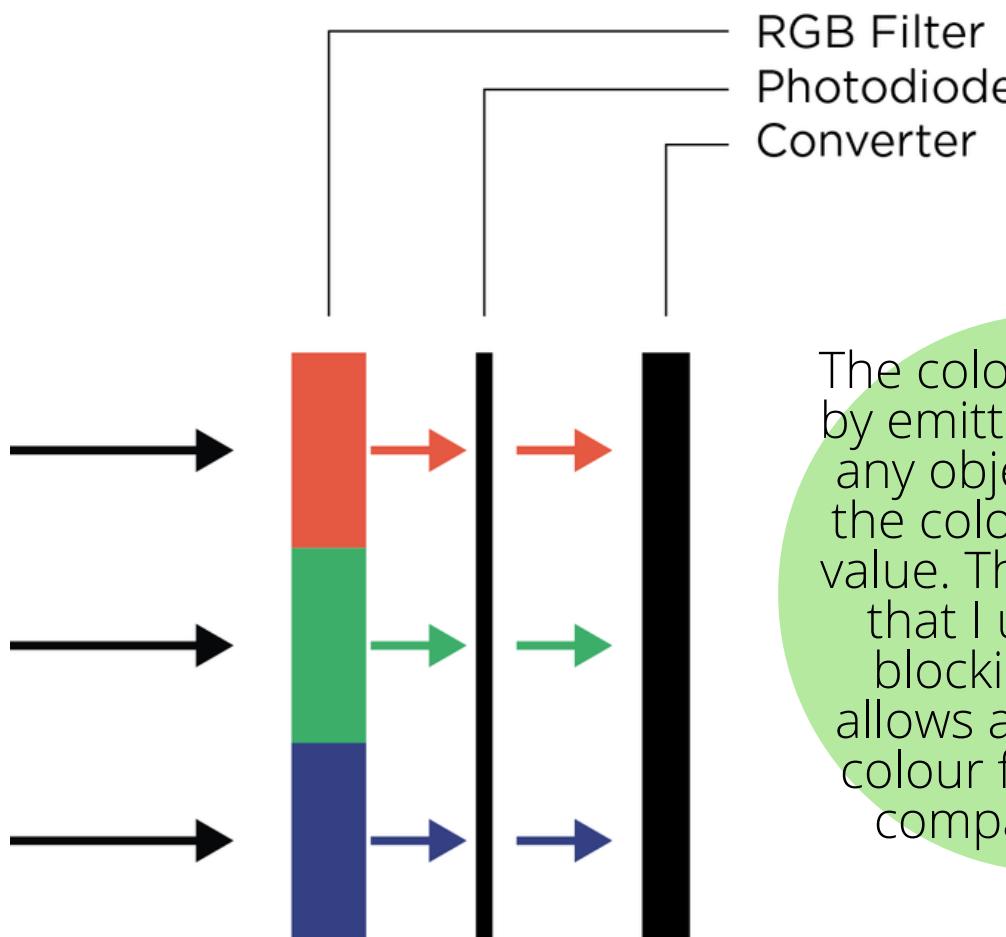


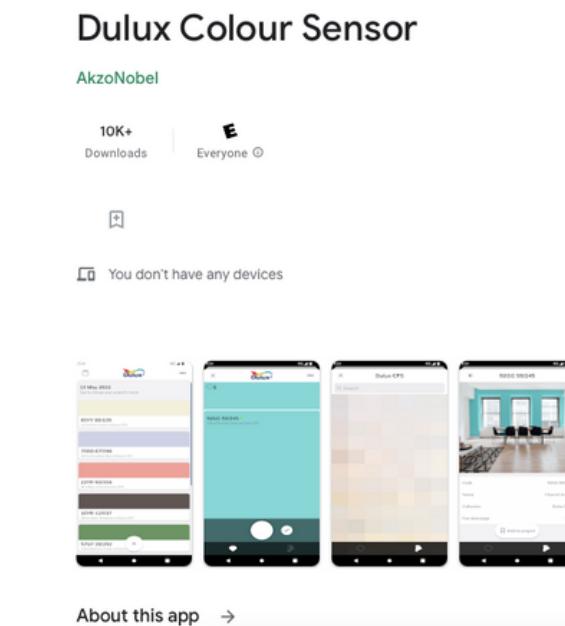
Physical Computing Portfolio

COLOUR SENSOR PROJECT: HOW DOES IT WORK?/EQUIPMENT NEEDED

For this project, I decided to create a colour sensor that essentially outputs colour on the LED and prints RGB values on the serial monitor. I based my idea on an app I saw on the play store that matches colours that are shown on the camera and will colour match you with paint that you can buy in-store.



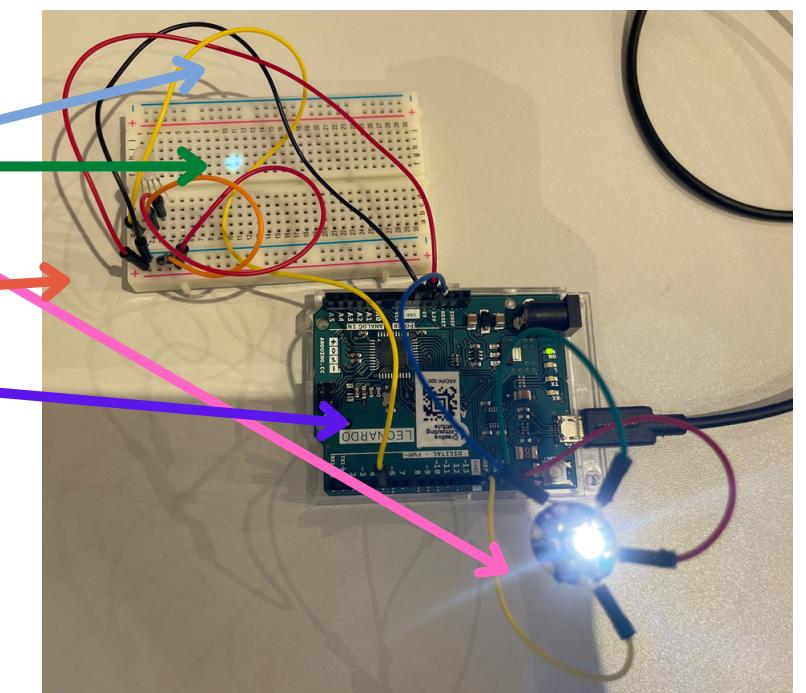
The colour sensor works by emitting white light at any object and outputs the colour and the RGB value. The colour sensor that I used has an IR blocking filter which allows a more accurate colour filter than other comparing sensors.



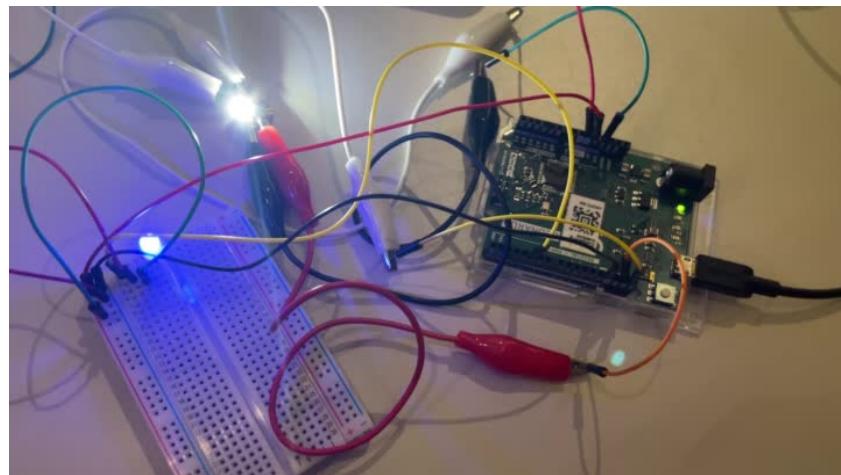
App :Dulux Colour Sensor

Equipment needed:

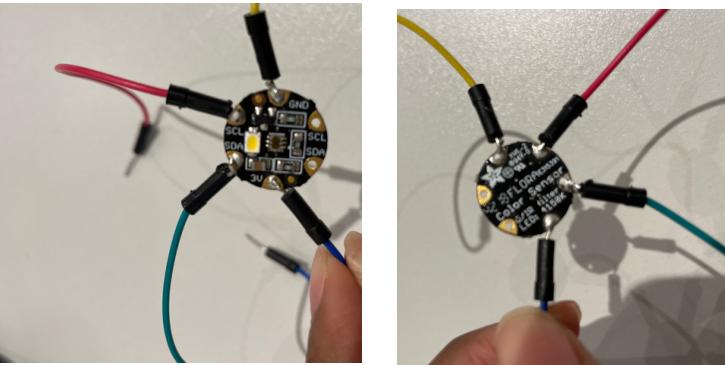
- Adafruit TCS34725 Colour Sensor
- Neopixel LED
- Female Jumper Wires
- Breadboard
- Arduino Leonardo
- Crocodile Clips (prior to soldering)
- Soldering Kit



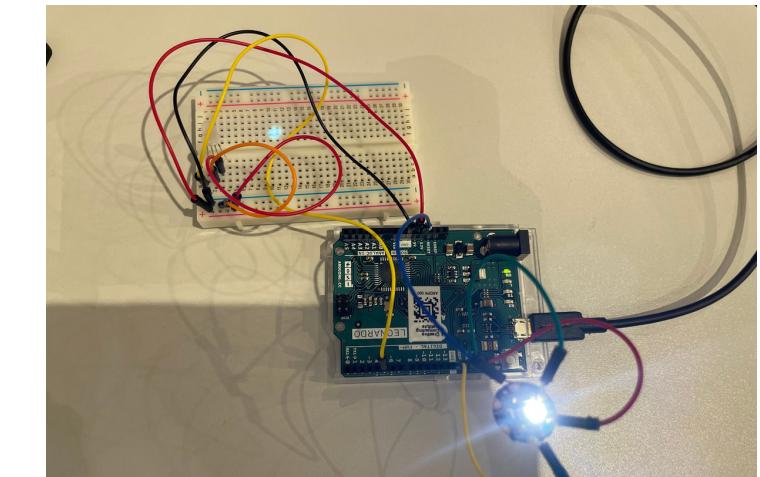
COLOUR SENSOR PROJECT: THE PROCESS



Firstly, to avoid mistakes in soldering the colour sensor, I wired it up using crocodile clips and then soldered it after checking the wires were in the right place. For the Neopixel LED, I wired it using the week 6 lecture diagram. To make sure that the wiring was right, I used one of the example codes found in the FAST LED library.



Back & front images of the soldered colour sensor. I used different colours so it would be easier to differentiate when putting the wires in the Arduino.

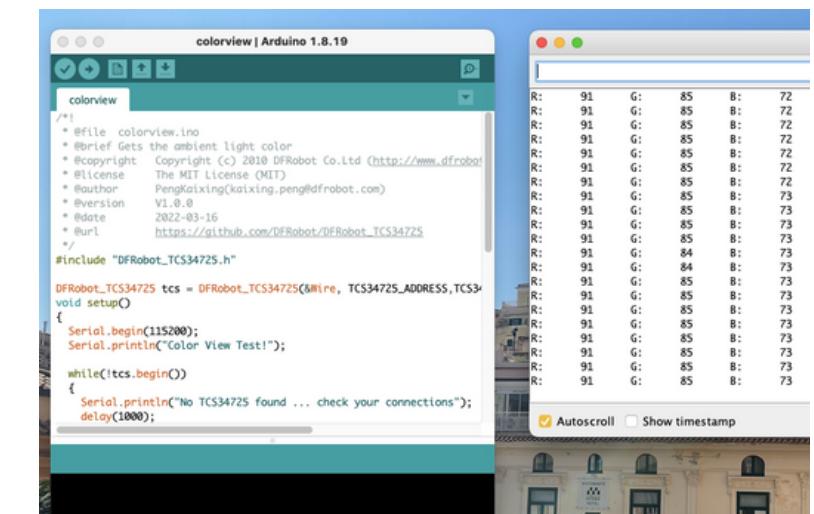


Plugged in the wires to see whether the colour sensor works.



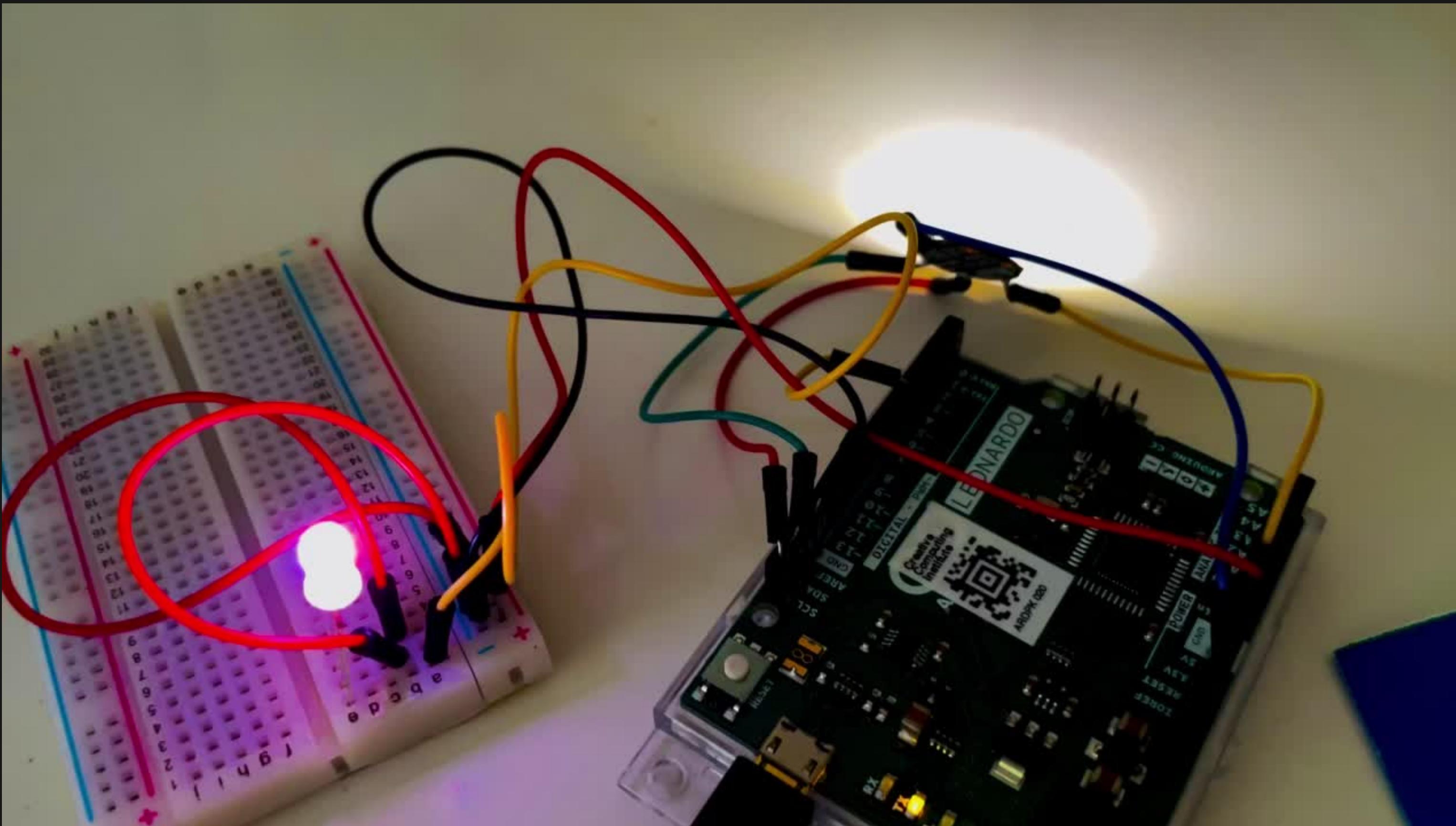
Finished outcome - I printed out colour cards so that I can display the different types of colours used.

After many days of changing the wires placements and playing with the example code. I found out later the reason why the LED was blank is that I had to somehow merge both codes of the FAST LED library and Adafruit TCS34725 so that the output would show on the LED.

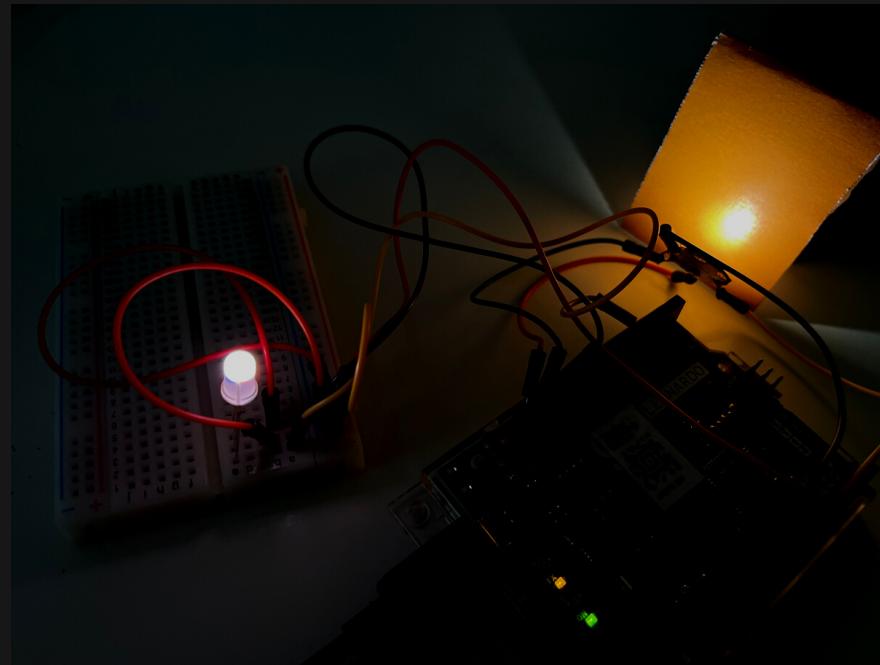
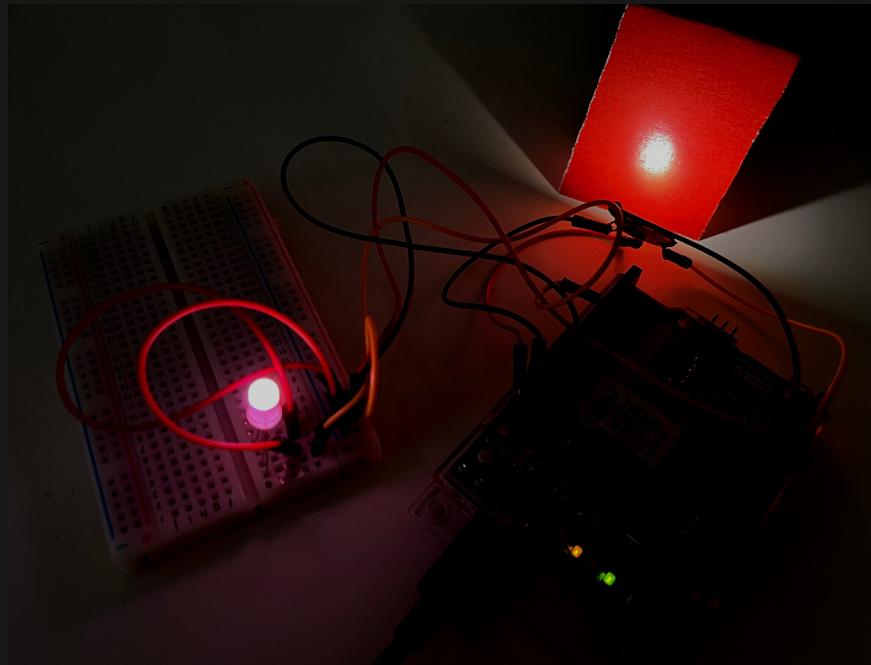


Ran the example code from the Adafruit TCS34725 library. As shown, the sensor works but my main issue was that Neopixel was still blank.

COLOUR SENSOR PROJECT: THE END PRODUCT



SCREENSHOTS



One of the problems that I had with the colour sensor is that the colours would not be shown as accurately on camera. To overcome this, I darkened the screenshots and adjusted my code so that it's much easier to see the colours.

IMPROVEMENTS

- Using matte colour cards - was harder to show the colour since the light reflected on normal print paper.
- Could've included an LCD screen to show the RGB values of the colours.
- Possibly dimming the light on the colour sensor so that the light wouldn't reflect on the surface as much.
- Creating a case/box for the sensor for portability.

PROBLEMS I'VE HAD

- Showing the colours on camera
- Making code that implemented both the LED and colour sensor.
- How to make the colours more intense using code.

