

EE CprE 491 – May 21 - 27

MicroCART Senior Design Team

Week 10 Report

October 19 - October 25

Faculty Advisors: Phillip Jones

Team Members:

Alex Bjerke — *Project Manager*

Amith Kopparapu Venkata Boja — *Embedded Software Lead*

Theodore Davis — *Embedded Hardware Lead*

Grayson Goss — *Technical Lead | CAD Design Lead*

Hannah Mohamad — *Team Webmaster*

Russ Paulsen — *Ground Control Lead*

Alfonso Raymundo — *PCB Design Lead*

Trent Woodhouse — *High-Level Software Lead*

Past Week Accomplishments

- Created basic UI window for ground control.
- Setting up a prototype schematic for pins layouts

Pending Issues

- Test Station - Design research + Sensor decisions
- Coding on the microcontroller

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Alex	Made Design Document revisions. Discussion with Trent and Amith about communication packets to make sure we're on the same page. Working on a 3-way connection program in C using 3 different terminals where one terminal acts as the middle-man.	7	39

Alfonso	Worked with Theo on the Pin Layouts. Made the Pin layout v1 & v1_night. Edited the Lightning Talk 3_Technical Challenges video.	10	45
Amith	Read up the datasheet on the I2C module for sensor data communication and UART module for ESP32 communication. Worked on the lightning talk with the team.	5	34
Grayson	Discussed Test Station features with Russ. Continued looking into microcontroller shields for Feather (both for drone and test station). Researched potential variations on current test station design. Worked on FreeCAD model for new test station design (preliminary. unfinished)	10	49
Hannah	Worked on our team website and got help from Trent. Worked on our reports and lightning talk with the team	6	28
Russ	Continue to work on modeling and designing test station and figuring out how to best add in sensors	6	28
Theodore Davis	Read through parts of the SAMD51 datasheet. Played with a 6DOF sensor. Created a pin assignment spreadsheet with fonsy.	8	33.5
Trent	<i>(In "Plans for Coming Week" section, please put plans you (or your group) have)</i>	8	31

Plans for Coming Week

- Embedded software - Amith, Theo
 - Write code for ESP32 to echo data received through uart/wifi
 - Write some initial register configuration set up for the I2C module and the UART module.
- Ground Control - Trent, Alex
 - Implement websockets between the C server and JavaScript UI
 - Work on development of a 3-way communication program where one program is the middleman between the other 2. Doing this locally by binding to different ports
- Drone Embedded PCB Design - Alfonso, Theo
 - Add ESC to Pin Layout image
 - Work on Schematic in kicad
- Test Station - Alfonso, Russ, Grayson
 - Ask Jones on what he wants on the TS (discussion to happen this week)
 - Look for those parts
 - Start on TS Design (if TS needs to be redesigned)
 - Discuss with Russ about potential for redesign
- Embedded software - Amith

- Look into the setup of the I2C module on the microcontroller to read data from the IMU.
 - Read more about the PWM module in the datasheet.
- CAD Design - Grayson
 - Postponed until further notice.