

sdmay18-17 MicroCART (Microprocessor Controlled Aerial Robotics Team)

Week 7 Report

Reporting Period: 10/16/17 - 10/22/17

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:

- Team meeting Sunday

Quad Software - Tyler and Kyle:

Summary for progress this report:

- Got XSDK builds properly building
- Started looking at optical flow integration into multimodal navigation
- Emailed past students about GPS implementation into system

Pending Issues:

- A lot of tech debt in the quad app and sdk_workspace directories
- Lack of config files (a lot of environmental variable we want to remove)
- There is commented out GPS stabilization code (need to find out where is actually is implemented)

Plans for upcoming reporting period:

- Get multimodal navigation build completed
- Get a firm understanding of how GPS is integrated into system
- Refactor quad app and sdk_workspace c files
- Start trying to swap over to vivado.

Controls - Austin and Blake:

Summary for progress this report:

- Nearly completed documentation for the matlab files in the controls branch.
- Started issue to centralize component parameterization docs

Pending Issues:

- Some parameterization documentation does not exist
 - Will need to make as we work through parameters

Plans for upcoming reporting period:

- Submit merge request for matlab documentation.
- Contact Tara from last years controls team
- Work with Jake to design/model component parameterization rigs

Testing - Peter and Jakub:

Summary for progress this report:

- Opened a merge request for moving active testing scripts and adding issue and merge request templates to the repo (Peter)
- Installed Ruby 2.3 on a second lab machine to run test scripts (Peter)
- Compared third-party testing framework to existing testing framework (Peter)
- Continued work on the quad model for JSBSim. (Jakub)

Pending Issues:

- Quad model in JSBSim still does not work as expected. (Jakub)
- See what data previous teams obtained that will help with the development of the JSBSim quad model. (Jakub)
- Design parametrization rig with Austin for parameters we do not have. (Jakub)

Plans for upcoming reporting period:

- Resume work on organizing Matlab files (Peter)
- Continue work on moving to third-party testing framework (Peter)

- Finish the quad model. (Jakub)

Ground Station - Matt and Dane:

Summary for progress this report:

- Ready to review code for issue 30 before testing this week.
- Added documentation for packets, this includes packet formats and how to implement a new packet or command.
- Inspected commands relating to safety implementation on backend.
- Started planning for multiple quad support.
- Started implementation of safety measures within backend.

Pending Issues:

- What level of abstraction should we use for adapters?
- How should blocking commands be handled within a message bundle packet?
- How are we going to do a config file?

Plans for upcoming reporting period:

- Finish safety rules.
- Start a merge request for issue 30.
- Get ideas for a wireshark like tool for packets within MicroCART.
- Keep working on documentation (we keep adding things).
- Start on a config file implementation and code to parse it.
- Start a generic adapter implementation for crazyflie.
- Start screen sketches for GUI changes.
- Data analysis tool preliminary investigation.

Name	Role	Contribution	Hours worked	Total
Peter Thedens	Repository Lead	Created merge request for CI updates	6	47
Austin Rohlfing	Controls Lead	Parameterization: thesis reading, doc moving, measurement discussion	4	47

Kyle Trost	Team Lead	Got xsdk builds working Fixed building documentation for now Worked on sensor feedback based on switches	5	58
Matt Kelly	Documentation Lead	Ready to test issue 30 Added Packet Documentation	10	60
Dane Larson	Ground Station Lead	Found how to distinguish packet types and now implementing code. More planning for crazyflie implementation. Milestone planning. Discussed many issues and plans for fixing.	8	51
Jakub Hladik	Test Lead	Continued work on the quad model for JSBSim. Added linear thrusters at appropriate positions but quad still fails to fly (even without controls)	4	48
Tyler Imboden	Quad Software Lead	Looked into optical flow code and integration into multimodal navigation	6	53

Blake Pries	Communications Lead	Continued documentation on matlab files, nearly complete. Continued reading matts thesis and started reading a document that Jones sent us.	9	31
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