

EE/CprE/SE 491 - WEEKLY REPORT 4

October 4th - October 10th

Group number: may25-32

Project title: MicroCART mini: Microprocessor Controlled Aerial Robotics Team

Client &/Advisor: Dr. Phillip Jones

Team Members/Role:

- Daniel Zaucha: Client interaction, Communications Lead
- Jonah Upah: Team Secretary, Meeting Organizer
- Ryan Lowe: Software Lead
- Yi Hang Ang: Hardware Design Lead

○ **Weekly Summary**

Over the course of this week we have started going through the [MicroCART bootcamp document](#) and as a group have made progress on it. We have watched the tutorial videos, installed the virtual machines, and begun going through the lab.

Some problems that came to our attention during our meeting phases were difficulties with MAKE files and “clogged” drones.

Solutions: MAKE files were a problem as it has been a while since we last used them and in order to get around this we have gone through a few tutorials and made a list with links to resources to learn how to use them again in our first document for next year’s group.

○ **Past week accomplishments**

- Daniel Zaucha
 - Attended Thursday, Saturday, and Tuesday work sessions
 - Began working on introductory documentation for next year’s Project group (Where to look for what, how to use certain sub-projects)
 - Continued working on Lab 4 for MicroCART introduction
 - Began flight training

- Jonah Upah
 - Weekly meeting notes with Dr. Jones.
 - Cheap drone practice
 - Made progress on MP-4.
 - Understanding the GUI.
 - Using the test bench.
 - Learning the code base on the VM
 - Code beyond 488.
 - Learning some basic workflow on VM
- Ryan Lowe
 - Went through MicroCART git repo wiki to get a better understanding of the project
 - Working on getting the virtual machine set up on personal laptop to work on MP-4
 - Watched videos of past MicroCART teams
 - Looked through lecture slides for CPRE 488
- Yi Hang Ang
 - Attended the weekly team meeting, and the meeting with Dr. Jones.
 - Helped with the usual documentation and discussion assignments.
 - Read through the introduction section of the project
 - Watched the MicroCART introduction of past teams
 - Watched the Introductory video on PID Control
 - Read through the lecture slides on PID Control
 - Did some basic setup for Lab 4
 - Flight testing with basic Quadcopters
- **Pending Issues/tasks**

- MicroCART Mini Bootcamp - Project introduction document started by previous years' groups
- Declare individual specializations after having gone through MicroCART Bootcamp documents
- Attempt to complete Lab 4 for a better understanding of fine-tuning PID Controls
- Jonah messed up the firmware on drone 6. The drone was powered off during flashing. Also having trouble bootloading to drone 11, could be user error.
- Need to take a step back on MP-4 to better understand PID controllers

and how to tune them.

- How to work on projects with a large existing code base.

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Daniel Zaucha	<ul style="list-style-type: none">● Documentation, Flight Training, Lab 4 work	8	16.5
Jonah Upah	<ul style="list-style-type: none">● Took Dr.Jones meeting notes	7	15
Ryan Lowe	<ul style="list-style-type: none">● Looked through lectures and watched videos. Was not able to attend lab sessions over the weekend to work on lab 4 too much yet.	6	14
Yi Hang Ang	<ul style="list-style-type: none">● Lecture, Week 1 Introduction videos/slides, Weekly meeting, Lab 4 setup, Flight training	8	16

○ **Comments and extended discussion**

- Allocate 10-15 hours maximum (about 2 weeks) to complete Lab 4. Do not get stuck on Lab 4 if someone is not able to complete this, the solution code is in the Git Repository.

○ **Plans for the upcoming week**

Group Plan

- Work through the established project document: MicroCART Bootcamp.
- Begin learning/practicing flight with cheaper drones.
- Finish/Make more progress in Lab 4.
- PID research.
- Start to look into The non 488 GUI and flight controller.

o **Summary of weekly advisor meeting**

Dr Jones helped us figure out further where we will need to go in regard to long-term milestones, while also giving us advice on how to better understand the material we are going over while learning about the CPRE 488 lab MP4 which will be at the core of the rest of our project