

Senior Design May 24, 32

MicroCART Senior Design Team

Week 14 Report

November 14 - November 27

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](#)

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 have finished the rewrite and have begun testing if the component has any significant bugs when performing operations necessary for MP4. Parameter operations, controller usage, and logging are faster than they were previously. The process seemingly never crashes and never hangs like the old components did. The only major outstanding bug is an issue with logging setpoints from the drone, which behave unexpectedly, although this may be an issue with the drone and not with the adapter.

Pending Issues

- Approval for the new packet structure

Individual Contributions

Member	Contributions	Weekly Hours	Total Hours
Justin Kenny	<ul style="list-style-type: none"> • Worked Final Design Document, Presentation, and website. • Debugged adapter logging issues • Tested adapter with MP4 specifications. • Worked on new Microcart packet structure 	12	70
Steve Frana	<ul style="list-style-type: none"> • Reading through cflib documentation • Working on cflib_groundstation • Logging • Worked on new packet designs 	6	52
Clayton Kramper	<ul style="list-style-type: none"> • Continued work on pycrocart • Created Python version of "frontend_common" • Achieved working TCP socket connection, very bare bones 	3	50
Travis Massner	<ul style="list-style-type: none"> • Continued looking through GUI code • Looking through backend code 	3	44
Will Maahs	<ul style="list-style-type: none"> • Rewriting pycrocart to slot frontend in to new pycrocart GUI • Finished rewriting micro cart frontend common • Finished writing log and paramtracking files and tested in frontend main (instead of proto connection) • Continued work on pycrocart_2.1 	6	55
Trevor Friedl	<ul style="list-style-type: none"> • Recorded YouTube video assignment • Worked on tracing crashes from GUI that causes radio connection issues • Read into CrazyRadio 2.0 Documentation and Firmware Builder Specs • LogFileWorker Scheduling -> Tracing Issues that prevent graphing of points 	5	45

Comments and Extended Discussion

Plans for coming Week

- Make Pycrocart GUI MP-4 viable and determine how to slot it into infrastructure. **(High)**
- Take time as a team to specifically clarify how to send commands to the new cflib adapter, from new pycrocart frontend **(High)**
- Figure out how to handle baked in cflib commands
- Edit current GUI to improve error handling with backend interactions. **(High)**
 - Work on adding debugger plans & implementation into frontend code
 - Track connections from backend -> frontend and the other way around
 - Look into revising/improving node calculations within the backend
- Combine crazyflie groundstation and crazyflie adapter using cflib. **(High)**
 - Continue testing log file commands via CLI and GUI.
 - Fix setpoint logging issue
 - Increase code comments, clean up unused code, and create wiki pages/YouTube videos to document adapter internal workings
- Request MicroCART user on lab computer **(High)**
- Begin to consider changes to make for MP-4 lab documentation to push towards improvements **(Medium)**
- Add team information into the team website **(Low)**