EE CprE 491 – May 21 - 27
MicroCART Senior Design Team
Week 9 Report

October 13 - October 18
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

- Finalized Microcontroller component
- Finalized PCB selection

Pending Issues

- Ground Control - Deciding a design route to follow for allowing C and Javascript code to work nicely together
- Test Station - Design research + Sensor decisions

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Alex	With Trent, discussed ground control design. Began work on creating a simple program that focuses on a 2-way connection/communication that will be similar to what the drone and ground station will be doing. Continuing to look into good ways for incorporating a javascript GUI that would interface with the C program.	6	32

Alfonso	Finalized PCB Selection with Theo & Grayson. We found the datasheets & schematic for the Feather M4, ESp32 Wifi + Bluetooth & FeatherWing. Helped with weekly pptx. Next step is to use the datasheets to find what pins go where & set up a Prototype Schematic.	6	35
Amith	Worked on understanding the ATSAMD51 Cortex M4 by reading the datasheet.	4	29
Grayson	Continued CAD design of chassis. Researched dual extrusion material design. Researched potential Electronic Speed Controllers (given weight parameters). Helped finalize part selection for MCU (Feather chosen for MCU).	7	39
Hannah	Learned how to upload files (pdf) into our website. Worked on finding ways to make our website more presentable. Had to watch a tutorial for html beginners since the website is based on html code. Need to get help from Trent who is an expert in html environment.	4	22
Russ	Continue to think of designs for the test station to make the sensors work well with the design. Opened past team's design in inventor and building on their design.	5	22
Theodore Davis	Finalized PCB selection. Found datasheets and schematic files for each device. Worked with some examples on a 6DOF sensor I had laying around and skimmed the ATSAMD51 datasheet.	6	25.5
Trent	(*In "Plans for Coming Week" section, please put plans you (or your group) have*)		15

Plans for Coming Week

- Ground Control - Trent, Alex
  - Figure out good ways to for a javascript GUI to interface with a running C program.
  - Potentially implement this and analyze pros/cons of the design decision
- Drone Embedded PCB Design - Alfonso, Theo
  - Set up a Prototype Schematic with pins setup
  - Make Prototype 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
  - ○ Continue with last two drone designs
- Website - Hannah
  - ○ Learn and understand more on how to make our website presentable
  - ○ Discuss with Trent to get help with our website.