May14-10 Weekly Report

MicroCART 2013-2014
Week 26: April 7- April 13, 2014
Advisors: Nicola Elia & Phillip Jones

Name	Weekly Hours	Running Hourly Total
Kevin Engel	7	179
Nathan Ferris	12	150
William Franey	16	185
Michael Johnson	7	193
Kelsey Moore	15	202
Lucas Mulkey	6	176
Aaron Peterson	10	146

Weekly objectives/

Completed Objectives:

- Working killswitch
- Fixed timestamp rollover

Working Objectives:

- Get the board responding to PWMs Luke+Mike
- Packet Integrity Checks (checksum), though our current if statement workaround is reliable for testing Luke+Mike
- GPS C code, and pin assignments for attaching to FPGA Kevin+Nate
- Nested PID code Kelsey + Aaron
- modeling Bill
- Arduino filter Luke + Aaron

Issues/Concerns

- Flight testing was unsuccessful
- There appears to be no working method for importing the preexisting models of the quad into Matlab. Due to the added complexity of the quad, the method that Matt used to assemble the quad he modeled in the past is no longer feasible. My small knowledge base in CAD design programs, as well as the Matlab program the models are being imported to, has left me with very few plausible debugging methods. The documentation is very small considering it is an "add-on" and the support community has yet to respond. -Bill

Individual Accomplishments

Kevin Engel:
- Poster editing
- GPS code testing
- Kalman filter code fine tuning

Nathan Ferris:
- Added to and created template for poster
- Wrote up and edited the final presentation
- Looking to test GPS code this week

William Franey:
- Helped Kevin finish up the C-code Kalman filter.
- Verified C-Code Kalman with Matlab Kalman
- Tuned Kalman filter a bit to produce smoother curves
- Worked on CAD model import
    - Downloaded AutoCAD Inventor to try to attack from a different angle with semi-moderate success.

Michael Johnson:
- Did some more testing with Luke on flight tests. The Quad is extremely hard (not really possible) to fly over bluetooth manually. It could be the GU344, it could be the board, I'm not sure.
- IMU data and the PID corrections seem to be correct, and the killswitch works as intended. That being said, the original reason we got it was to have a safety switch should the board get knocked… but with the current wiring setup if the board gets knocked we also lose the killswitch.
- Worked on the poster

Kelsey Moore:

- Poster
- Documentation
- PID control testing - Tested basestation PID outputs and where all the connections were going to see if I could find where the discrepancy of the sign error was located. Still unable to tell.

Lucas Mulkey:

- Got the multiplexer working
- Fixed a timestamp rollover issue
- Did some unsuccessful flight testing

Aaron Peterson:

- Worked with Mike and Luke to fix roll/pitch rollover error
- Went over multiplexer for set up and possible hindrances
- fixed motor issue so that maximum output of all motors is relatively equal