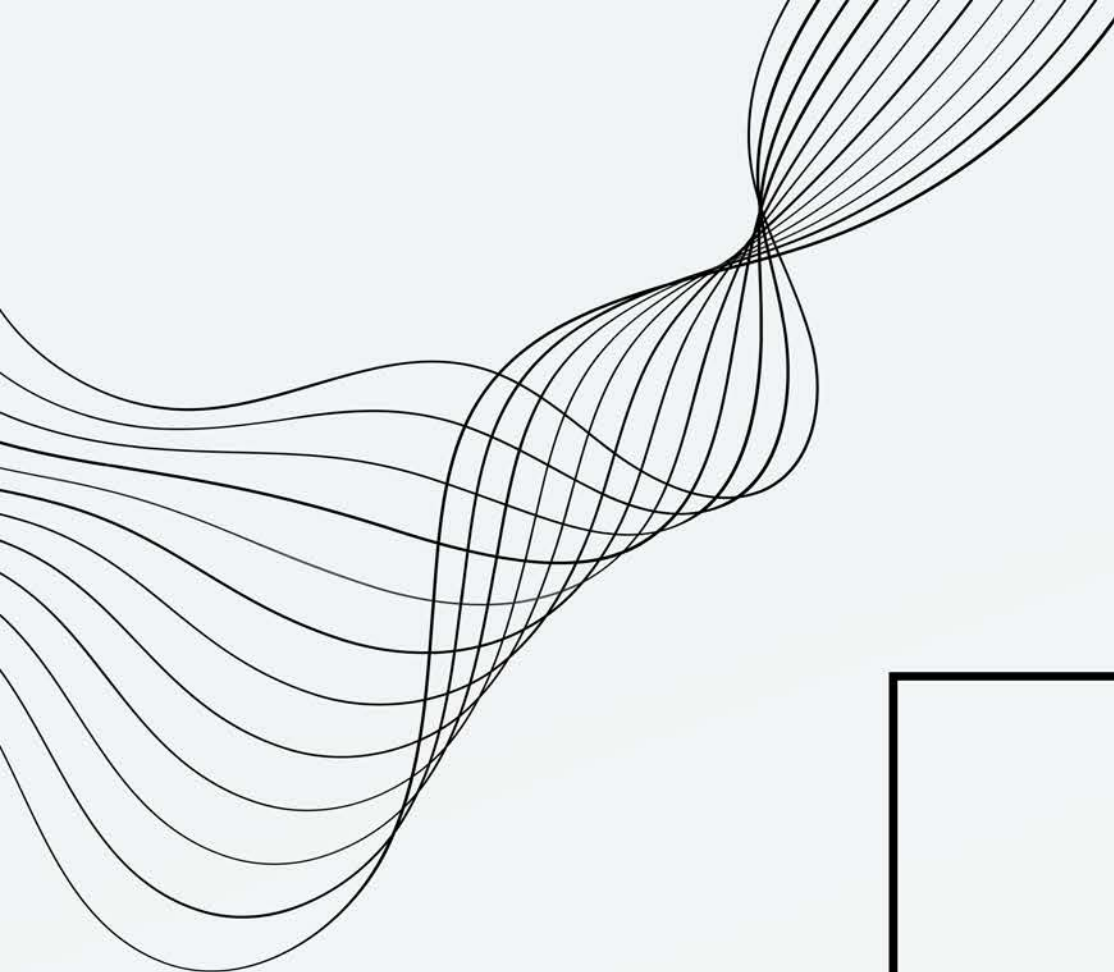
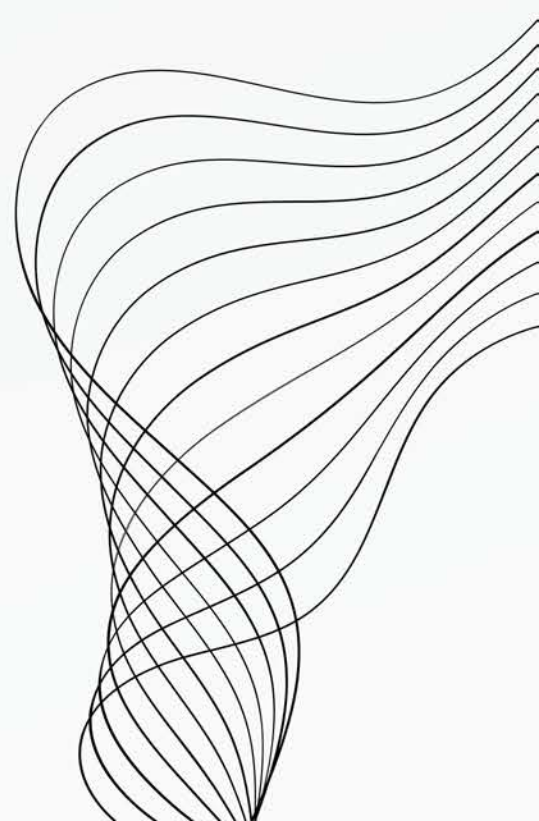




LuminLeaf

Daoxin Chen(HP '24) Hongqian Li(CDP '24)
Miaojing Wei(UP '25) Zihao Zhang(HP '24)



OUR TEAM



Daoxin
Chen
(HP '24)



Hongqian
Li
(CDP '24)



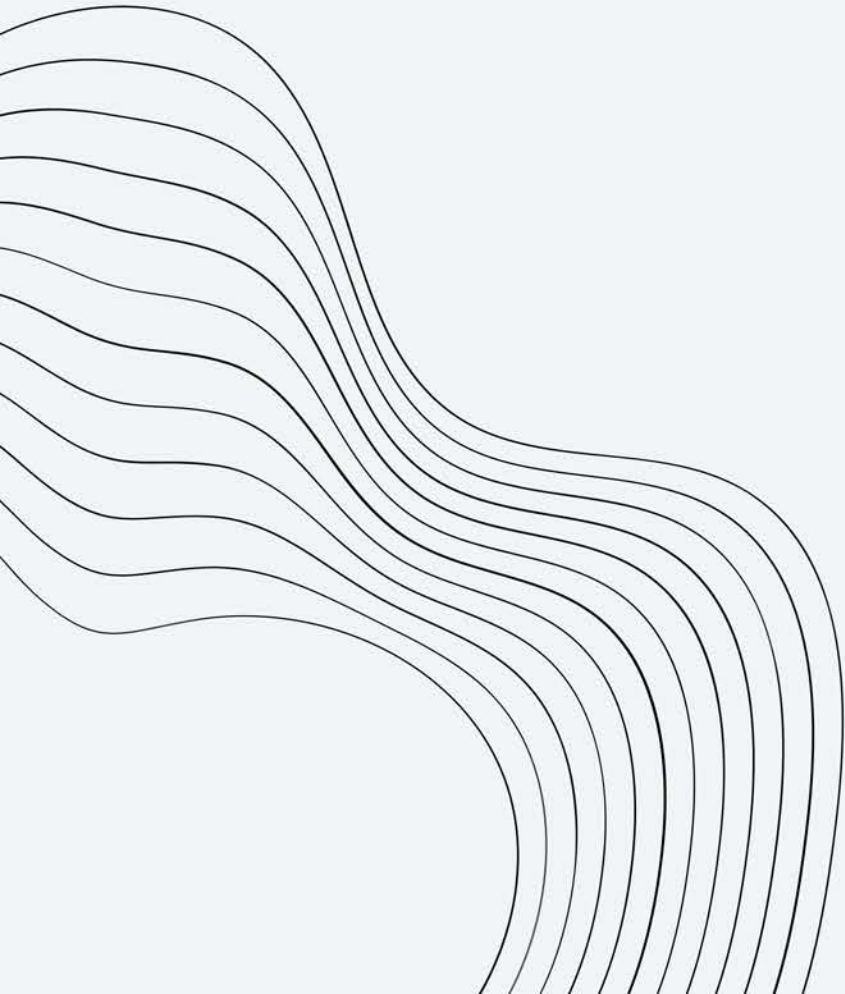
Miaoqing
Wei
(UP '25)



Zihao
Zhang
(HP '24)



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(ARCHITECTURE & URBAN SCALE)

PROBLEM

Perceiving emotions is tough:

Adults are not allowed to express their emotion frankly. This constraint can lead to misunderstandings and a lack of emotional support.

Soothing negative emotions is difficult:

To address this issue, we propose developing a method to visualize emotions effectively. This approach aims to not only increase individuals' awareness of their own emotional states but also to foster a supportive environment where others can understand and respond to these emotional cues more empathetically.



METHODOLOGY

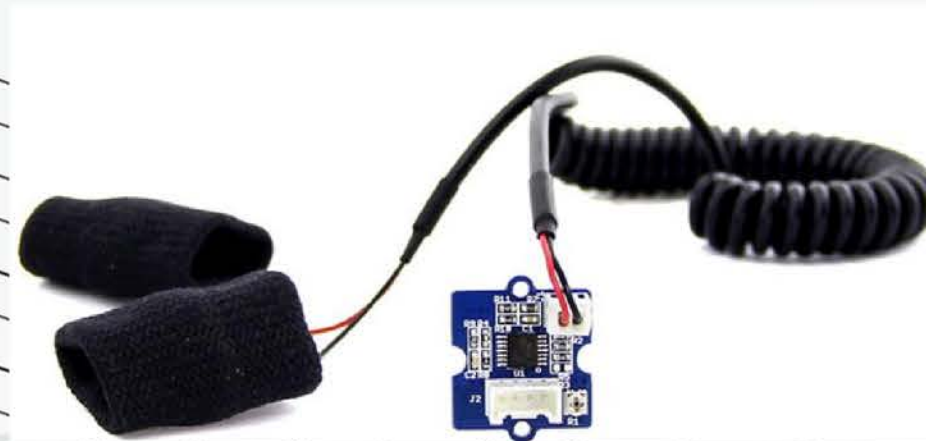
INPUT

People's skin sweating is used to measure the emotion condition. This sweating response is linked to emotional states like stress or excitement.



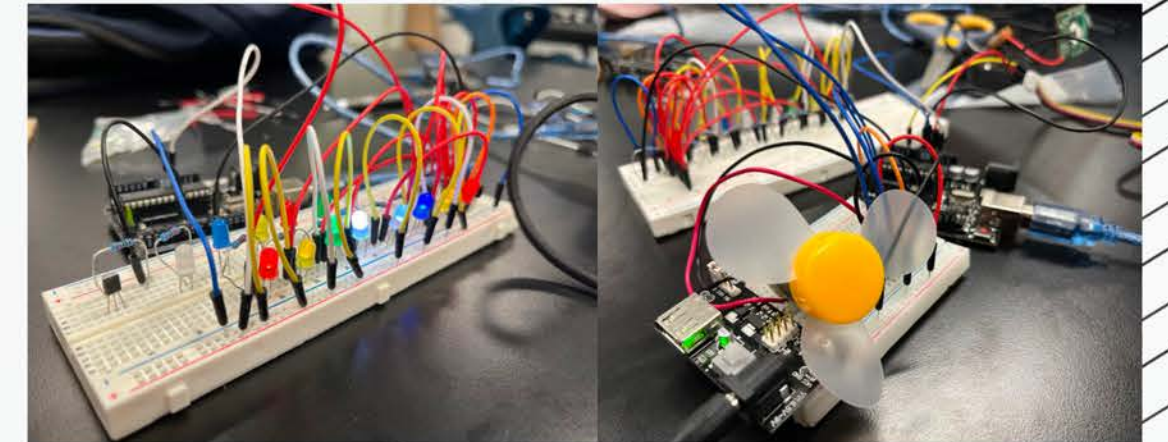
SENSOR

GSR, or Galvanic Skin Response, is used to measure the skin's electrical conductance, which changes with moisture levels driven by the autonomic nervous system.



OUTPUT

Plant with lumination: LED lightings with different colors and modes to visualize people's emotion status. A fan is used to help stressed people to do meditation for calming down.





DATA COLLECTION

DATA COLLECTION PROCESS

The screenshot shows a Windows PC with a web browser and an IDE. The browser displays the Arduino IDE web interface at localhost:8888. The IDE shows a file explorer on the left with 'GSR-Copy.ipynb' selected. The main editor displays the code for 'GSR-Copy.ipynb', which includes a loop to read data from a serial port and save it to a CSV file. The code is written in Python and includes comments in Chinese. The status bar at the bottom shows 'python39 | Idle'.

```

44: data_count = 0 # 初始化数据点计数器

try:
    while True:
        line = ser.readline().decode('utf-8').strip() # 读取串口数据
        if line: # 确保读取到的数据不为空
            timestamp = datetime.now().strftime('%Y-%m-%d %H:%M:%S') # 获取当前时间戳
            gsr_value = int(line) # 将读取到的数据转换为整数
            df = pd.concat([df, pd.DataFrame({'Timestamp': [timestamp], 'GSR_Value': [gsr_value]})], ignore_index=True)
            print(f"({timestamp}, {gsr_value})")
            data_count += 1 # 增加数据点计数

        # 每收集100个数据点，保存数据到CSV
        if data_count % 100 == 0:
            df.to_csv(file_path, mode='a', header=False, index=False)
            print(f"Saved 100 records to {file_path}")

            time.sleep(1) # 每隔1秒记录一次数据
except KeyboardInterrupt:
    # 按下Ctrl+C后，关闭串口并保存所有收集的数据到CSV
    ser.close()
    df.to_csv(file_path, mode='a', header=False, index=False)
    print(f"Data saved to {file_path}")

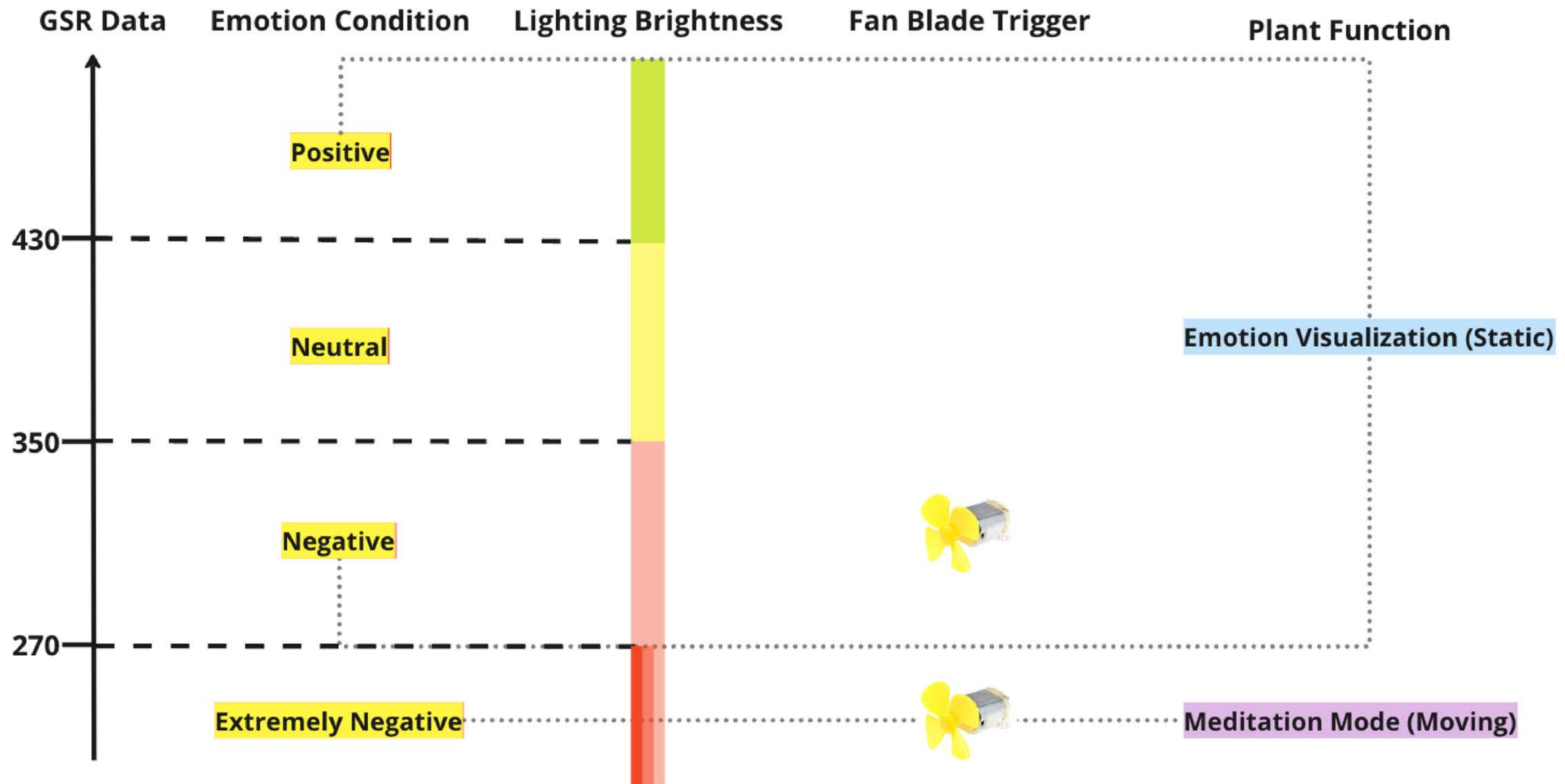
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2024-04-09 15:56:44, 672
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2024-04-09 15:56:54, 671
2024-04-09 15:56:55, 671
2024-04-09 15:56:56, 671

```

The screenshot displays a Google Sheets interface with a spreadsheet titled 'Overall.xlsx'. The spreadsheet contains a large table with multiple columns and rows of data. The columns are labeled with identifiers such as A1B1, A2B1, A3B1, and so on. The rows contain numerical data, likely representing time or frequency. The spreadsheet is viewed in a full-screen mode, and the Google Sheets logo is visible in the top left corner.



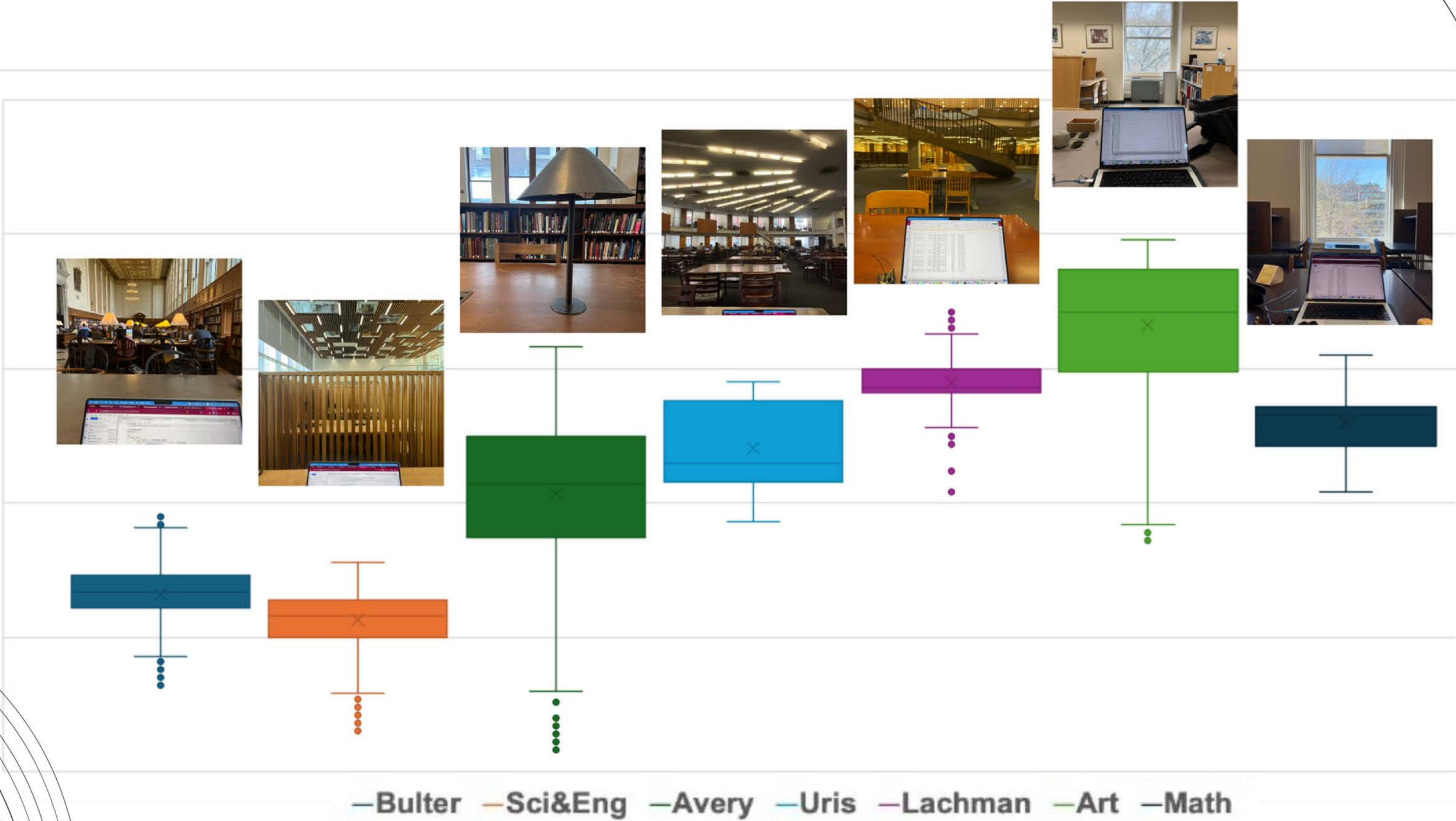
DATA STANDARD



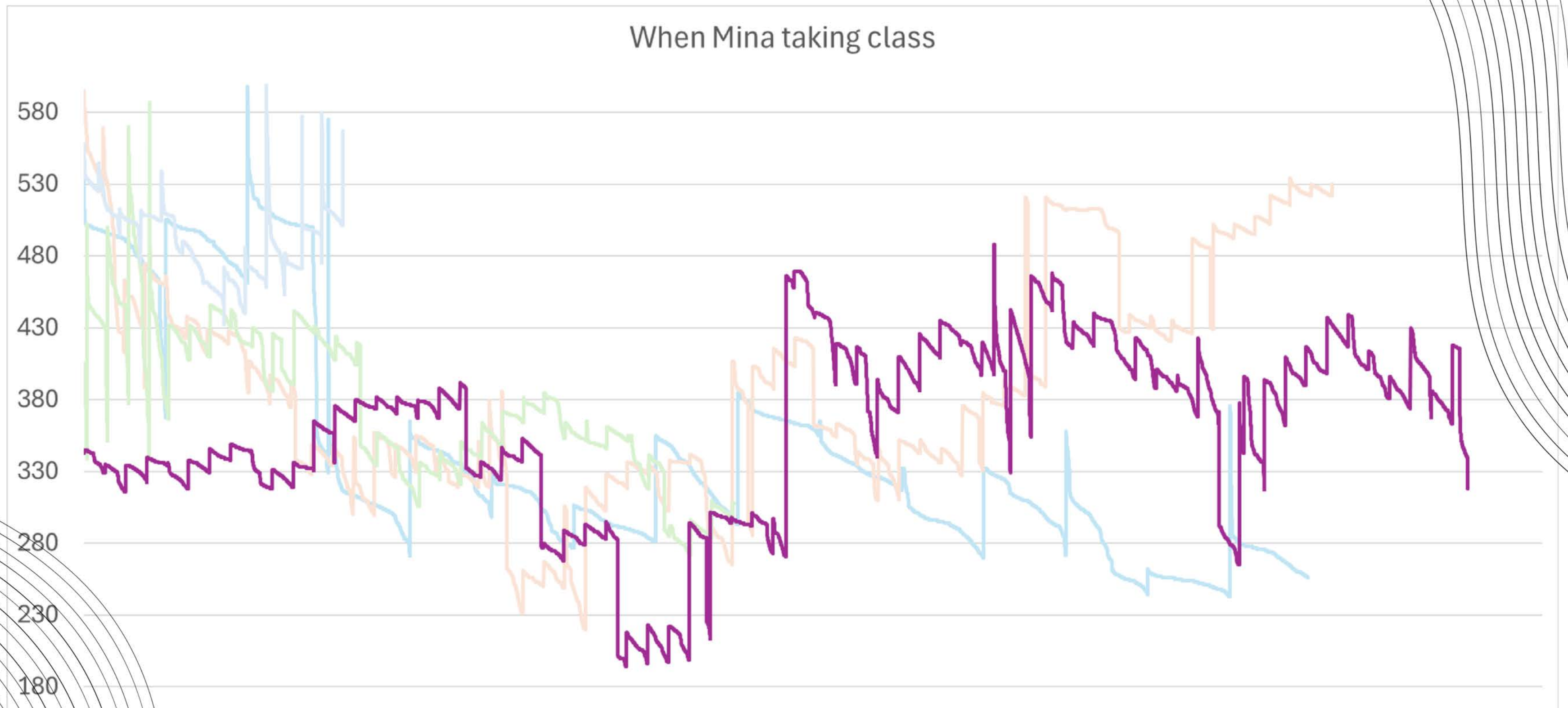


DATA & ANECDOTES

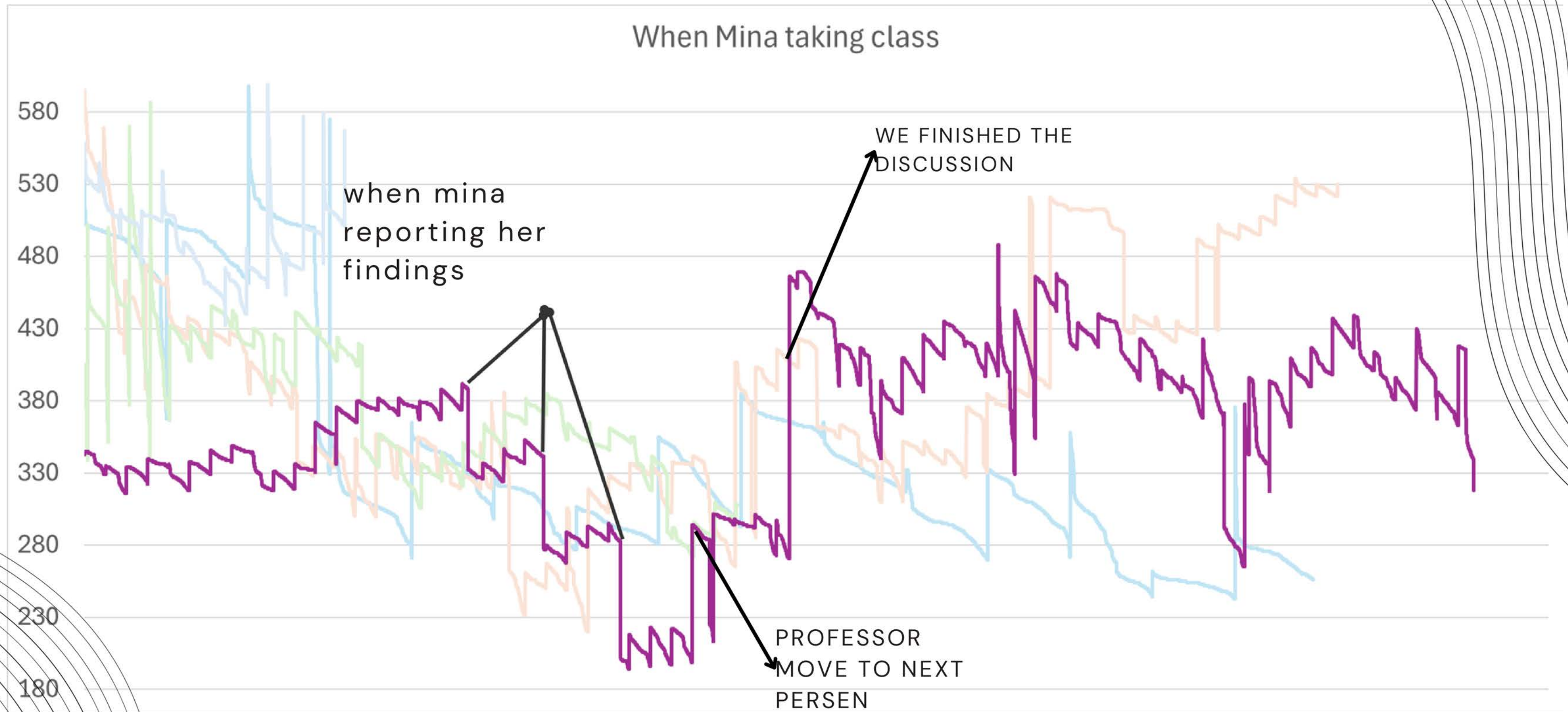
WHEN HONGQIAN STUDYING IN DIFFERENT LIBRARIES



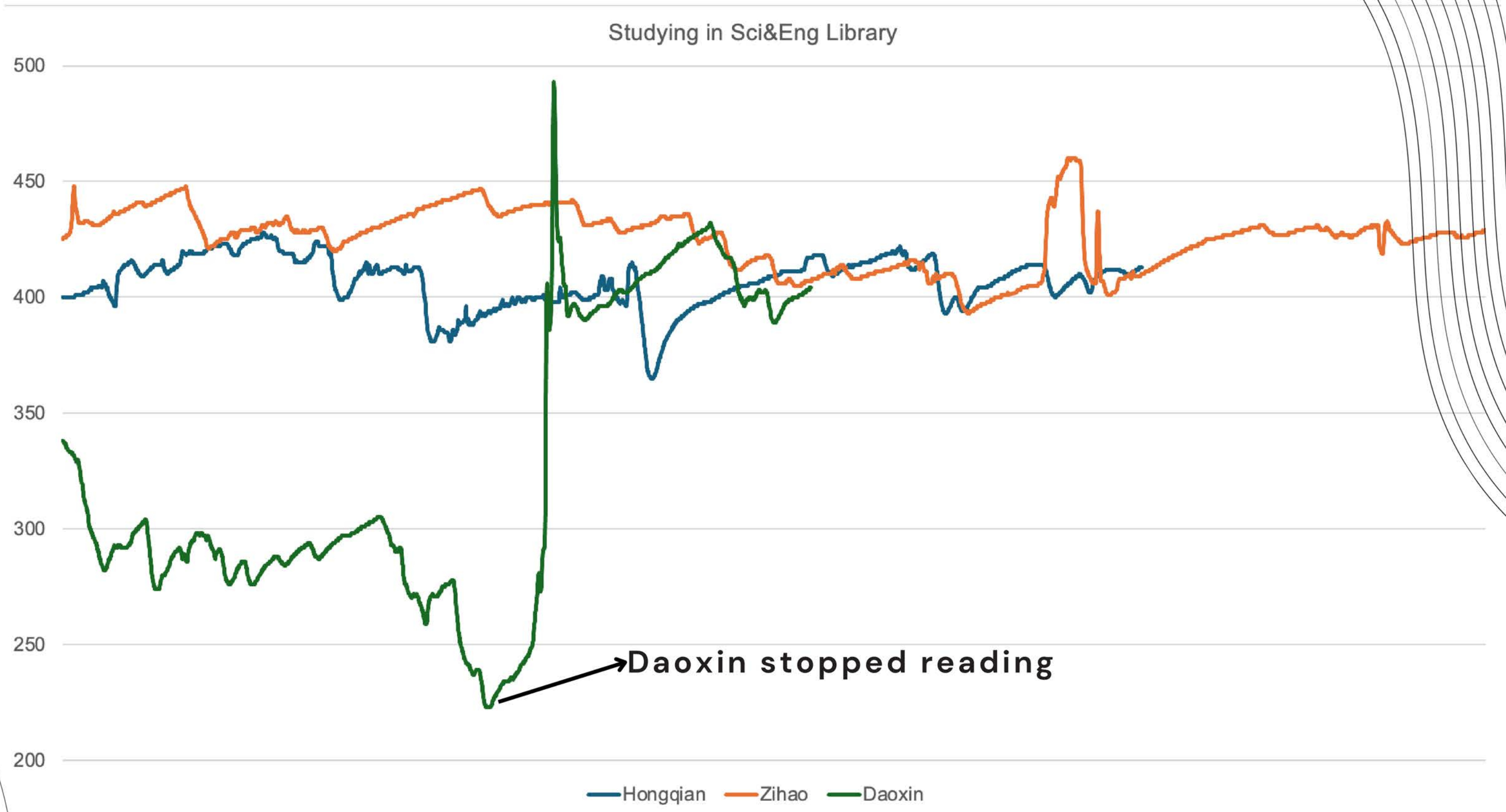
WHEN MINA TAKING CLASS



WHEN MINA TAKING CLASS

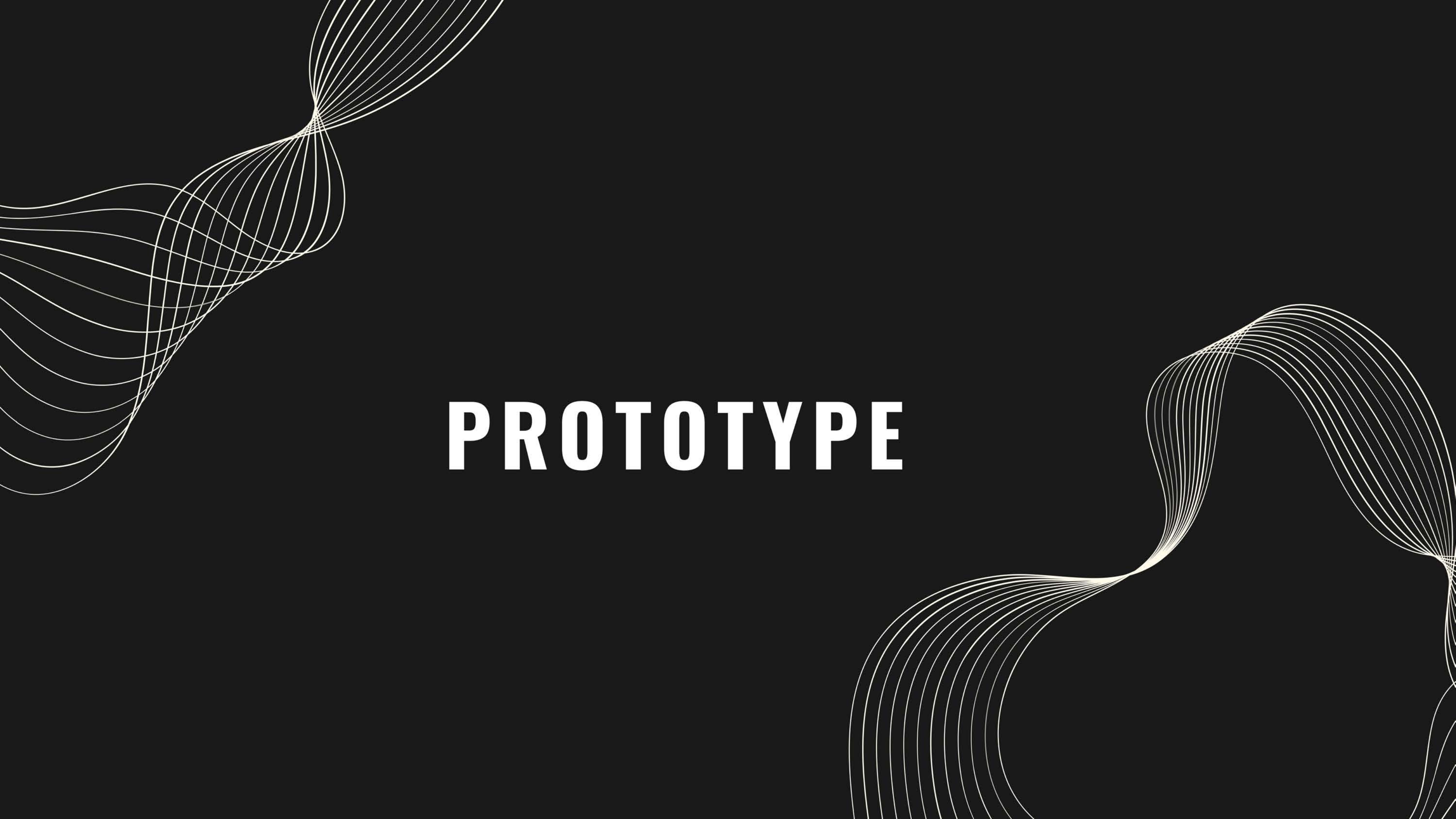


WHEN DAOXIN&HONGQIAN&ZIHAO STUDYING IN ENGINEERING LIBRARY



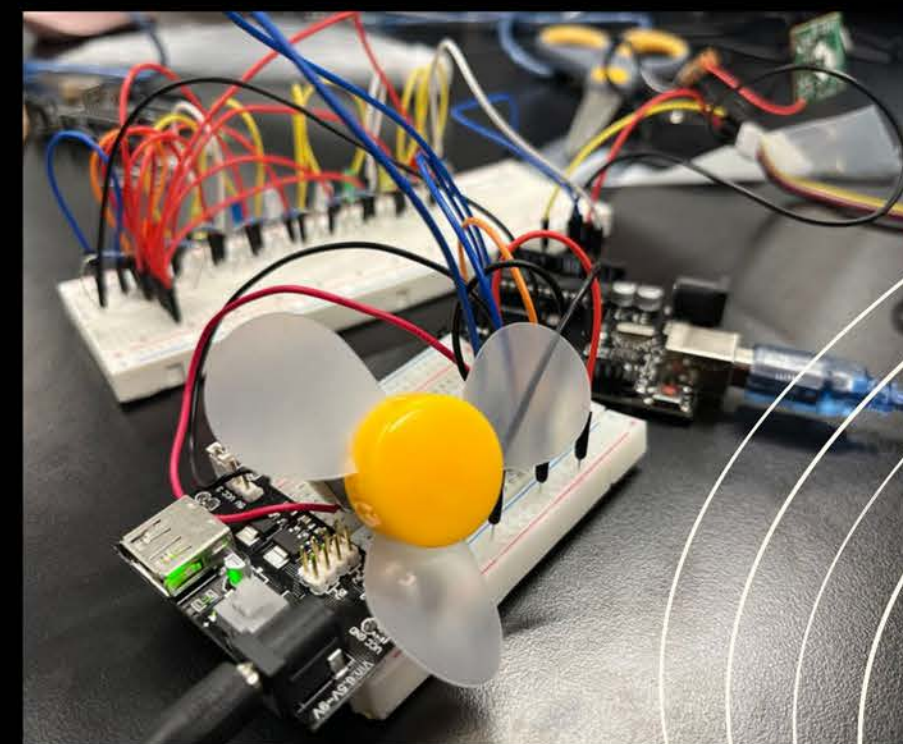
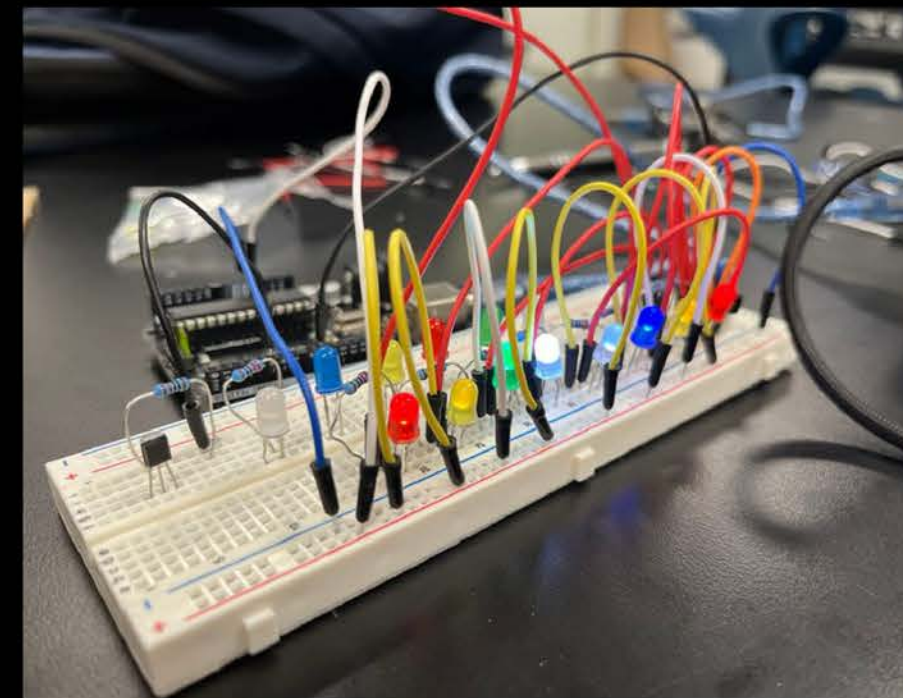
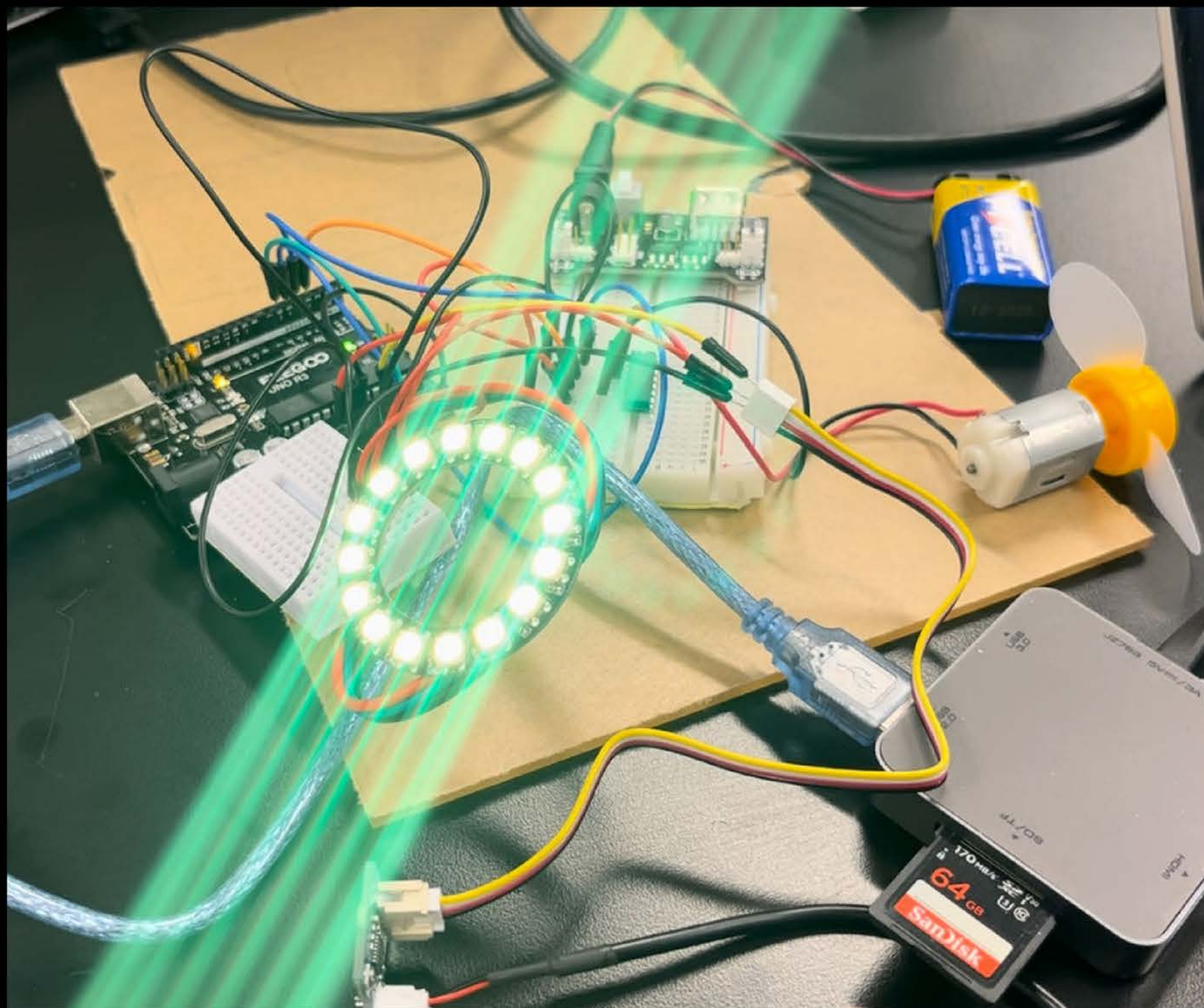
FINDINGS: INPUT DATA ANALYSIS

- Environments and events have impacts on people's emotional states; but events have more prominent effect on people's mood.
- When GSR's value is low, it means that the person is in negative emotional state(anxiety, nervous..); when GSR's value is high, the person is in positive mood(relaxation, happiness)

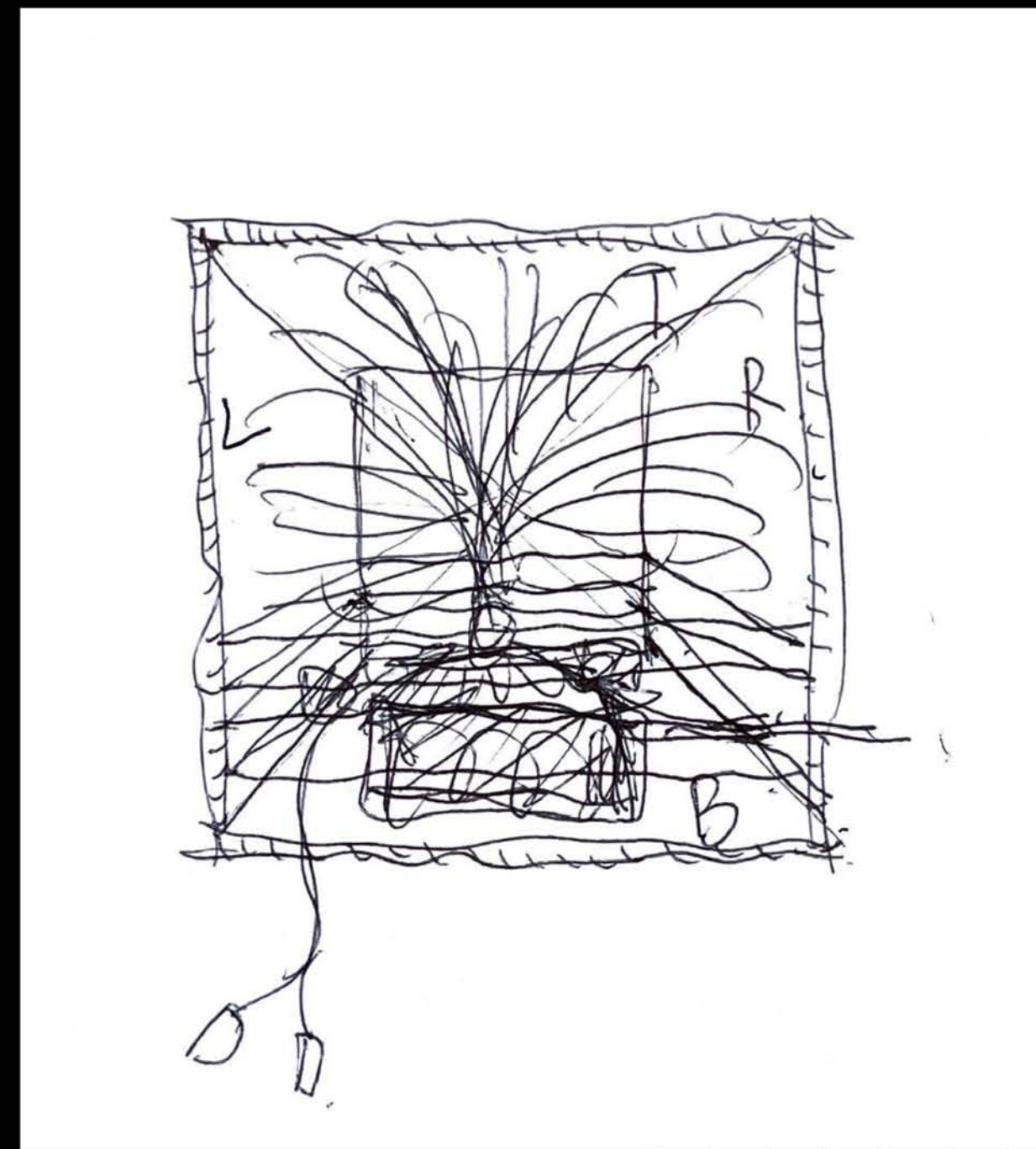
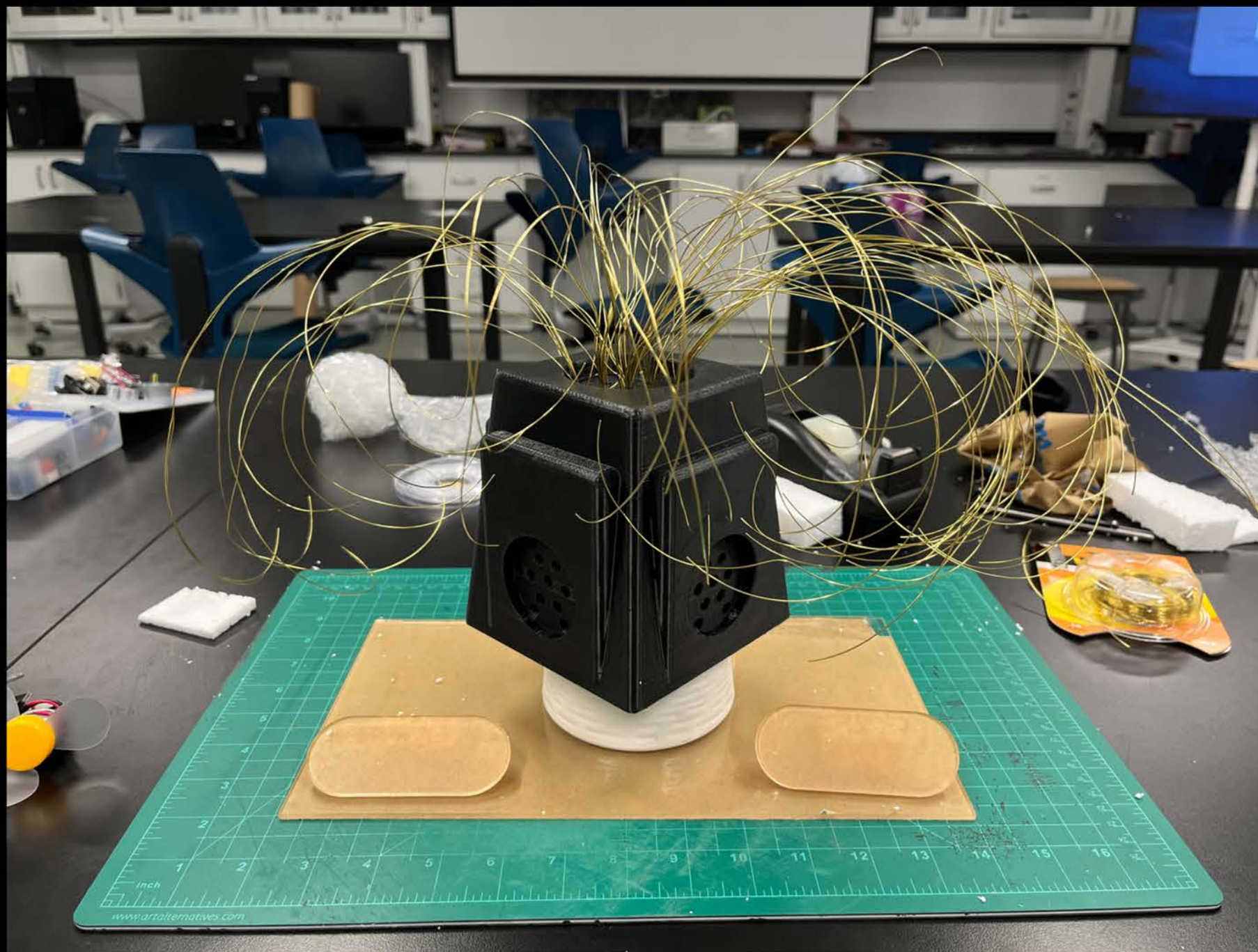


PROTOTYPE

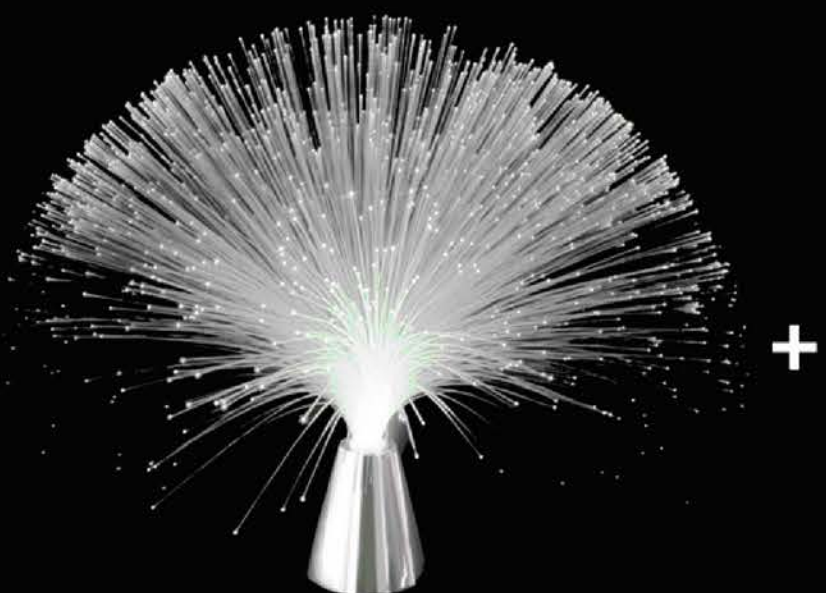
INITIAL PROTOTYPE



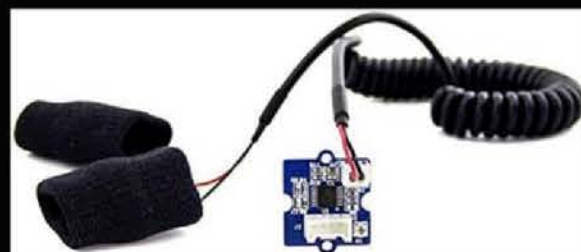
INITIAL PROTOTYPE



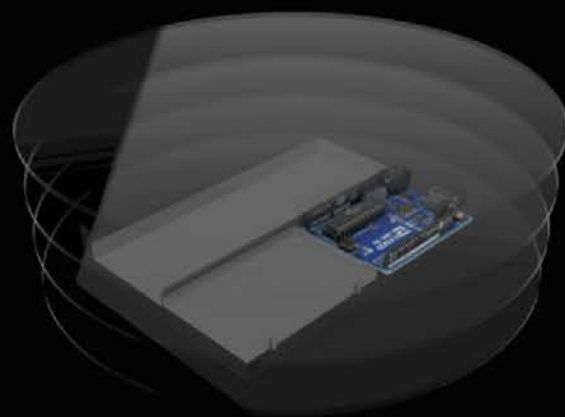
INITIAL PROTOTYPE



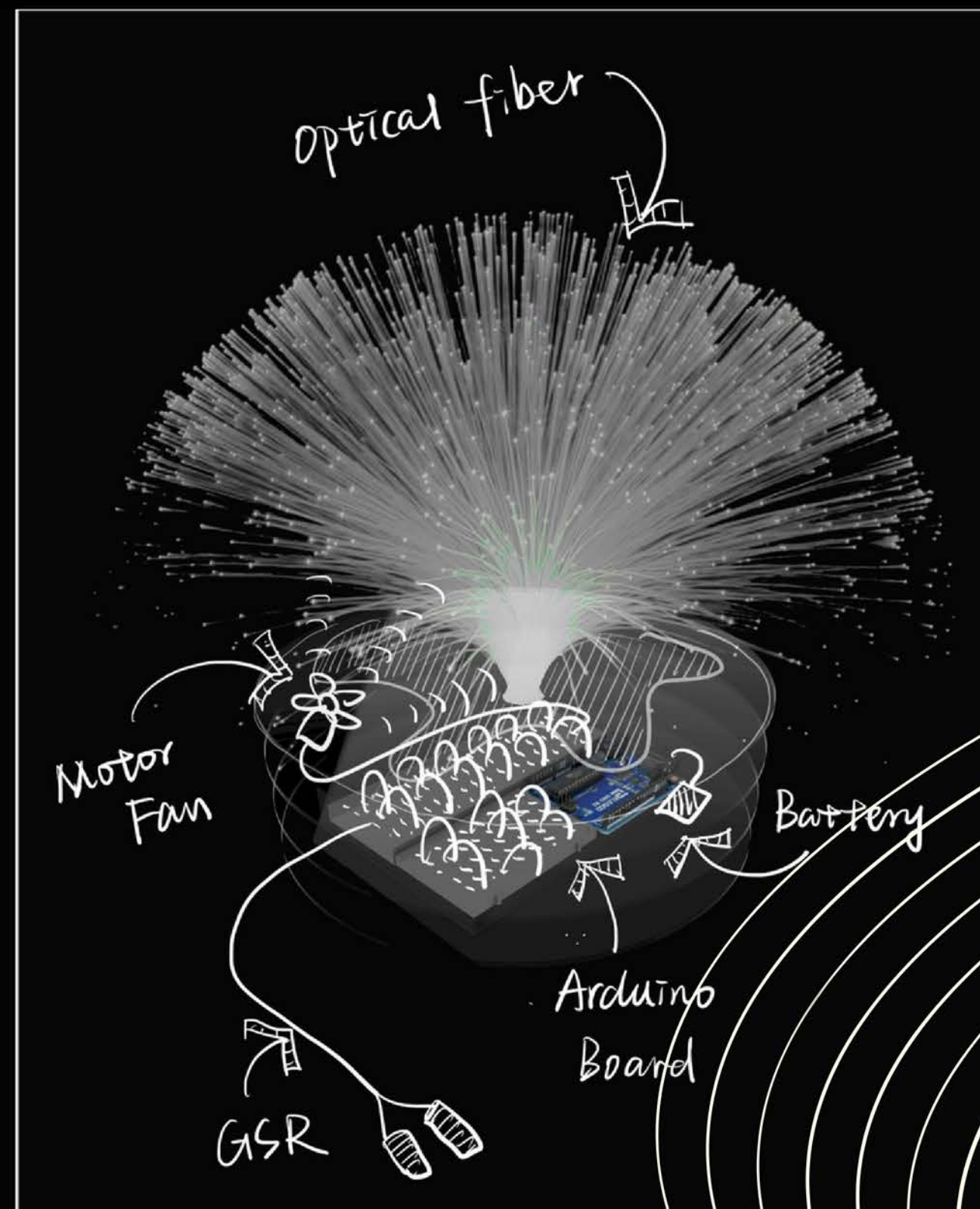
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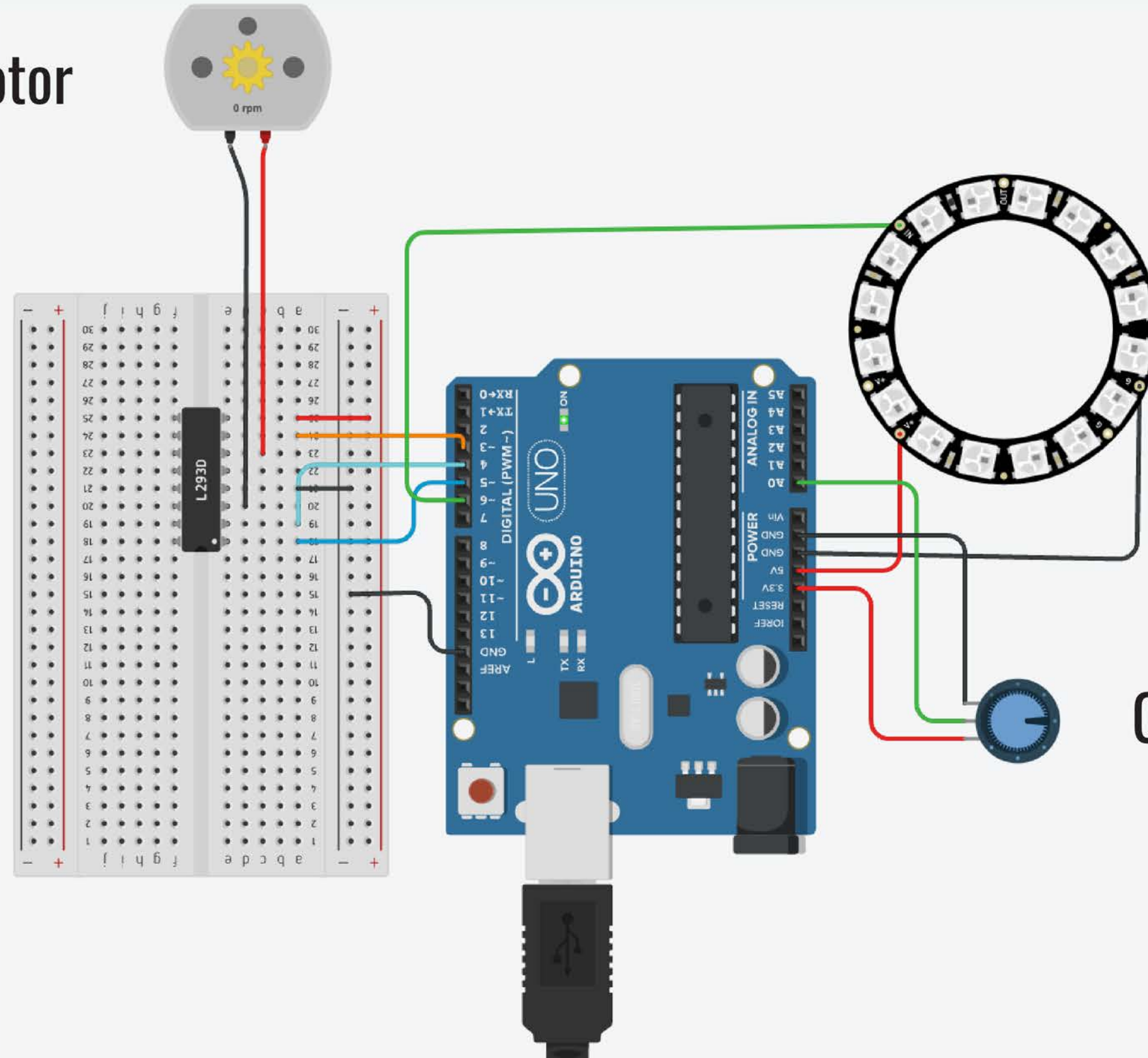
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TECHNOLOGY

Fan Blade & 3-6V Motor

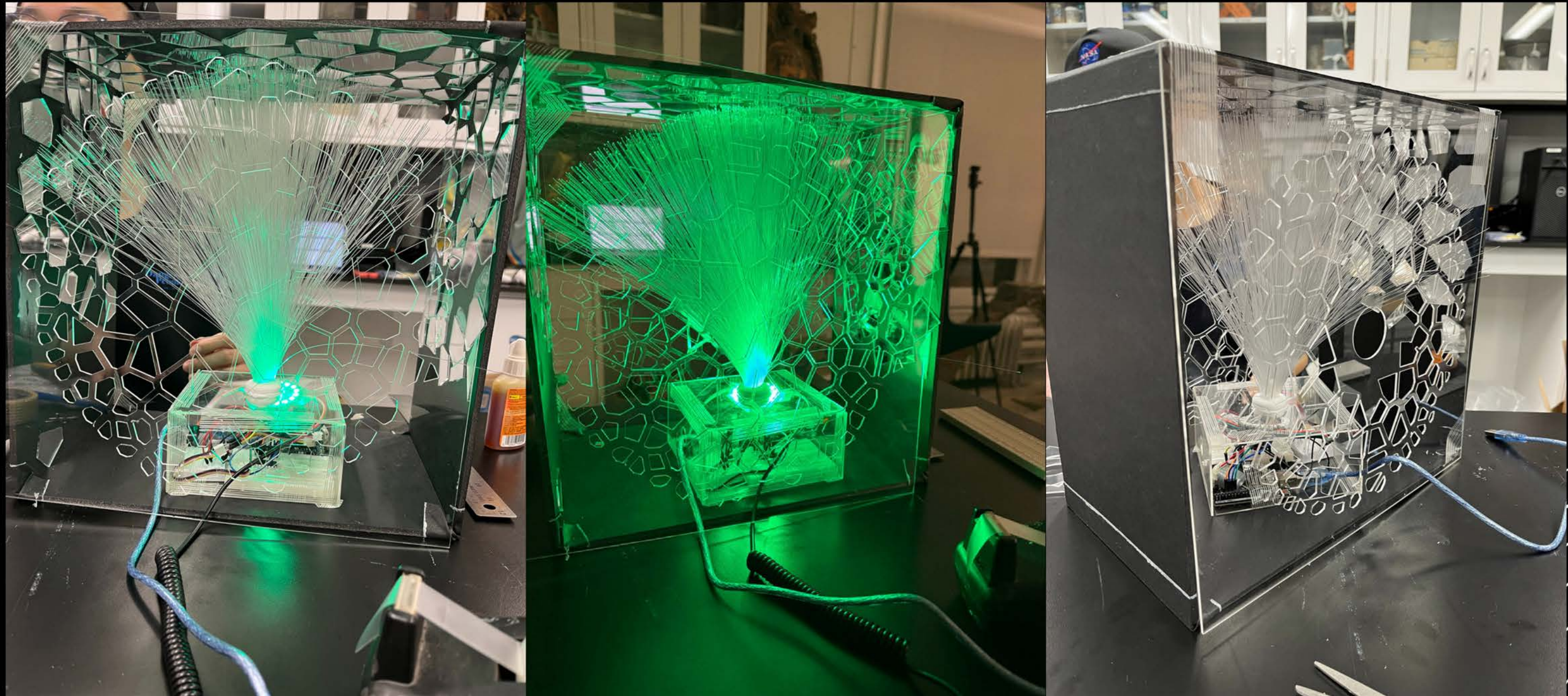
L293D



LED Ring

GSR Data

FINAL PROTOTYPE



FINDINGS: OUTPUT INTERACTION

- Changes in light color can indicate shifts in human emotions:
 - Green light signifies a positive mood
 - Yellow denotes neutrality
 - Red indicates negativity
 - Flashing red suggests extreme negativity
- The rotation of the fan motor, which drives the movement of the optical fiber, can enhance people's mood



POTENTIAL APPLICATION ARCHITECTURE SCALE



POTENTIAL APPLICATION URBAN SCALE



**THANKS FOR
LISTENING**

