

EE/CprE/SE 492 - Status Report 7

April 17th - April 30th 2025

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: Hardware Lead, Team Secretary
- Ryan Lowe: Technical Advisor
- Yi Hang Ang: Software Lead

Weekly Summary

The week of April 17th - 23rd is the second deployment and demo week of MP4. During this week they were expected to be done with part one of the lab and moving onto part 2 of the lab, which consists of creating their own custom code for a controller to control the crazyflies, as well as working on various extra credit options ranging from writing a firmware script for the drone to be controlled remotely manually, writing a fix to the firmware to fix a virtual machine crashing bug, to a completely autonomous flight.

Past week accomplishments

- Daniel Zaucha
 - TA for lab
 - MP-4 Updating

- Jonah Upah
 - TA
 - Poster

- Ryan Lowe
 - MP4 Deployment
 - In lab for Thursday and Friday lab sessions, and Monday as well
 - Design Document Spring
 - Poster
 - Updated website (Still going to update some more)

- Yi Hang Ang
 - TA for lab
 - Poster
 - MP4 feedback

Pending Issues/tasks

- 492 Poster
- MP4 Feedback Updating

Individual contributions

NAME	Individual Contributions	Hours this week	HOURS cumulative
Daniel Zaucha	<ul style="list-style-type: none"> ● MP4 Deployment & TA Support ● MP4 FAQ Updating 	9	163
Jonah Upah	<ul style="list-style-type: none"> ● TA ● Poster 	12	166
Ryan Lowe	<ul style="list-style-type: none"> ● MP4 TA ● Design Document ● Poster 	12	145
Yi Hang Ang	<ul style="list-style-type: none"> ● TA ● Poster ● MP4 feedback 	14	150

Plans for the upcoming week

- Daniel
 - Design Poster
 - Work on implementing feedback
 - Documentation
- Yi
 - Presentation
 - Documentation
- Ryan
 - Finish assignments due Sunday
- Jonah
 - 492 Presentation/poster

- Make changes to the VM, and lab doc
 - Look at feedback.
- Group Plan:
 - Prepare to work on given feedback

Summary of weekly advisor meeting

The deployment itself has gone reasonably successfully, with all of the software and modifications that we made to MP-4 being in working condition. While some of the drones initially had some software difficulties in terms of being able to function, most of these drones were able to be recovered, just in time since a lot of the other drones have started to have hardware failures such as the battery connecting wires breaking off or becoming too loose, after the lab had begun. The MP-4 lab document has been updated and is much improved in terms of details and navigability. Some feedback and areas of note for the document itself have been added to the document in a timely manner, and so far our conduct as TAs for the first week has met expectations. +

Website:

<https://sdmay25-32.sd.ece.iastate.edu/#teammembers>

Tasks / Issues:

1. **Test-stand**: VM crashes if Ctl-C is used to shut down MP-4, while the Test-stand is plugged in.
(There is a potential fix)
2. **New Batteries**: Something appears to be different with the new batteries, making it a bit of a pain to plug them into the quadcopters (Haven't heard of this being an issue for students)
3. **Broken wires**: A lot of the drones that had been working have stopped working due to the stresses of connecting and disconnecting the batteries having caused the wires to break off.
(Have to find wires from online that can be resoldered by ETG; ETG has run out of the typical wires that we had been using)

- Logging blocks - check if c code is good or not
- Create Wiki FAQ
 - Blue light fix
 - Problems in MP4 doc & where to check in it
 - Ie 12 logging blocks
- Update part 2 template to include test stand variables in it
- Update bitcraze client on deploy
- Restart quad in 10 seconds issue - diagnosis and fix
- Look into Stack Smashing - find team and diagnose (Switched drones & changed the VM back into an immutable copy(original))
- Some VMs in the back of the lab were mutable - Figure out how this and the missing VM happened (Look into which computer & potential workaround)
- Drone 5 Motor issue / Propellor test fail research
- Obtain drone repair parts: