Weekly Status Report 5

Quadcopter Cameraman

sdmay19-42
February 20 - February 26

Aamid Ahbab (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
    - Trouble with Flight Controller Multiwii Firmware
        - Suffered an on board issue with the program attempted to upload same sketch
        - IDE would not compile sketch due to a problem with function reference
        - Was able to fix function reference problem by declaring function prototype in the Multiwii.ino file even though the function was being pulled from Serial.ino and should have been able to be referenced by Multiwii
            - All credit goes to our adviser for this fix
    - PWM achieved on port 18 of the was able to turn servo
        - Used terminal commands to setup PWM on port 18 and control servo
        - Working on python implementation though currently struggling with some library issues
    - First attempt to test throttle on Multiwii GUI successful
        - Change PWM on the Pi setting pulse width between 1 ms to 2 ms
        - Results were shown change in throttle value on the Multiwii GUI
        - Further testing required though outlook is promising
- Nate
    - Mask calibration interfaced with app research
        - Sending image over socket
        - Talking with Luke about receiving messages grom app
    - Converting feet to pixels via image
        - Tried using existing data to produce a function
        - Data was not friendly to this purpose
        - Need tailored data
- Luke
    - Create design for Multithreaded Python socket router

- o Implement python socket client
- o Implement python socket server
  - ▪ Started multithreading the socket server
  - ▪ Research non-blocking sockets
  - ▪ Implement Multithreaded Queue
- ● Isaac
  - o Continued to work on image alteration functions and rgb change functions
  - o Worked on socket connections and image downloading from pi
- ● Aamid
  - o Trouble with Multiwii on KK2 Flight Controller
    - ▪ Multiwii does not directly support KK2 flight controller
    - ▪ Attempting to modify so LCD screen and sensors package works with the firmware
    - ▪ Tested to make sure the board can start up and run
  - o LED Ring Lights
    - ▪ Soldered and tested the ring lights
      - ● Minimum V must be 6 V.
      - ● The battery can supply 11.1 V and that should be enough for our purposes
    - ▪ Designed circuit with MOSFET switch to wirelessly control the Ring Lights
      - ● Still need to implement and test

Planned to accomplish next week

- ● Nate
  - o Collect data to create a function of feet to pixels at different distances
  - o Work with Isaac to interface app with mask calibration script
- ● Luke
  - o Complete multithreaded python socket server
    - ▪ Test
    - ▪ Debug
  - o Convert Multithreaded Queue into priority Queue
- ● Alex
  - o Begin Testing Hardware for final build
    - ▪ Test the output signal pins while the flight controller is hooked up to the GUI
    - ▪ Test the output signal pins while the flight controller is only connected to the Pi
    - ▪ Connect the Flight Controller to one ESC without the motor connected testing the voltage output from the ESC that would go to the motor
    - ▪ Repeat the above test with the motor attached
    - ▪ Repeat both above tests with all ESCs individually
    - ▪ Attempt to run the above tests with all ESCs on a supplemental power source
    - ▪ Attempt to run the above tests on battery power
  - o Get other pins working for PWM
    - ▪ If we simply cannot do this we can swap to PPM
  - o Work on getting python code working on Pi so that we can start coding communications

- Isaac
  - o Start testing image alteration on app
  - o complete socket connections to get image.
- Aamid
  - o Implement, test and finish ring light circuit including power distribution from the main battery
  - o Continue working on installing firmware to the KK2 flight controller
  - o Test hardware components: ESCs and motors. Battery as well
    - ・ Hopefully have the quadcopter able to achieve flight

Roadblocks

- ~~Having trouble getting some libraries to work on one of the development Pi~~

Hours Spend

Team member	Hours This Week	Hours Total
Nate Allen	3	29
Alex Nicklaus	10	31
Luke Rohl	6	26
Mir Ahbab	7	20
Isaac	9	22