2 Week's Overview

Over these two weeks we have integrated a lot of functionality after a lot of testing and troubleshooting independently. Additionally, we have started to make progress on the Design Document.

- **Key Accomplishments:**

  - Nate: I did more work on the frontend and making the UI look better, I updated text, and organized the sliders and other functionalities on the movement page. I made it so you can't change the sliders at all, and now when you home all, it homes the x first, then the y, then the z as that is how the scanner currently works. I also implemented the go-to function where all the sliders get to the designated location at the same time. I also did minor improvements to make it more user friendly and pleasing to the eye.

  - Luke: These entire two weeks I have focused on developing the SAR calculation. This involved translating five matlab scripts to python, and then implementing it within our own code. From the SAR page you can now import a scan, specify a depth and a step size, calibrate SAR, and display slices of the z axis after SAR calculation which you can scroll through.

  - Daniel: I finally figured out how to read data successfully with the new DAQ and radar! It is not perfect yet as the scanning starts before the sensor reaches the first position. A lot of last week was spent figuring out how to write the classes for the digilent DAQ and then actually writing them. This week was spent troubleshooting problems with the FTDI cable used to program the radar. Lastly I put all our merged code onto the BTT Pi and tested the new UI and scan pattern.

- ○ James: Finished implementing .scan file saving as well as stop button. Underwent testing and began implementing a download button for the saved .scan file. Placing a download button next to the stop button in the status window to download the most recently saved .scan file for the user to process later in the SAR page. Testing started for download. Went over documentation requirements and task division. Began lookingover manual requirements.
  - ○ Collectively:
    - ■ We all merged our code on Sunday last weekend.
    - ■ We merged again on Wednesday before our meeting with our client.

- **Challenges/Issues:**
  - ○ Nate:
  - ○ Luke: The first slice on the SAR page is green and it shouldn't be
  - ○ Daniel:
  - ○ James: Download button testing in progress to work out bugs.

Individual Contributions

Name	Individual Contributions	Hours these 2 weeks	Hours cumulative
Nate	Slider go to functionality - all sliders get to the position at the same time. Slider homing all functionality - home each individual axis in the order of x y z as the scanner does. Made minor improvements to make the UI look and operate better	22	110
Luke	Translated 5 matlab scripts to python. We can upload a .scan file, specify how deep we want to look on the z-axis and what step size we want to use. We can then do the SAR calculation and have a heatmap display the results for every z slice specified with a slider to scroll through them	25	110

Daniel	DAQ code written, radar code modified, scan pattern fixed, helped luke with SAR, FTDI issue resolved, started complete system testing	40	157.5
James	Completed implementation of .scan file saving as well as emergency stop functionality. Began implementation of download button as well as documents including user manual.	24	109

Upcoming 2 Week Plan

- Nate: Finish up some UI color changes to finalize the look. Switch to start working on documentation and presentation work for the final couple of weeks of senior design.

- Luke: Work on the design document, specifically the parts pertaining to the SAR page and the literature review. If I have time, add some more functionality to the SAR page. Also work on presentation and poster.

- James: Finish testing of download button and make significant progress on documentation and presentation preparations.

- Daniel: Work on design document. Specifically the sections that I took on when we collectively went over it. Work on presentation.
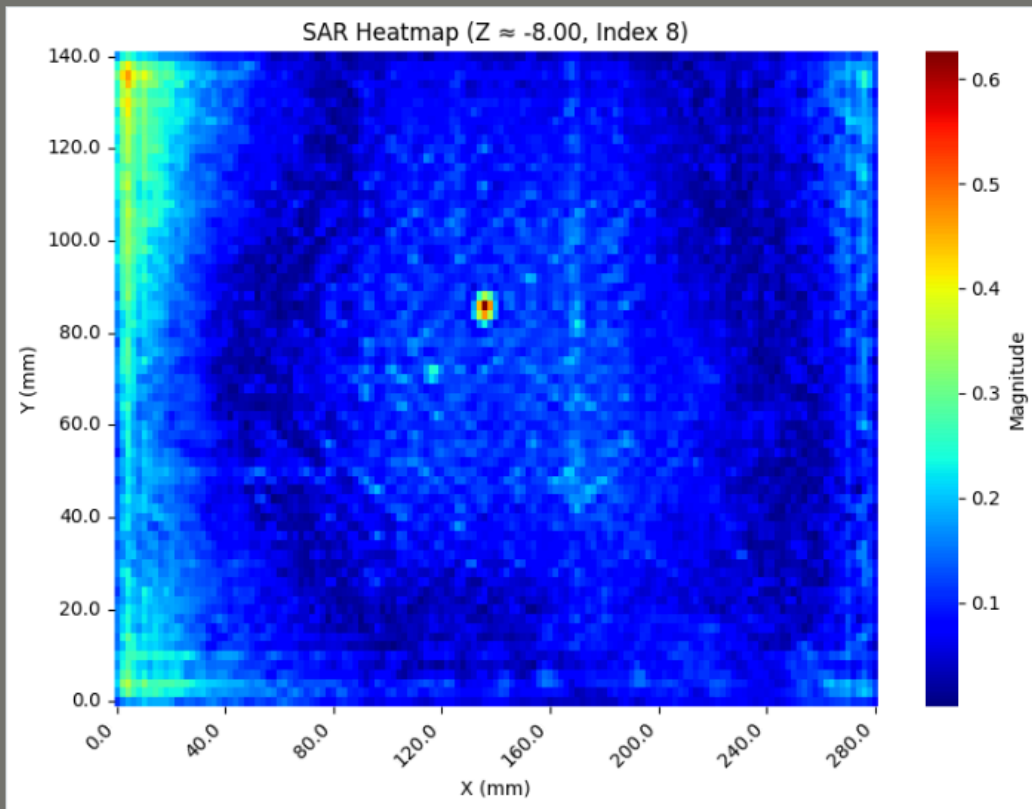

Advisor Meeting Summary

- **Key Discussions:**

  - Dr. Tayeb said that we have the MVP, Minimum Viable Product as an acknowledgement of our progress.

  - Dr. Tayeb directly tested our software with little help or instruction from us.

- **Action Items:**

  - He would like our scans to finish where they started to enable faster follow up scans.

  - He said he would like to have the ability to modify the max z depth and step size after uploading the SAR file without having to re-upload.

  - He said we should bump up the contrast on the text.
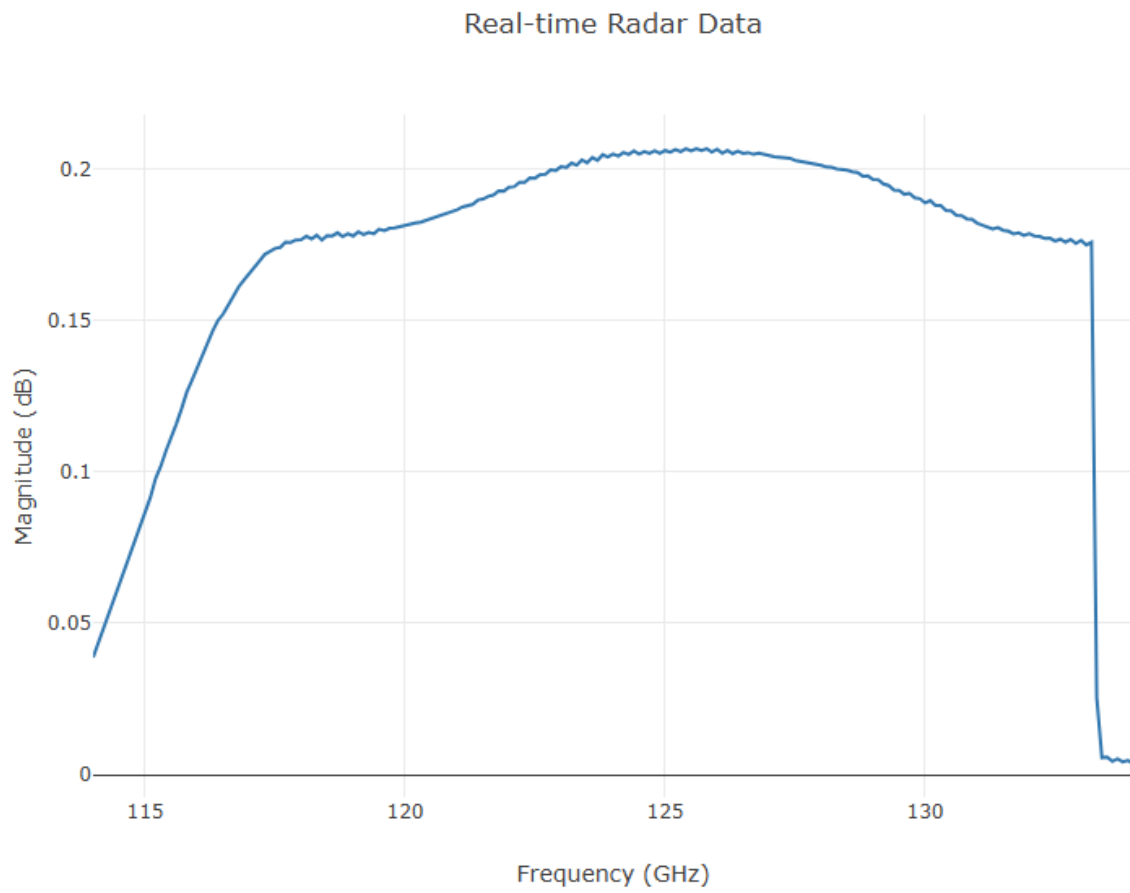
Pictures, Videos, and Mock-ups

UI so far:

SAR results:

3. SAR Heatmap Slice (X-Y Plane)

SAR Heatmap (Z ≈ -8.00, Index 8)

Real Radar Data:

Real-time Radar Data

Video demo:

https://photos.app.goo.gl/CgWNN1Ct32pUncTr6