

sdmay18-17 MicroCART (Microprocessor Controlled Aerial Robotics Team)

Week 14 Report

Reporting Period: 1/16/18 - 1/28/18

Team Members

Blake Pries -- Communications Lead

Dane Larson -- Ground Station Lead

Matthew Kelly -- Documentation Lead and Webmaster

Tyler Imboden -- Quad Software Lead

Jakub Hladik -- Test Lead

Kyle Trost -- Team Lead

Peter Thedens -- Repository Lead

Austin Rohlfing -- Controls Lead

Summary of Progress this Report

Generals Tasks for entire team:

- Immediate Deadlines

Task	Deadline
Crazyflie Control Through Backend	February 12th
Vivado Port	March 5th
Manual Assist Mode	February 26th
Simulator	March 9th
Update GUI (Initial Changes)	March 9th
Quad Assembly + Testing	March 9th (depending on parts arrival)
Dual Quad	Approximately 2-3 weeks after fully functional second Quad.

Quad Software - Tyler and Kyle:

Summary for progress this report:

- Started making tests for individual components of the hardware
- Started debugging, I suspect the problem in in the pwm module

Pending Issues:

- UART is not enabled/ working I need to figure out what is wrong before I continue with the component tests in sdk.
- Need to fix pwm module and further test components

Plans for upcoming reporting period:

- Building new quad
- Get UART working on the quad and possibly fix pwm module

Controls - Austin and Blake:

Summary for progress this report:

- Added doc for battery discharge measurement
- Added doc for motor+rotor moment measurement

Pending Issues:

- Find Ian's hardware/software for rotor transient response (photointerrupter?)

Plans for upcoming reporting period:

- Remove broken/old Simulink models from git repo (or make 'deprecated' directory, etc.)
- Document more measurement procedures
- Contact Andy about yaw unwrapping

Testing - Peter and Jakub:

Summary for progress this report:

- Successfully upgraded to the latest version of JSBSim (Jake)
- Rewrote JSBSim library "rebuild from source" script, updated Makefile of the MicroCART simulator (Jake)

- Rewrote main of the MicroCART simulator to reflect the newest library changes (Jake)
- Started implementation of controls in code (Jake)
- Implemented USB controller reading functions (Jake)
- Fixed issue with size of Gitlab server (Peter)
- Worked on Makefile documentation (Peter)
- Look at infinite loop tests (Peter)

Pending Issues:

- Implementation of controls incomplete (Jake)

Plans for upcoming reporting period:

- Finish implementing controls in the simulator code (Jake)
- Work more on Makefile documentation (Peter)
- Get merge request merged (Peter)
- Find place for information received from Brendan (Peter)
- Sort through MATLAB files related to "DataAnalysisTool" (Peter)

Ground Station - Matt and Dane:

Summary for progress this report:

- Started improving multi-trackable support. (Matt)
- Started multiple VRPN tracker support in the backend. (Matt)
- Completed issue 43 with regards to crazyflie. (Matt)
- Working with the socket for adapter and also looked into how to interface with crazyflie groundstation (Dane)
- Testing socket and getting crazyflie working (Dane)

Pending Issues:

- How to talk from adapter to crazyflie groundstation, will stdin work? (Dane)
 - Initially going to be building toward stdin until until I run into problems

Plans for upcoming reporting period:

- Fly crazyflie and quad together (video will be provided). (Matt and Dane)
- Start on GUI updates for these changes. (Matt and Dane)
- Further update backend modifications to support future expandability rather than just supporting crazyflie. (Matt)

Name	Role	Contribution	Hours worked	Total
Peter Thedens	Repository Lead	Fixed issue with gitlab server, elaborated makefile guide, finished looking at	5	83
Austin Rohlfing	Controls Lead	Finished reading thesis; added battery doc and equiv. moment doc (in progress)	8	93
Kyle Trost	Team Lead		8	136
Matt Kelly	Documentation Lead	Finished backend to adapter communication. Addressed issues in merge for issue 28.	16	118
Dane Larson	Ground Station Lead	Adapter work	9	88
Jakub Hladik	Test Lead	Updated jsbsim to the newest version, updated script for compiling jsbsim lib and makefile for the sim. Implemented usb controller reading functions	9	89
Tyler Imboden	Quad Software Lead	Started taking notes for how I believe we need to implement manual assist mode	8	92

		Also reviewed parts list and sent off to purchaser		
Blake Pries	Communications Lead			