

Senior Design May 24, 32

MicroCART Senior Design Team

Week 16 Report

December 5 - December 15

Faculty Advisor: Philip Jones

Members:

Justin Kenny - Scribe

Steve Frana - Technical Lead

Trevor Friedl - Project Manager

Travis Massner - UI/UX Designer

Clayton Kramper - Technical Lead

Will Maahs - Team Organization Lead

Links

- [Shared Google Drive Folder](#)
- [Tentative Project Gantt Chart](#)
- [MP4 Timing Data](#)

Summary of Progress this Week

We have divided into three groups of two and begun to work three separate tasks: rewriting the crazyflie adapter and crazyflie groundstation using cflib, getting the Pycrocart GUI slotted into the infrastructure, and improving error handling for the current GUI. We have also begun designing a new packet structure to be less crazyflie-dependent and to send logging data via the TCP connections rather than writing to files and sending the path.

For the groundstation rewrite, we removed the opening and closing of the files as suggested and transitioned to a flush system instead. We also changed the crazycart shell script to use the new cflib groundstation instead of the old one. This seems to have improved the logging timing to about the level of the old system. We also added more comments to our code and cleaned up the code base.

Pending Issues

- Should we continue working on MP4?

Individual Contributions

Member	Contributions	Weekly Hours	Total Hours
Justin Kenny	<ul style="list-style-type: none">● Removed open/closing of files from the groundstation● Changed shell script to run new groundstation● Handled killing process in the groundstation better	8	88
Steve Frana	<ul style="list-style-type: none">● Finished packet project● Tested logging packets on a simple framework● Made conclusive findings about packet timing	12	80
Clayton Kramper	<ul style="list-style-type: none">● Final Design Presentation● Was able to get TOC from backend● Combo boxes populated from TOC	7	70
Travis Massner	<ul style="list-style-type: none">● Final Design Presentation● Continued looking through current GUI code for issues● Using QtCreator to debug current GUI	2	51
Will Maahs	<ul style="list-style-type: none">● Final Design Presentation● Was able to get TOC from backend● Combo boxes populated from TOC● Started working on logging tab of pycrocart	11	76
Trevor Friedl	<ul style="list-style-type: none">● Continued to trace issues resulting in CrazyRadio disconnect● Read through the FlyPi wiki a bit more for better understanding of the PCB layout	3	52

Comments and Extended Discussion

Plans for coming Week

- Make Pycrocart GUI MP-4 viable and determine how to slot it into infrastructure. **(High)**
- Figure out how to handle baked in cflib commands
- Edit current GUI to improve error handling with backend interactions. **(High)**
 - Moving forward -> getting everything integrated into our branch soon
 - Get a reasonable gauge on the amount of error that still needs to be fixed
 - Work towards documenting changes that have been made
- Follow last year's instructions to get Raspberry Pi set up for the FlyPi **(Medium)**
- Begin to consider changes to make for MP-4 lab documentation for improvements **(Medium)**
 - Discuss with team what went well and what seemed to cause the most problems
 - Document notable changes to the MP-4 process, figure out how those changes will merge into the current MP-4 document
 - Formulate a plan for gaining student/client feedback on the changes made to MP-4

Winter Break Goals:

- Get one of the Raspberry Pi's running in some capacity (Justin & Steve)
 - Reach out to Grant
 - Ask Dr. Jones for references
- Determine how to export a VM image and post it to the git repository.
 - Git Artifact
 - Git Tags
- Finish slotting in the logging tab of PycroCart GUI (Will).
- Test MP4 using the new groundstation.
- Crazyflie heartbeat test.
- Documentation.
 - Bootcamp