

sdmay18-17 MicroCART (Microprocessor Controlled Aerial Robotics Team)

Week 6 Report

Reporting Period: 10/09/17 - 10/15/17

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:

- Design Document (v1)

Quad Software - Tyler and Kyle:

Summary for progress this report:

- Attempted to make single build for multiple sensor inputs, ran into issue where i could build sdk project. Makefiles are broken right now.
- Started fixing Makefiles
- Discussed changes for quad directory

Pending Issues:

- Makefile scripts are not working (Issue #36)
- Multiple builds as sensor inputs (Issue #37)

Plans for upcoming reporting period:

- Fix makefile scripts

- Make changes to quad directory as discussed (Remove ground station code, consolidate testing scripts)
- Multiple sensor input types on single boot

Controls - Austin and Blake:

Summary for progress this report:

- Revisions of documentation created last week
- Work on the design document

Pending Issues:

- Lack of documentation on system identification (contacted Andy)

Plans for upcoming reporting period:

- Work on understanding system identification to prep for second quad build
- Document scripts in MATLAB directory

Testing - Peter and Jakub:

Summary for progress this report:

- Started a branch for MicroCART Simulator (based on JSBSim), compiled it and ran first test (dropping the “dummy” quad) (Jakub)
- Created issue and merge request templates in my branch (Peter)
- Discussed and created issues for Kyle & Tyler regarding cleanup of quad/ (Peter, Kyle, Tyler)

Pending Issues:

- JSBSim compatible full quadcopter model needs to be created (Jakub)
- Need to experimentally measure thrust and torque throttle responses (Jakub)

Plans for upcoming reporting period:

- Create a quadcopter model for JSBSim using “best guess” parameters (Jakub)
- Start a design for a single motor thrust and torque measuring rig (Jakub, Austin)
- Finish up work on CI/Testing documentation and create merge request (Peter)
- Continue looking into refactoring and use of third-party testing framework (Peter)

Ground Station - Matt and Dane:

Summary for progress this report:

- Started implementing solution to issue 30 - Matt
 - Solution should work nicely with current system and real time logging changes.
 - Solution entails packing all desired packets into the data of a message bundle packet to be sent to the quadcopter with a unique type.
 - Will allow for the getting of parameters for real-time logging within the same message bundle.
- Started implementing safety rules
- Finished documentation first draft
- Started looking at how to implement multiquad support (very early stages)

Pending Issues:

- None

Plans for upcoming reporting period:

- Look at next layer of abstraction above issues in gitlab to put in end goals for our project (many small issues toward a large feature)
- Keep working on safety rules and issue 30

Name	Role	Contribution	Hours worked	Total
Peter Thedens	Repository Lead	Worked on CI documentation	8	41
Austin Rohlfing	Controls Lead	Documentation and design doc	11	43
Kyle Trost	Team Lead	Worked on Makefile scripts to minimal success. Discussed quad directory changes Design document Multiple sensor input mode started	10	53
Matt Kelly	Documentation Lead and Webmaster	Worked on issue 30. Started implementation of	12	50

		a message bundle.		
Dane Larson	Ground Station Lead	Started safety rules meetings/design documentation Created issues Finished documentation	8	43
Jakub Hladik	Test Lead	Started development of the MicroCART Sim, started a quadcopter model with guessed parameters, ran a simple test, created an automated script to compile JSBSim libraries (complicated manually), worked on design document	16	44
Tyler Imboden	Quad Software Lead	Looked at quad directory structure and found some changes that should be made. Sorted out final parts for 2nd quad	8	47
Blake Pries	Communications Lead	Continued Matlab controls documentation and worked on the design document.	4	22