

Senior Design May 22, 43

MicroCART Senior Design Team

Week 18 Report

March 01 - March 07

Faculty Advisor: Philip Jones

Members:

Ryan - System architect

Zach - Groundstation lead, co system architect

Reid - GUI team lead, Test station sub-team

Ellissa - GUI sub-team

Colton - Git manager, Firmware lead

Carter - Web Master, OptiTrack Lead

Brandon - Project Lead, Test Station lead

Links

- [Shared Google drive folder](#)
- [Order list](#)
- [Crazyflie inventory](#)

Summary of Progress this Week

- Ordered test PCBs and components for all PCBs - Reid
- Got the GUI development rolling, installed QT creator IDE on dev computers. Working with Ellissa to take ideas from earlier in the semester and implement. - Colton, Ryan
- Evaluated using the 2021 team's GUI over the 2017 GUI. Determined it would not be viable as their ground station is intended for IP connected devices and the crazyflie uses a different communication that is already developed for in the older ground station. Additionally, the 2021 GUI uses a javascript web based application which would not be able to call CLI commands in the current implementation. - Colton
- Read through the 2017 GUI code in QT. Learned about the signal and slot design pattern. Added crazyflie worker class to GUI which will run in a separate thread from the UI and handle sending setpoints, setting parameters, and getting logging information from the crazyflie. - Colton

- Finalized printing plans with the team as well as prototype designed PCB casing - Brandon

Pending Issues

- -----DR. JONES ATTENTION REQUIRED-----
No longer need temp_crazyflie_repo (<https://git.ece.iastate.edu/danc/temp-crazyflie-repo>), but don't have permission to delete it. Jones needs to delete it, settings > general > advanced > delete. I created this repo while troubleshooting.

MicroCART_Crazyflie_Firmware repo can also be deleted (https://git.ece.iastate.edu/danc/MicroCART_Crazyflie_Firmware), this was a pre-existing repo that was blank and unused, currently only has a copy of the stock Crazyflie firmware and will not be used - Colton

Individual Contributions

Team Member	Contributions	Hours	Total Hours
Brandon Cortez	- Began soldering of nanos with Reid - Finalized printing plans with rest of team - Began documenting printing process in the repo wiki	4	104
Reid Schneyer	Submitted orders for PCBs & Components	4	98
Colton Glick	- Revise Lab doc - Getting GUI development environment working (QT Creator) - Learned the pub sub signal passing structure that the GUI uses - Added basic data plotting with the QCustomPlot, will be able to update these plots in real time - Created the crazyflie worker class which will handle crazyflie specific communications such as sending setpoints, setting params, and getting logging data from the crazyflie	15	141
Ellissa Peterson	- Added to GUI navigation tab	5	78
Ryan Hunt	-setup GUI development with Qt	8	98

	-researched graphs with Qt -began working on GUI		
Carter Irlmeier	- Set up new lighthouse system - Put together new crazyflies - Modify and test python script for synchronized drone work - Research lighthouse ideas for demo	11	70
Zachary Eisele	-worked on adapter commands needed for gui -researched and planned on what is needed for gui -made documentation for running ground station for first time and how to use cli commands	7	148

Comments and Extended Discussion

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Plans for coming Week

- Test Stand Control Board assembly documentation - Reid
- Test Stand printing and printing documentation - Brandon
- Implement send setpoint in GUI - Ryan
- Implement getting and setting params through GUI - Ellissa
- Improve communication between the GUI and the crazyflie - Colton