Report time period: *Beginning of Semester – 9/19/24*

Group number: *Team 22*

Project title: *CyVital*

Client &/Advisor: *Meng Lu*

Team Members/Role: *Daniel Karpov, Chuck Mallek, Jay Patel, Sajan Patel, and Ty Beresford*

(All the above information should be there in each weekly report. The format/color scheme etc need not be the same. However, please remove everything that is in a bracket from your final submission. These are just part of the template and need not be a part of the report.)

o **Weekly Summary** *(Short summary about what the group did for the week. This should be about a paragraph in length. These are just a few questions to help you get started. What was the overall objective for the week? In general, what tasks were completed? Were there any changes made to the project?)*

Set out a plan for what direction the group wants to go in terms of software development. The team decided to use Python to build the program because the Data Acquisition(DAQ) device works best with this program and has many libraries that will be integral for data analysis later down the line. The main objective of the week was to become more familiar with the product the team is basing theirs on.

o **Past week accomplishments** *(Please describe/summarize as to what was done, by whom, when and, collectively as a group. This should be about a paragraph or two in length. Bulleted points are acceptable as well. Please keep only your technical details related to your project. Figures, schematics, flow diagrams, pseudocode, and project related results are acceptable, but please ensure that they are legible (clear enough to read) and to provide an explanation. If researching a topic, please add a few details about what was learned and how it is relevant to the project. If two or more people worked on a single task, be sure to distinguish how each member contributed to the task. Specific details relating to the assistance provided to other members may be included here. **Do not include classwork, such as individual reflection assignments, and group meetings as part of your duties.**)*

- o Daniel Karpov: Looked into how the bio instrumentation kits work and set up the software. Ran some tests from the guide book to get hands-on experience on the functionality of the equipment. Researched what softwares we might need to use and what DAQ we will need.
- o Jay Patel: Did general research on hardware and software solutions currently available on the market. Also did research on the feasibility of different software implementations such as using pyvisa in conjunction with a national instrument DAQ. Currently researching strategies on different solutions for frontend software such as Kivy or implementation with another technology.
- o Ty Beresford: Reviewed possible libraries to be used for the GUI; preferably the same language used to communicate and retrieve data from the sensor (C++ or Python). Possible options with Tensorflow for machine learning and pattern recognition.
- o Chuck Mallek: Played with Pre-made kits design and worked with their GUIs. Researched how to use an oscilloscope with physiological measuring devices to get a "Proof of Concept" for our prototype. Looked at kits premade software to see what needs to be added to our own software to include all the features they added.
- o Sajan Patel: Looked into possible libraries/APIs that work with DAQ. Looked into kit and how it communicates with our computer. Worked together to figure out the language (Python) and OS(Windows system) that we wanted to use for the project moving forward.

- o **Pending issues** *(If applicable: Were there any unexpected complications? Please elaborate.)*
  - 🎬 Team Member 1: Worked on… 🎬 Team Member 2:
    - Ty Beresford: No issues on my side, C++ and Python (preferred languages) have many formally documented GUI libraries
    - Sajan Patel: No current issues. Group is in the research phase of the project.
    - Daniel Karpov: No current issues.

- o **Individual contributions** *(Creating this section is optional, but it is **Required to include the "Hours Worked for the Week" and their "Total Cumulative Hours" for the project for each member somewhere relevant in your report. Your individual weekly hours should be at a minimum of 6-8 hours for this course. So please manage your time well. Also, ensure that individual contributions support your claim to the weekly hours. Be honest with the reports.**)*

NAME	Individual Contributions *(Quick list of contributions. This should be short.)*	Hours this week	HOURS cumulative
Jay patel	Research on DAQs and software solutions for GUI	2	2
Daniel Karpov	Started looking at the two kits and playing around with them. Also looked into the two different softwares.	2	2

Chuck Mallek	Researched how to use an oscilloscope with physiological measuring devices.	2	2
Sajan Patel	General research on our kits and software for data acquisition	2	2
Ty Beresford	General inquiries and research on potential, suitable GUI libraries to display data acquired by sensor(s)	2	2

o **Comments and extended discussion** *(Optional)*
Feel free to discuss non-technical issues related to your project.

o **Plans for the upcoming week** *(Please describe duties for the upcoming week for each member. What is(are) the task(s)? Who will contribute to it? Be as concise as possible.)* 🎬

- Ty Beresford: Discuss with professor on expectations of GUI aesthetic; what screens should have emphasis? What graphic(s) should be displayed and location? Depending on requirements, narrow down specific libraries that can seamlessly blend with projects.
- Chuck Mallek: Get some sort of data recorded on the oscilloscope with physiological measuring devices (legally not our data) and be able to pull that onto a computer as a "Proof of Concept."
- Jay Patel: Continue research efforts on potential data acquisition solutions as well as ease of implementation with various technologies. Will also be communicating with point of contact to discuss expectations for software implementation and deliverables for the student lab.
- Sajan Patel: Research solutions for data analysis moving forward. Talk with the professor about the specific requirements of our project when it comes to data analysis. Look into Machine Learning options for projects moving forward and how heavily we want to lean into this aspect.
- Daniel Karpov: Continue researching on how signal processing works and different programs / APIs that can help us do that. Look into how data should be displayed. Research how analog and digital signal processing works.

o **Summary of weekly advisor meeting** (*If applicable/optional)*
N/A

Grading criteria

Each weekly report is worth 10 points. Scores will be awarded as follows:

- **8 – 10**: Progress for your project seems to be suitable. Documentation and hours reported by team members are adequate.
- **6 – 8**: There is scope of improvement both in your report and your project progress. Can consult with instructor/TA after class for further inputs.
- **< 6**: Please talk to instructors/TA after class hours about any difficulties that you/your team is facing.

Each weekly report should be unique in that they have a unique set of supporting details for your contributions. So please do not just copy your reports from the previous week. In addition, please avoid any personal pronouns (he, she, I, you). Try to keep your reports as neat as possible.