

Overall Summary:

During the last 2 weeks our team has primarily shifted our focus towards finishing soldering our prototype boards that arrived last week and getting them functional. We have already got one of our microcontroller boards constructed and functioning as expected in testing so far. We are also making progress on the cellular connection modules we have ordered. We just need to start paying for a subscription to the ISP.

Individual Contributions:

These are the descriptions for individual contributions for the two weeks of this reporting period: 3/1-3/15

Anastasia Golter: These past two weeks, we worked to make progress on our PCB boards. I received machine shop training from Lee and requested key card access to the shop in coover. I also learned how to solder surface mount parts to a PCB with solder paste. Finally, I went to a hardware store and picked up some vinyl tubing, and I have started to consider the structural component of our project.

Bi-weekly total: 8 hours

Nicholas Stasi: This week I primarily worked on soldering the two boards that I designed with Chloe and Emily so that we can start using them to test. We had some issues with the solder paste with the Bluetooth module, but we ended up getting it soldered. Next week I will revisit the boards and try to debug any issues with them and get them ready for testing.

Bi-weekly total: 8 hours

Emily Kinne: These last two weeks our PCB boards arrived so I learned how to solder on all of the surface mount components with solder paste and the oven. I also got machine shop training to be able to work in the shop with some of the big tools there. Andy taught me how to flash the microcontroller chip from and hopefully when all the components are on the boards we can begin testing.

Bi-weekly total: 8 hours

Zachary DeMaris: Worked with Jack to get the FONA 808 cellular module working. Soldered the header pins onto the board and wired everything to the Arduino Uno. After setting up the hardware we worked with the adafruit library to get the cell module working. Learned more about the serial protocol for the cell module.

Bi-weekly total: 8 hours

Jack Seiter: Worked with Zach on getting cellular service working with the FONA 808 and Ting, reading the serial protocol, and modifying the library abandoned by Adafruit. I learned how to assemble embedded systems. I worked on getting the FONA 808 to work with a Raspberry PI, however I encountered some unique problems with the default configuration of the PI and have been working on resolving them.

Bi-weekly total: 10 hours

Andrew Koenen: I worked on soldering boards for both the sensor and Bluetooth module and trying to flash the code to have the Bluetooth module work. I also had to get machine shop training so that I could use the ovens and worked on some code to mess around with multiple temperature sensors on one I2C wire.

Bi-weekly total: 12 hours

Pending Issues:

We still have yet to finish soldering all the boards and have had some issues using solder paste such as pin bridging and not getting a solid solder joint. We plan to have these issues resolved by the next bi-weekly status report. Also, one large pending issue we have is with the possibility that we will not have access to our lab due to CoronaVirus concerns. We have several team members on vacation during spring break, the risk being stuck where they are in the event there is a travel ban on flights.

Plans:

We plan on getting the FONA 808 operational experimentally after the break so that we can start writing code for it. Once this is complete we will experiment with the PI to test sensors with it. Other plans for the team include flashing firmware onto the newly soldered boards and entering the testing phase. Another aspect of the project that is also in development is the structure. Tubing has been purchased and the structural side of the project is being brainstormed. We plan to begin prototyping with waterproofing and vinyl tubing when our schedules permit.