Matthew Gasper

Github Link: **https://github.com/MatthewEGasper/emStart**

Date: September 21st, 2021
Notes:
- ❖ Worked on assembling a Build of Materials (BOM) for our product with my group so that we could later push it to the engineering department to order.
- ❖ The categories listed are Item name, Purpose, Item Link, Cost, Quantity, and total item cost.

Date: September 23rd, 2021
Notes:
- ❖ Worked on section 4 of the SDD and completed all of it along with additional graphs which coincide with the section.
- ❖ Worked on section 4 of the SRS and completed all of it.

Date: September 28th, 2021
Notes:
- ❖ Worked on the sprint 1 presentation with my group to completion.

Date: September 30th, 2021
Notes:
- ❖ Presented the sprint 1 progress in the form of the previous presentation.

Date: October 5th, 2021
Notes:
- ➢ Received initial hardware from Dr.Lui in order to start programming for said components. Along with the discussed future need for components to eventually test our system.

Date: October 7th, 2021
Notes:
- ❖ Worked on programming the Hack RF SDR in order to transmit an RF signal using the GNU Companion Radio application on a raspberry pi.
- ❖ Successfully transmitted "Never Gonna Give You Up" << Song over the Hack RF SDR as a proof of concept that the components worked. I turned on my phone radio in order to pick up the song and listen.
- ❖ Successfully programmed the RTL SDR on a personal laptop using the GNU radio companion in order to verify its operation and practice SDR GNU radio. It received the incoming song and displayed it as a graph on the PC.

Date: October 14th, 2021
Notes:
- ❖ Worked on starting the test plan documentation in order for future submission as a group.

Date: October 19th, 2021
Notes:
- ❖ Worked on completing the Test plan document with my group in order for submission.
- ❖ Also discussed are future plans for assigning work as limited progress can be made in specific areas due to the lack of hardware available at the moment. I

plan on working on the Raspberry Pi for the ground station in order to send commands to an Arduino for its operation.

❖ I also plan on working on assembling the electrical hardware once received.

Date: October 21st, 2021
Notes:

❖ Worked on revising parts of the SRS and SDD for revision two submissions for next tuesday. Along with preparations for raspberry pi 4 code for the ground control.

Date: October 25st, 2021
Notes:

❖ Offloaded code from raspberry pi 4 to push code to GitHub along with pushing code from personal laptop regarding radio transmission from hack rf and rtl.

Date: October 28th, 2021
Notes:

➢ Presented the section I worked on for the Sprint Presentation. I think it went pretty well at showing our progress as of yet.

Date: October 30th, 2021
Notes:

➢ Made an addition to the RF branch which includes a readme to instruct and individual on how to actually use the files pushed.

➢ Removed and unnecessary .py file which was accidentally added to the branch.

➢ Began looking at connecting members' code in order to figure out how to interface between their code blocks.

Date: November 8th, 2021
Notes:

➢ I spliced coaxial cable in order to attach patch antennas to one end followed by securing it with heat shrink and hot glue.

➢ I tested the fabricated cable antennas in order to ensure proper fabrication (this passed).

Date: November 15th, 2021
Notes:

➢ Worked with Matthew Grabasch to fabricate a mounting plane for the groundstation to later be attached to.

Date: November 16th, 2021
Notes:

➢ Worked with Matthew Grabasch to finish construction of the mechanical assembly for the groundstation onto the mounting plane.

➢ Also worked on finishing the RF transmission of a 1.42GHz signal from an SDR from patch antennas antennas. While also receiving the signal from another path antenna and SDR combo.

➢ It appears that for emulation purposes there will need to be some RF blocking material behind the patch antennas to more accurately replicate the directional behavior of an actual system

➢ It has also been determined that transmitting on the 1.42GHz range may be a bad idea do to the interference it may cause with radio astronomy during tests so the plan is to transmit on 910MHz.

Date: November 23rd, 2021
Notes:

➢ During our meeting with lui it was discussed that the transmission strength of the signal to the ground station should be stronger and sinusoidal.

Date: November 26th, 2021
Notes:

➢ I have created a full template of the Final Demo Presentation slides such as full layout and contents.

Date: November 27th, 2021
Notes:

➢ Made final improvements to section 4 of the SDR and SRS along with extra content which was not included from previous versions.
➢ A plan was also made for objectives to be completed before the presentation.

Date: November 28th, 2021
Notes:

➢ Created a rough draft and structure for the 3 minute video along with the initial makings of the video presentation.

Date: November 29th, 2021
Notes:

➢ Worked on final assembly and fabrication of the rotator to the earth plane mount.
➢ During testing of the robotic arm it stopped operation and would not turn on the front screen.
➢ We have discovered that the linear regulator of the robotic arm is most likely fried and have emailed the company for a replacement and schematic of the PCB.
➢ We have also developed a possible plan for replacing the PCB with our own design (most likely for next semester).
➢ Pictures were taken of individual systems for use within the presentation demo and video.

Date: November 30th, 2021
Notes:

➢ Worked on capturing demo videos for all subsystems of the project for presentation on thursday.
➢ Worked on putting together the presentation for the final demo.

Date: December 1st, 2021
Notes:

➢ Put final touches onto the Final Demo presentation.
➢ Rehearsed the presentation with the group in order to ensure smooth transitions and time requirements.

Date: December 2nd, 2021
Notes:

➢ Presented the Final Demo and answered questions.

Date: January 17th, 2022
Notes:
- ➢ Talked with our product owner Dr.Lui in order to determine our new objectives for this semester

Date: January 24th, 2022
Notes:
- ➢ Continued to talk with our product owner Dr.Lui in order to determine our new objectives for this semester and flesh out a lot more details relating to our system
- ➢ We also looked to develop the BOM for our project ASAP for order in the near future.

Date: January 25th, 2022
Notes:
- ➢ Started working on Arduino code for the R2PROG program along with the research that is required to perform such programming activities.

Date: January 26th, 2022
Notes:
- ➢ Started working on Arduino code for the R2PROG program along with the research that is required to perform such programing activities.

Date: February 1st, 2022
Notes:
- ➢ Final confirmation of objectives with Dr.Lui along with shown progress as of yet with the BOM and programing.

Date: February 4th, 2022
Notes:
- ➢ Modified and Updated the SRS and SDD to meet the current objectives of the project.
- ➢ Created template for the Sprint 1 2022 update presentation and started adding content.

Date: February 8th, 2022
Notes:
- ➢ Presented Sprint 1 2022 presentation
- ➢ Collected all received hardware for the project.

Date: February 15, 2022
Notes:
- ➢ Talked with our product owner Dr.Lui in order to determine our new objectives for this semester

Date: February 17, 2022
Notes:
- ➢ Continued to talk with our product owner Dr.Lui in order to determine our new objectives for this semester and flesh out a lot more details relating to our system
- ➢ We also looked to develop the BOM for our project ASAP for order in the near future.

Date: February 22, 2022
Notes:

> ➢ Started working on Arduino code for the R2PROG program along with the research that is required to perform such programming activities.

Date: February 24, 2022
Notes:

> ➢ Started working on Arduino code for the R2PROG program along with the research that is required to perform such programing activities.

Date: March 1st, 2022
Notes:

> ➢ Final confirmation of objectives with Dr.Lui along with shown progress as of yet with the BOM and programing.

Date: March 3rd, 2022
Notes:

> ➢ Modified and Updated the SRS and SDD to meet the current objectives of the project.
> ➢ Created template for the Sprint 2 2022 update presentation and started adding content.

Date: March 8th, 2022
Notes:

> ➢ Presented Sprint 2 2022 presentation
> ➢ Collected all received hardware for the project.