sdmay18-17 MicroCART (Microprocessor Controlled Aerial Robotics Team)

Week 22 Report

Reporting Period: 3/27/18 - 4/02/18

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:

●

Quad Software - Tyler and Kyle:

Summary for progress this report:

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Pending Issues:

- Motors on new quad are jittery
- Vivado build unstable
  - Could have been:
  - Original orientation
  - Loop taking too long
    - FP unit (likely)
    - Debug prints (unlikely)

Plans for upcoming reporting period:
- Get a test flight for the new quad
- Get Vivado Working in Autonomous mode

Controls - Austin and Blake:

Summary for progress this report:
- Made significant progress on generic linearization of model (creating state space matrices as functions of known parameters and state variables)
- Discussed controller with Matt C.

Pending Issues:
- No exiting documentation (outside of Matt Rich's work) to compute δ_T, unknown difficulty

Plans for upcoming reporting period:
- Need to start testing manual assist mode and verify controller inputs
- Create Matlab script to construct state-space and control matrices from arbitrary parameter values

Testing - Peter and Jakub:

Summary for progress this report:
- Looked at running matlab scripts from command line (Peter)
- Started initial effort to convert documentation to markdown (Peter)
- Continued work on controls in the simulator (Jake)

Pending Issues:
-

Plans for upcoming reporting period:
- Second pass on Ground station merge request (Peter)
- Continue work on documentation (Peter)
- Work on bash script & Matlab modifications to launch appropriate tool (Peter)

Ground Station - Matt and Dane:

Summary for progress this report:

- Updated ESP documentation, waiting on a response from Eric for last section of documentation. (Matt)
- Finished perfboard circuit for ESP chip. (Matt)
- Started working on GUI changes. (Matt)
- Finished up editing backend modification branch based on feedback during code review. Waiting for approval (Matt and Dane)
- Got hostapd running on my system at home (Dane)
- Created a branch for hostapd script and started the creating the script (Dane)
- Working on wifi AP documentation as I go (Dane)

Pending Issues:

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Plans for upcoming reporting period:
- Start changes for ESP chip and figure out latency testing framework. (Matt)
- Keep working on GUI changes. (Matt)
- Ground Station debug changes. (Matt and Dane)
- Finish the wifi AP script issue close and test speed (Dane)

Name	Role	Contribution	Hours worked	Total
Peter Thedens	Repository Lead	Worked on moving documentation to markdown	3	111
Austin Rohlfing	Controls Lead	Started generic definition of state-space model	7	146
Kyle Trost	Team Lead	Team meetings (had personal conflicts so I apologize for lack of work)	2	182
Matt Kelly	Documentation Lead	ESP documentation and perfboard circuit.	8	187

Dane Larson	Ground Station Lead	Finished the code review changes. Started a branch for wifi AP script. Documenting as I go.	5	134
Jakub Hladik	Test Lead	Continued work on simulator controls	2	123
Tyler Imboden	Quad Software Lead	motors on new quad move corresponding to controller. Jittering and not smooth	7	150
Blake Pries	Communications Lead	Continued working on manual assist mode	2	93