

## **EE/CprE/SE 491 WEEKLY REPORT 5**

**10/27/2025**

**Group number: 6**

**Project title: Cyvital**

**Client &/Advisor: Dr. Meng Lu**

**Team Members/Role:**

Kate Endersby - Weekly Advisor Meeting

Claire Haas - Extended Discussion

Reza Choudhury - Weekly Summary

Maximilian Tanruther - Breakout PCB

### ○ **Weekly Summary**

This week, we spent time refining the user interface design to create a clean, easy-to-use layout for the lab modules. We also focused on getting one of our sensors fully functional with the backend, testing data flow between the hardware and software. Lastly, we have all sensors integrated onto a PCB besides the EMG. We have completed another PCB that uses breakout modules from Arduino and Sparkfun.

### ○ **Past week accomplishments**

· Reza Choudhury:

- Used Figma and modeling tools to create an immersive GUI
  - Drag and click snapshots
  - Record window
  - Detail synapses of recordings at any time - analytics
  - Export features
  - Clean UI - neon colors contrast, create something not boring to look at
  - In-Graph mouse hover value display feature

· Kate Endersby:

- Finished developing the plotting for the reaction data
  - Able to pause data acquisition
  - Able to select sections of the data
  - Created improved zoom function
  - Able to save the data to an excel file
- Started developing the plotting for the emg data
- Added inheritance to plotting classes to decrease repetitive code

· Claire Haas:

- Met with Jacob Eisenbrenner (BME TA and also PCB class TA) to discuss surface mount component application
- Researched EMG sensor and MyoWare support tickets
- Created surface mount PCB with ECG, blood pressure, pulse oxidation, response time, and respiratory sensor

○ **Pending issues**

- Reza Choudhury: Not understanding how to update and edit the senior design website?  
Need to wire sensors into the new GUI.
- Hardware: Designing EMG sensor from scratch without identifiable operational amplifier specifications
- Overall: Resolve communication issues

○ **Individual contributions**

<b><u>NAME</u></b>	<b><u>Individual Contributions</u></b>	<b><u>Hours this week</u></b>	<b><u>HOURS cumulative</u></b>
Reza Choudhury	<ul style="list-style-type: none"> <li>- GUI redesign</li> <li>- Figma modeling</li> <li>- Front and backend implementation</li> <li>- Mock-data</li> </ul>	6	30
Claire Haas	Surface mount PCB designed <ul style="list-style-type: none"> <li>- Added to B.O.M for surface mount components</li> <li>- Researched how to order through ETG</li> </ul>	7	38
Kate Endersby	<ul style="list-style-type: none"> <li>- Finished reaction plotting</li> <li>- Began emg plotting</li> <li>- Further improved codebase organization</li> </ul>	8	38
Max Tanruther	Breakout PBC design	6	36

○ **Comments and extended discussion**

- Create a logo for CyVital
  - May need to consult ISU Trademark
  - Ask interested design students
- Develop process for merging code base
  - Prevent design conflicts

○ **Plans for the upcoming week**

- Reza Choudhury
  - Design the GUI
- Kate Endersby:
  - Finish developing the data acquisition & plotting for the EMG sensor

- Claire Haas:
  - Add EMG sensor to PCB
  - Design review with EE3330 team (PCB class)
  - Order PCBs
- Max Tanruther
  - Finish Breakout PCB

- **Summary of weekly advisor meeting**

Dr. Lu showed us the existing BIOPAC GUI software as an example of what he wanted us to develop, and gave us further information about what type of data (analog vs digital signals, raw vs processed data, etc.) that we want to be displaying in the graphs of our GUI.