

Weekly Status Report 4

Quadcopter Cameraman

sdmay19-42

February 13- February 19

Aamid Ahabab (Lead Engineer) & Client

Zhengdao Wang (Team Advisor)

Alex Nicklaus (Lead Test Engineer)

Isaac Holtkamp (Web Manager)

Nate Allen (Report Manager)

Luke Rohl (Meeting Facilitator)

This week's accomplishments

Summary

- Alex
 - Continued work on physical construction of the drone
 - Received screws from ETG
 - Swapped out drone frame screws which were becoming stripped
 - Attached motors to the drone with the new, longer screws
 - Working on creating a physical mount for the sonar sensor with Boyd Lab
 - Working on getting Pi to talk to Flight Controller
 - Having some trouble in this area as documentation for the raw signals is not good
 - Learned that we can use either PWM with six wires or PPM with only three; we will likely go with PWM as it is easier to implement and test
 - Found some documentation that explains Rx transmission in terms like baud rate and parity bits. Implementing will still be difficult and I am considering getting a transmitter and receiver so that I can read the signal
- Nate
 - Calculating distance in image with Machine Learning
 - Researched statistical learning
 - Data collected small set to test statistical learning
 - Collected a more complete data set with Luke to train our distance classifier
 - Wrote a classifier class
 - Trained the classifier
 - Tested the classifier
- Luke
 - Helped Nate do data collection for statistical learning

- o Create Generic Server and Client Sockets for inter process communication
- o Research and test thread communication
- o Finish Bluetooth Communication class
- Isaac
- Aamid
 - o Soldered all ESCs to the PDB
 - o Attached ESCs, landing skids, and PDB back onto the drone
 - Battery will not be directly soldered onto the PDB

Planned to accomplish next week

- Nate
- Luke
 - o Help Nate collect more data for statistical learning
 - o Implement Thread communication for trafficker
- Alex
 - o Get the Flight Controller to read an input signal
- Isaac
- Aamid
 - o Attach the Ring LED to the camera and Quadcopter
 - Need to find a way to step up the voltage as Ring LED uses 12 V
 - Perhaps create our own Ring with less LEDs
 - Will need to configure a MOSFET switch at 3.4 V for the LED system to connect with Pi
 - o Get the Motors to spin
 - Work on pi to flight controller communication
 - Can test the motors and ESC connections by using a transmitter and receiver
 - Need to obtain either from a friend or from ETG
 - Theoretically, all we need is a transmitter and receiver and we can achieve manual flight
 - o Need to test the heat output of the battery before attaching the battery directly onto the quad
 - Theoretically should not be an issue but just in case
 - If heat output too high, will need to find a thermal insulator
 - o Document tasks and workflow on Trello

Roadblocks

- No roadblocks on Software side
- Struggling with getting Pi to talk to Flight Controller as documentation is limited
 - o Continued delays in this could bottle neck the project
- New Flight Controller requires an adapter to flash firmware onto it
- Ring LED is 12 V but battery is 11.3 and Pi Power Supply is 5 V

Hours Spend

Team member	Hours This Week	Hours Total
Nate Allen	8	26
Alex Nicklaus	9	21
Luke Rohl	7	20
Mir Ahbab	3	13
Isaac	3	13