**Github Link:** [**https://github.com/MatthewEGasper/emStart**](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.