2/10/24 - 2/24/24
Group Number: 15
Project Title: PTSD Detection Device
Client &/Advisor: BAE Systems / Rachel Shannon
Team Members: Casey Halbmaier, Caden Backen, Coby Konkel, Ben Gardner, Andres Cebellos, Nihaal Zaheer

Weekly Summary:

The team's work since the last bi-weekly report has been focused mainly on the hardware side of the project. During the first week, we finished the schematic and pcb design for our first board. We then took that to ETG and they advised us on changes we should make before ordering the board and parts. During the second week, we finished up those changes. We also finished and sent out our survey to a potential volunteer and got feedback.

Past Week Accomplishments:

- **Hardware:**
    - Got feedback and guidance from ETG on hardware design
    - Finished Rev0 schematic
    - Finished Rev0 PCB design

- **Software:**
    - Work has continued on both the SD Card code and the MAX Sensor code.
    - Ryan, our BAE Mentor, has given us a device to test our code on.

- **Overall:**
    - The PTSD survey was sent out to our participant, and we have received feedback from said participant.

Pending Issues:

Individual Contributions:

Name	Individual Contributions	Hours (this week)	Hours (total)
Casey Halbmaier	Worked on the SD Card reader code, established the basis for the SD Card reader	4	10

	code, sent the PTSD survey to our participants, recorded data from survey participants		
Andres Ceballos	Assisted with hardware, worked on schematics	6	16
Caden Backen	Absent.	0	10
Coby Konkol	Found SD card datasheet, code examples and tutorials; found datasheet and examples for I2C interface; Designed sensor schematic, microcontroller schematic, and SD card schematic; Designed PCB; Routed PCB; Met with ETG multiple times for feedback about PCB; Talked with other Electrical engineer experts for PCB design tips	22	48
Ben Gardner	Worked on schematic, worked on BOM. Helped others with issues.	7	15
Nihaal Zaheer	Looked into Datasheets for PICO, MAX and SD card hardware for pinouts for board design. Looked into I2C implementation and using synchronous/asynchronous clock for design. Met with BAE mentor to collect breakout board for implementation and prototyping	6	15

Plans for Upcoming Week:

- **Hardware:**
    - Order PCB parts
    - Start research on parts for dog vest device
    - Start researching parts for ASK radio

- **Software:**
    - Complete the first iteration of code for both the MAX Sensor and SD Card.
    - Test the first iteration of code for both the MAX Sensor and SD Card.
    - Work on fixing any bugs discovered after the first test(s) of the MAX Sensor and SD Card code.

- **Overall:**

- Flash the software code onto the hardware.
- Test the ‘finished’ prototype before sending it to participants for data collection.
- Work out any issues that need to be addressed for the prototype device before sending them to participants for data collection.

Summary of Weekly Advisor Meeting:

This week’s team meeting with Rachel Shannon was largely focused on the PTSD survey and the hardware side of the project. For the survey, we determined with Rachel that we will not need to reach out to the IRB since our project survey falls under ‘Capstone’ projects, and thus does not need to be monitored by a third party. The survey was sent out to our participant shortly after this meeting concluded. For the hardware side of this meeting, Rachel urged us to get an order out for parts as soon as possible. The sooner we order parts, the sooner we can figure out what works and what doesn’t work. Furthermore, she believes this would allow the software-side of the project to implement and test what they have completed so far.

Broader Context

In terms of section 4.4 of our project’s design document, the team came to the conclusion that what we have currently is sufficient for this project and does not require any further updates.

For showing evidence of positive effects, we plan to demonstrate that the device we are developing will be a useful aid to those suffering from PTSD-episodes. To do this, we need to have participants prototype our device to ensure that the device works and does not cause any harm to the user. Once those conditions are met, we can have people who suffer from PTSD-episodes prototype the device and receive feedback from them on how well the device works.

Finally, in order to address any negative impacts this device may have, we have taken some precautions in our designs to ensure the device is environmentally safe. For instance, for our wearable device, we plan to 3D print a case to protect the hardware. This case will be made out of plastic, which is not a naturally sustainable resource. To combat this, we plan on using recycled or more sustainable 3D printing filament options.