

## **sdmay18-17 MicroCART (Microprocessor Controlled Aerial Robotics Team)**

Week 16 Report

Reporting Period: 2/5/18 - 2/11/18

### **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:

- Build and setup second quadcopter.
- Recalibrate camera system, better establish documents on where to find resources.

Quad Software - Tyler and Kyle:

Summary for progress this report:

- Got uart successfully working
- Tried switching floating point to “hard” as opposed to “soft” running into issues with that
- Still no tests in place to check hardware changes

Pending Issues:

- See above

Plans for upcoming reporting period:

- Get “Hard” floating point working with build
- Finish tests for hardware changes

### Controls - Austin and Blake:

Summary for progress this report:

- Found optical tachometer
- Read BYU quad control research

Pending Issues:

- End-of-semester goals not yet well defined/understood

Plans for upcoming reporting period:

- Plan and timeline LQR model design

### Testing - Peter and Jakub:

Summary for progress this report:

- Worked on Makefile readme (Peter)
- Continued work on simulation visualization (Jake)

Pending Issues:

- Need Jakub to review merge request (Peter)
- Finish simulation visualization (Jake)

Plans for upcoming reporting period:

- Finish Makefile readme and open Merge request (Peter)
- Work on Data Analysis Tool (Peter)
- Possibly touch base with Ground station for GUI updates? (Peter)
- Finish visualization and start playing with controls (Jake)

### Ground Station - Matt and Dane:

Summary for progress this report:

- Put a lot of time into demo adapter code and getting library to compile. Still many errors (Dane)

- Further adjustments to the backend to support multiple quad, near ready for dual quadcopter flight when second quadcopter is ready (Matt).

#### Pending Issues:

- Crazyflie firmware setup was changed need to talk to Robert
- Multiple VRPN trackables does not work, although they all work when run alone.

#### Plans for upcoming reporting period:

- Finish adapter take a less extendable approach to get crazyflies flying (both)
- Figure out VRPN Tracker issue. (Matt)
- Adjust backend changes to support old features. (Matt)
- Start digging into GUI changes that will need to be made. (both)
- Further document backend as changes are made. (Matt)
- Possible restructuring of config for multi-trackables, more similar to Crazyflie setup (Matt).

Name	Role	Contribution	Hours worked	Total
Peter Thedens	Repository Lead	Makefile readme	3	90
Austin Rohlfing	Controls Lead	Read BYU paper Worked w/ Kyle on Vivado	9	106
Kyle Trost	Team Lead	-UART -"Hard" FP -Vivado port	7	145
Matt Kelly	Documentation Lead	Backend ends to support multiple trackables.	8	132
Dane Larson	Ground Station Lead	Libraries and adapters and reading about cfgroundstation	6	99
Jakub Hladik	Test Lead	Made progress in simulation visualization	5	98

Tyler Imboden	Quad Software Lead	building quad	5	102
Blake Pries	Communications Lead	Looked over merge requests on git	2	68