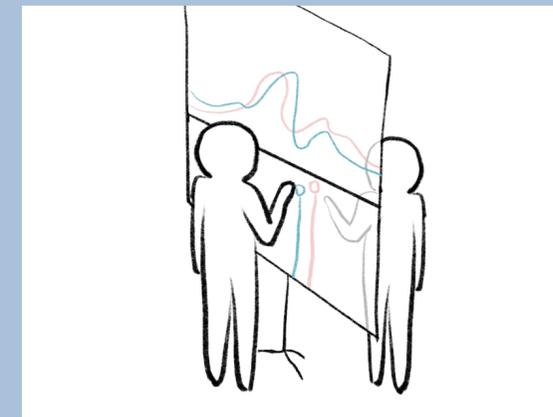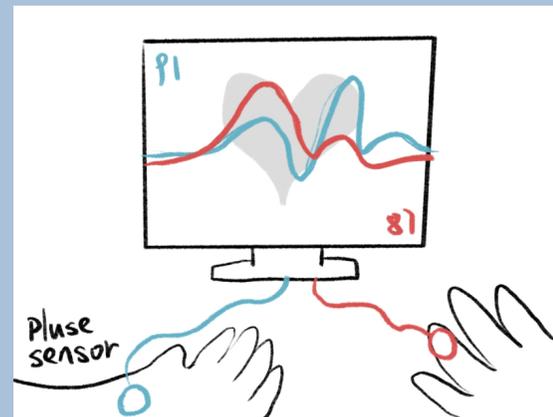
Paper Prototype

In the beginning, I thought about some drafts of the prototype in the form of drawings. A detailed description of these sketches can be found on my weekly activities page at:

https://ixd0137.phoenix.sheridanc.on.ca/
Physical%20Computing%20Activities/#Week11
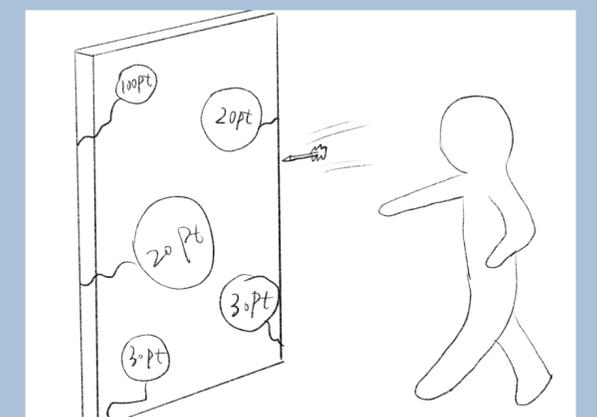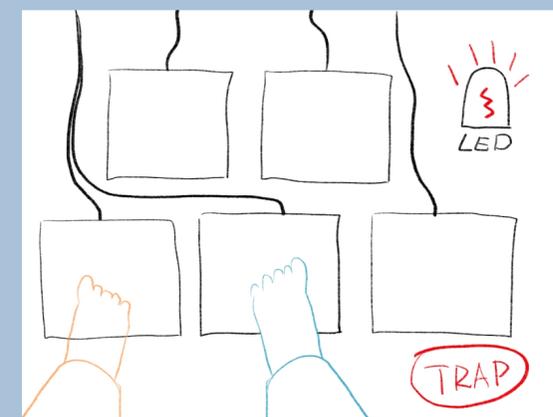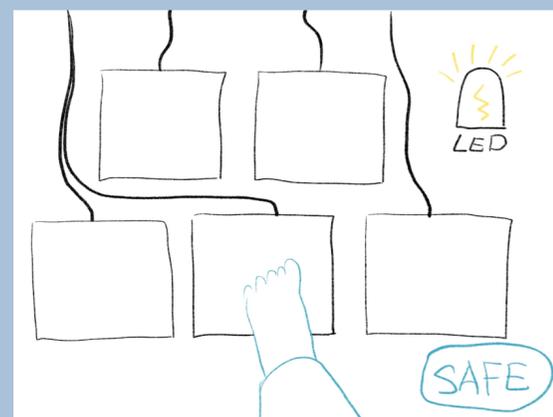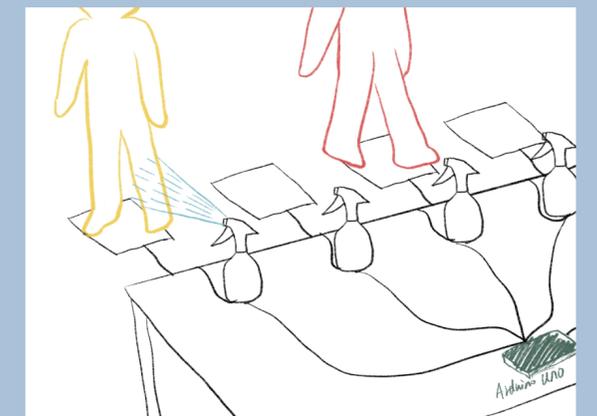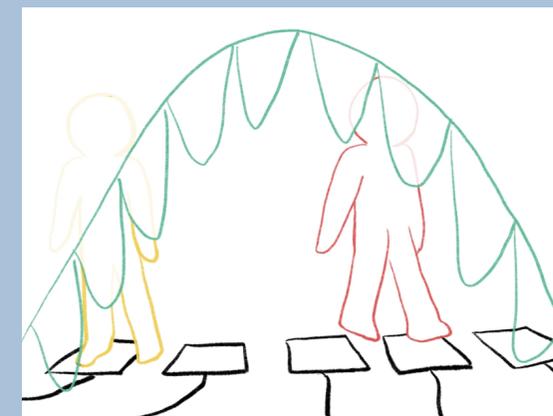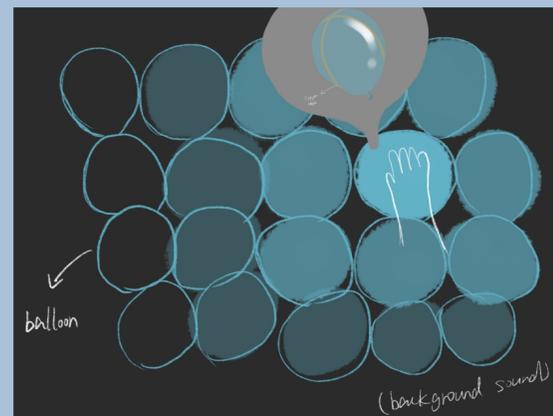
Physical Model

It occurred to me that we could use copper tape to extend the circuit in the same way we connected Mikey Mikey's circuit before. This way, the circuit can be easily triggered even if I use a large game board.

I started by completing my first six game pads to do the test. Because the trigger circuit material must be conductive, so the game must be barefoot to play.
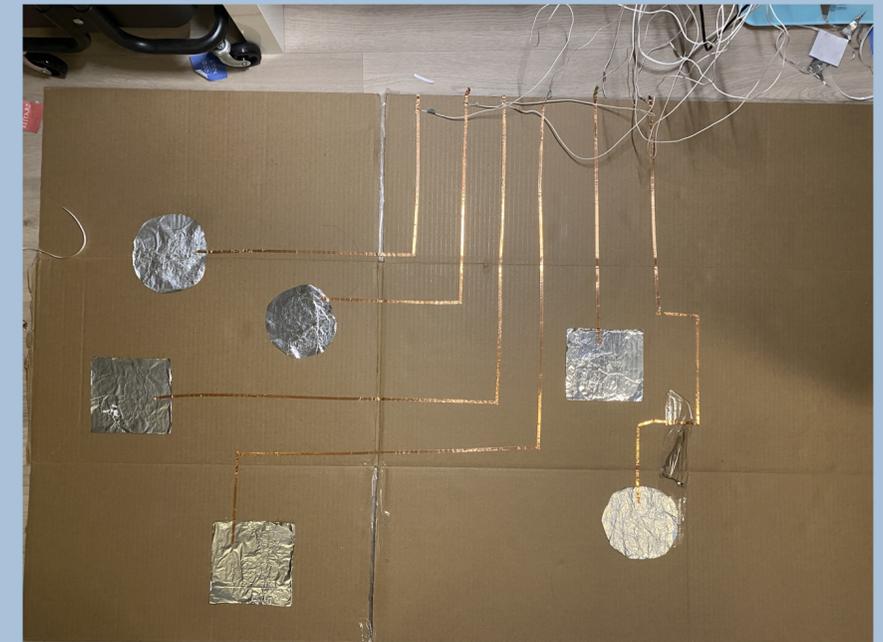
Physical Model

After fixing the bugs of the previous prototype, I went on to complete the entire 12 game pads for the game board. After testing it alone, I played the game with my friend, and it worked very well.
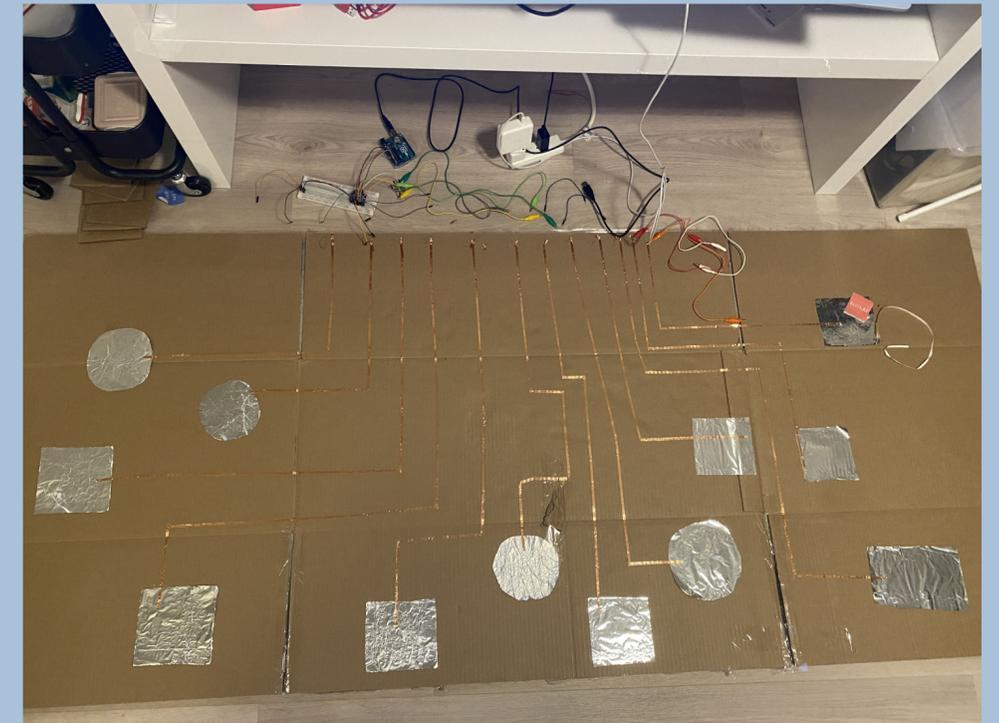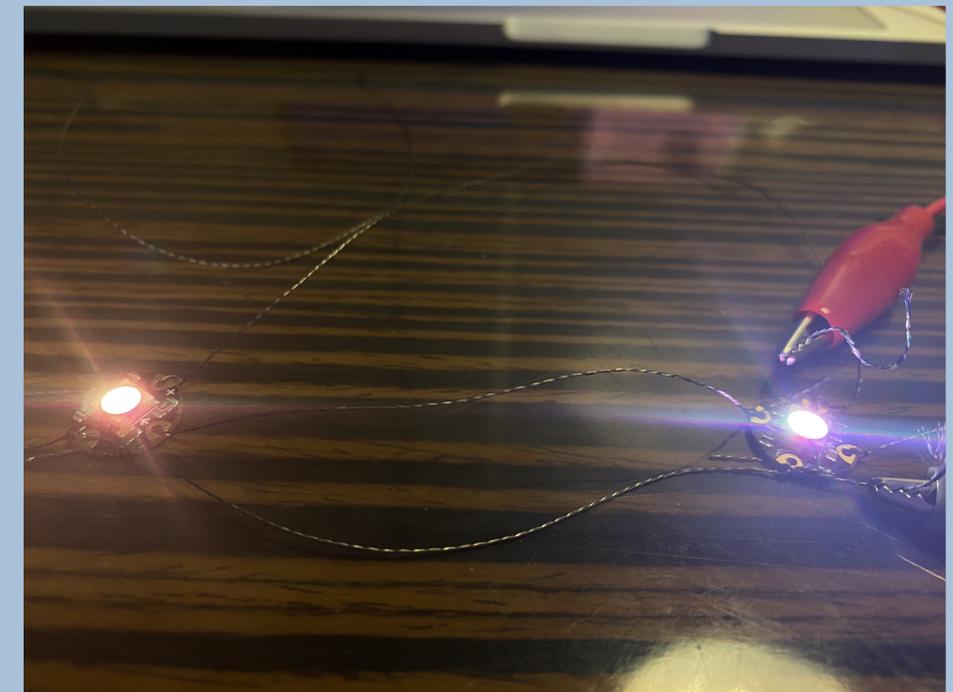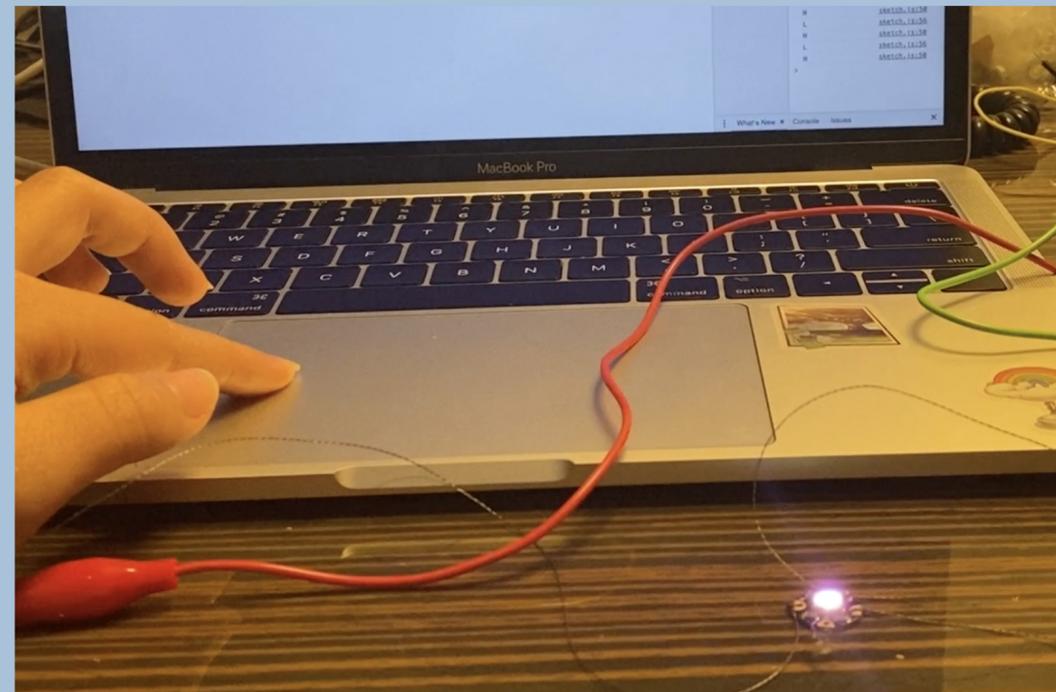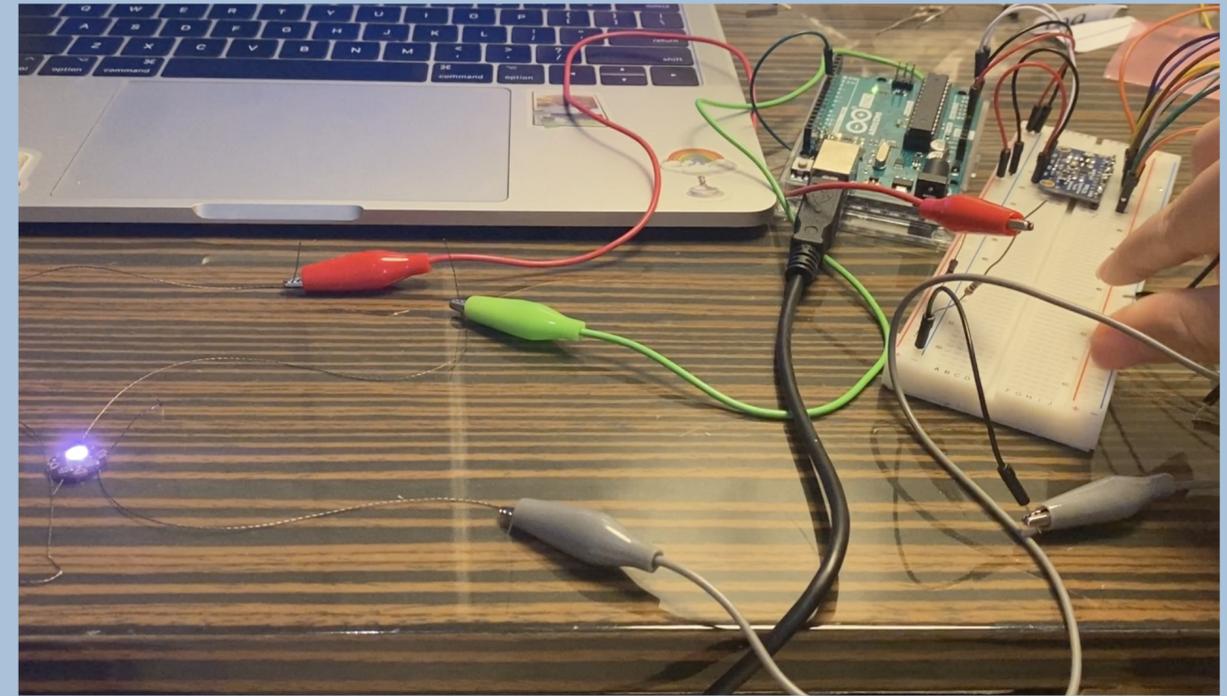
Prototype with LED

I wanted to give the player more 'physical' feedback, such as lighting. For example, the color of the light can give my players instant feedback on whether they have stepped on a trap. I have some draft prototypes for the LED lightning, and I decided to use the Adafru Flora RGB NeoPixel v2 in our kit. RGB lighting allows me to control the color it lights up.
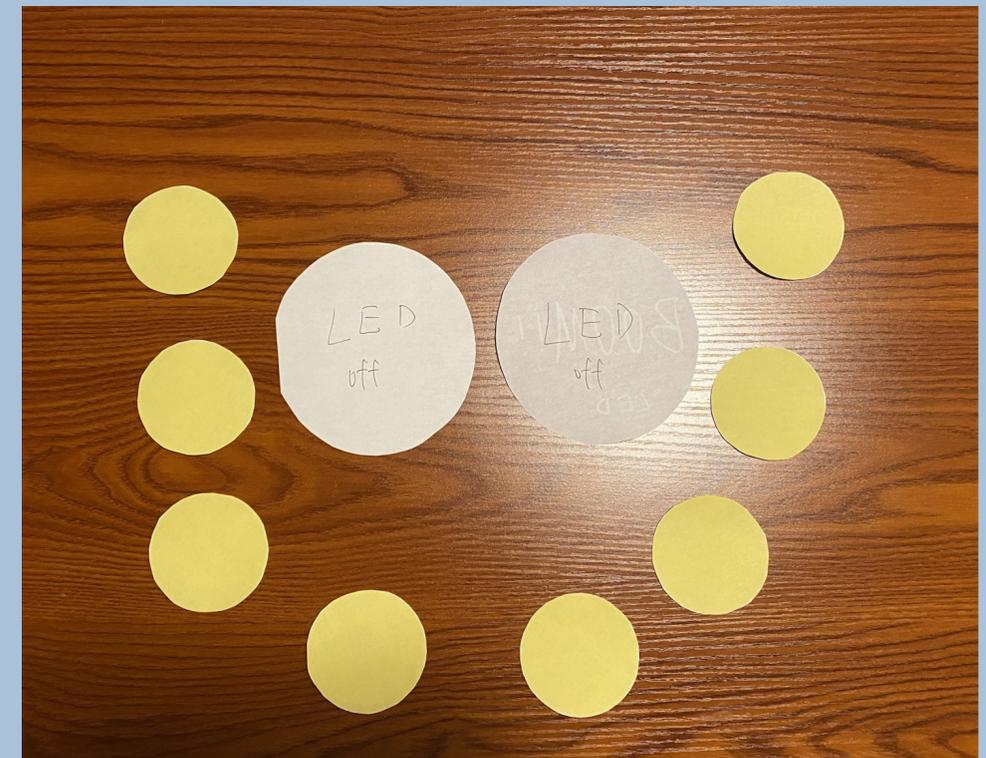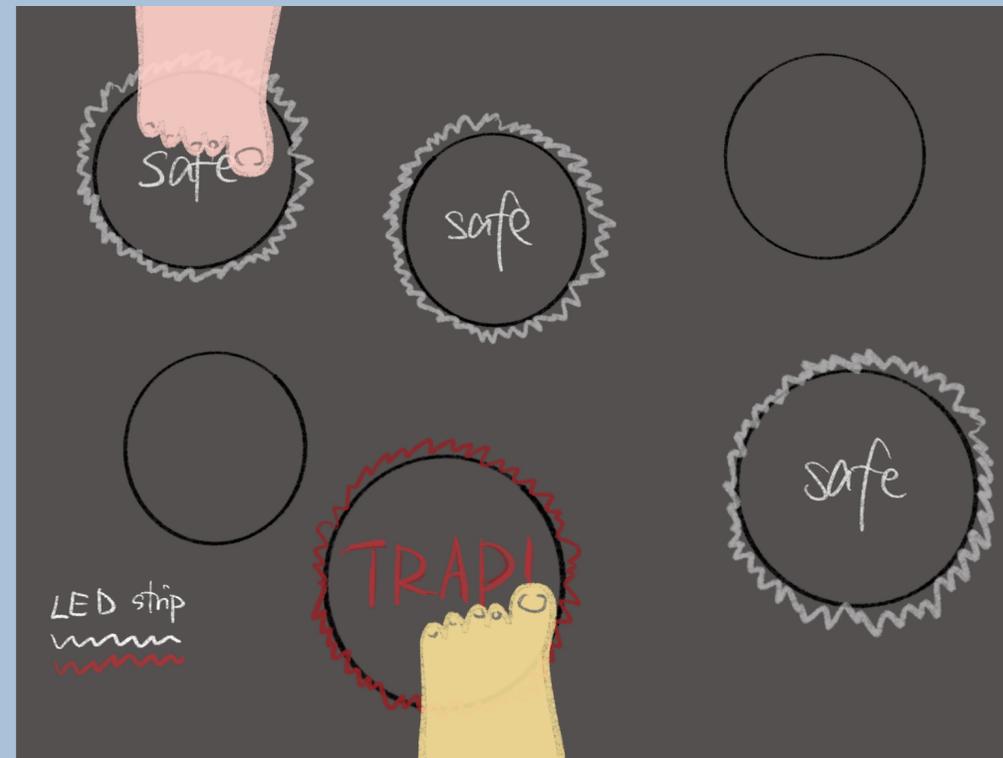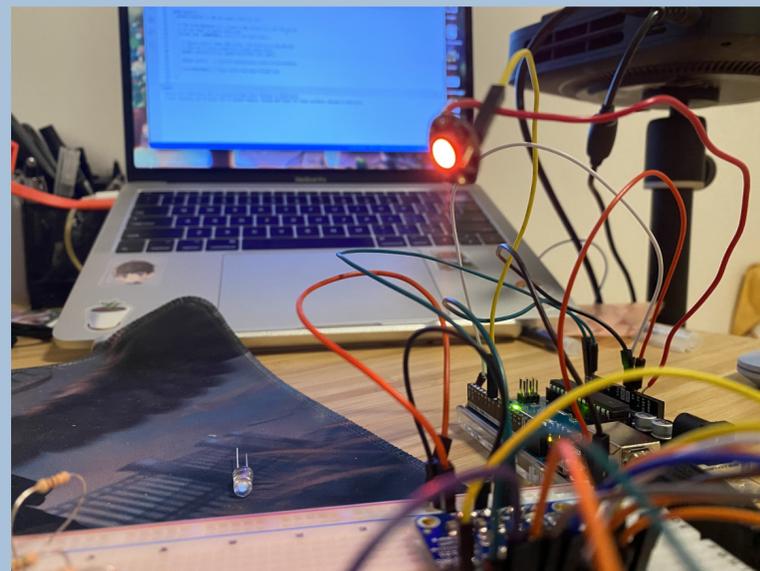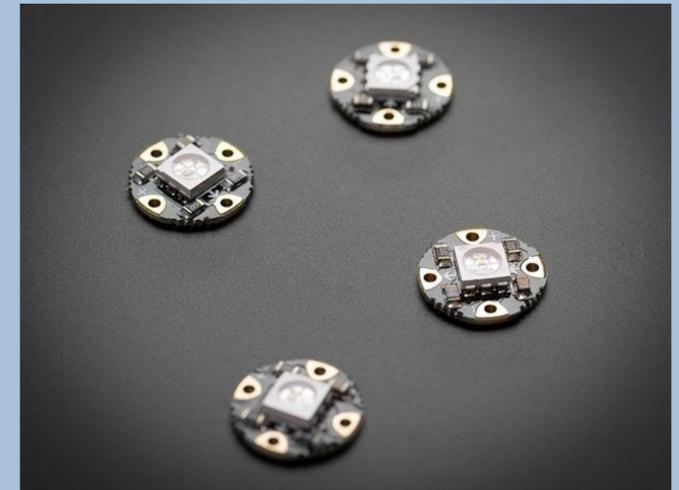
Prototype with LED

The example in NeoPixel's library allows it to change like a rainbow, and the buttonLedSketch example in class allows me to control the color it lights up with a button. I then hooked it up to my game code with a safe key to make it light up white and a trapped key to light up red. I also tried the possibility of using more than one LED at the same time.

Prototype with LED

If possible, I could use a lot of NeoPixels to form a string of lights. But I would have to use an extra power supply to do this. Because each NeoPixel needs 60mA of current, and the Arduino with a USB connection can only provide about 400mA, which is not enough to support a string of lights with a lot of LEDs. Since I couldn't get a power supply soon, I built and tested the prototype here using only the two Neo Pixels provided by the kit.

The last prototype I do is to change the color of the specific LED pixel of the trap button.