

Senior Design May 22, 43

MicroCART Senior Design Team

Week 14 Report

February 01 - February 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

- Created first iteration of lab document - Ryan
 -  Lab Doc ver1
- Addressed team concerns regarding roll/pitch drone mount and test stand flaws, printed new prototypes to fix issues, ready for testing - Brandon
- Zach and Colton worked together to achieve full communication between the ground station and the crazyflie. Ground station sends an attitude rate packet to the crazyflie, which then commands the controller to move the drone at a constant rotation speed. - Colton, Zach

Pending Issues

- Currently only have 1 working 2.0 crazyflie. Need to purchase new 2.1 crazyflies ASAP. Who do we need to talk to? - Colton

- -----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

- Need to install virtual box on 2041 lab computers. Emailed ETG asking for assistance. - Colton

Individual Contributions

Team Member	Contributions	Hours	Total Hours
Brandon Cortez	<ul style="list-style-type: none"> - Made alterations per Colton's concerns on the pitch/roll drone mount, designed and printed a new prototype remedying issues, ready for testing. - Addressed Jones and team feedback on test stand issues, designed and printed a new prototype of test stand ready for testing. 	6	81
Reid Schneyer	Updated order list, assisted Brandon with printing	4	78
Colton Glick	<ul style="list-style-type: none"> - Created attitude rate setpoint protocol and decoder - Crazyflie responds to usb request for DFU mode but does not reboot correctly - Worked with Zach to debug attitude rate setpoint protocol. Ground station must send a new packet at least every 500ms. - Still Having trouble getting the crazyflie to jump to the bootloader from firmware. 	9	98

	Currently resets into a failed self test state.		
Ellissa Peterson	-Spent time exploring the CrazyFile adapter technology to figure out the possibilities for the use of other technologies in the GUI -Set up BitCraze VM	9	59
Ryan Hunt	-Started writing the lab document	8	69
Carter Irlmeier	- Just uploading documents to website, lack of work due to getting adjusted to first week of new job	1	53
Zachary Eisele	-Send attitude rate setpoint packet from ground station -modified cli commands to include time that a given setpoint remains active	8	109

Comments and Extended Discussion

- Jones wants students to create their own general PID struct, however with the logging and parameters this will cause an issue if they are not the same name as expected in that. One possible solution I see to this is to give students PID struct with names that match logging and params. Need Jones' thoughts on this.

Plans for coming Week

- Test new stand and drone mount designs for potential flaws and fixes - Brandon
- Create connection to send data from the test stand sensor to the ground station - Brandon/Reid/Zach(?)
- Continue working on DFU update mode, potentially reach out to Bitcraze dev for advice on jumping to bootloader. - Colton
- Work with ETG on getting virtual box installed on lab computers. - Colton