

EE/CprE/SE 492 WEEKLY REPORT 2

01/27/2020 – 02/9/2020

Group number: sdmay20-24

Project title: Wearable Cardiac Monitor

Client &/Advisor: Huang Cheng

Team Members/Role:

Andrew O'Brien - Software

Peyton Sher - Software

Ruiyu Sun - Hardware

Scott Beard - Hardware

Samantha Kimball - Communications

Vincent Lazzaro - Communications

Weekly Summary:

This week we figured out the final order of parts we needed to get so that we can design a PCB to stick them on. We reached out to the Student health center about ways we could verify our heart beat detection. On the communication side, we are now able to recognize that our signal is a heart beat (not extremely noisy); we applied a filter to the received signal after we got it in order to do so.

Past Week Accomplishments:

Andrew O'Brien: Worked on getting data from the communication handler to the graphical display. Also re-thought the manner for receiving notifications of heart anomalies.

Peyton Sher: worked to get app data across

Ruiyu Sun: Meeting with the professor. Try PCB design softwares.

Scott Beard: Required meeting, familiarized with PCB CAD software

Samantha Kimball: Worked with Vincent on reducing the noise in the received signal and got ahold of the Student Health Center about comparing our data to theirs. We also had a meeting with our TA to discuss our project and make sure we are on track to finish on time.

Vincent Lazzaro: Worked with Sam on reducing the noise in the received signal. Got a noticeable heartbeat out of our data when plotting. We also had a meeting with our TA to discuss our project and make sure we are on track to finish on time.

Pending issues: (If applicable: Were there any unexpected complications? Please elaborate.)

Andrew O'Brien: Android has multiple ways to move data from different activities so I am trying to find the best way to do it.

Peyton Sher:

Ruiyu Sun: PCB redesign.

Scott Beard: PCB CAD modeling

Samantha Kimball: If wires are moved or if the person isn't sitting still, the level of noise increases dramatically so we need to figure out how to reduce that.

Vincent Lazzaro: Noise from wires being moved causing clipping in the signal. Trying to determine how to detect if a heartbeat has occurred.

Individual contributions:

| Name | Contribution | Weekly Hours | Cumulative Hours |
|-------------------------|---|--------------|------------------|
| Andrew O'Brien | Software work and researched energy efficiencies with bluetooth transmission | 6 | 8 |
| Peyton Sher | Meetings and app work | 4 | 6 |
| Ruiyu Sun | Meeting, design software | 4 | 6 |
| Scott Beard | Meeting, familiarizing with CAD tool | 4 | 6 |
| Samantha Kimball | Attempting to reduce signal noise, got ahold of the Student Health Center, met with TA to discuss project | 8 | 10 |
| Vincent Lazzaro | Reduced noise, got a recognizable heartbeat, and discussed project with TA. | 15 | 17 |

Comments and extended discussion: (Optional)

Feel free to discuss non-technical issues related to your project.

During our meeting with the Class Adviser, we discussed maybe adding a feature to the application that will send an alert for up to three other people in case the patient cannot get the help needed (such as not being able to call 911 during a heart attack).

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.)

Andrew O'Brien: This week I plan on working on graphics and finishing up the data transmission work.

Peyton Sher: keep working on app and try and help Vincent.

Ruiyu Sun:

Scott Beard: Complete CAD models for PCB components

Samantha Kimball: Work with Vincent to apply a filter to the received signal to see if that helps reduce the noise. Depending on what the Student Health Center says about meeting with them, we might also go try to compare our data and ask questions about pointing out potential heart problems.

Vincent Lazzaro: Work with Sam to apply a filter to the received signal to see if that helps reduce the noise, and try to see if we can determine if a heartbeat was recognized by the device. Depending on what the Student Health Center says about meeting with them, we might also go try to compare our data and ask questions about pointing out potential heart problems.

Summary of weekly advisor meeting: (If applicable/optional)

(Provide a concise summary on the contents and progress made during the advisor meeting.)

We did not meet with our advisor this past week.