**EE CprE SE 492 – MAY1732**

**Crazyflie Swarm Senior Design Team**

**Weekly Report 5**

**2/13-2/19**

**Faculty Advisers**

Phillip Jones

Nicola Elia

|  |  |  |  |
| --- | --- | --- | --- |
| **Member** | **Position** | **Weekly Hours** | **Total Hours** |
| **Nick Robbins** | **Team Leader** | **8** | **122.5** |
| **Ben Nelson** | **Key Concept Holder** | **12** | **101.75** |
| **Jake Frazier-Flores** | **Webmaster** | **8** | **98.25** |
| **Grant Manley** | **Key Concept Holder** | **8** | **94** |
| **Chengrui Yang (Roy)** | **Key Concept Holder** | **7.5** | **61** |
| **Cole Beaulieu** | **Communicator** | **6** | **123.5** |
| **Tianxiang Shen (Jesse)** | **Key Concept Holder** | **2.5** | **48.5** |

**This Week’s Progress**

1. Quads/Camera System

* Able to find Kt and Kd values for motor, only parameter left to find is Moment of Inertia (MOI), but found a suitable way to test it early this week

1. Ground Station/Wifi Systems/Firmware

* Groundstation and ESP wifi module working demo
* Continued CF firmware and ESP module communication progress

**Pending Issues**

1. Finishing moment of Inertia testing with Matt
2. Working to make sure we have a backup solution in case integrating the Groundstation fails

**Plan of Action**

1. Cole – figure out to find the MOI for the big quad, whether it is using aerospace’s tool, the fixture given to us from physics department, or an estimation using online research
2. Nick – give values to Ian, hopefully use his program to complete the rest of the controller and start flying
3. Jake – assisting Ben with his integration and testing of ESP with the groundstation
4. Grant – Extend MATLAB code to send acks back and use it to start testing the groundstation and esp set up
5. Chengrui ­– focus on MOI testing with backup plan procedure
6. Tianxiang – assist with moment of inertia testing
7. Ben – Extend MATLAB code to send acks back and use it to start testing the groundstation and esp set up

**Individual Contributions**

Cole:

* Monday: 1 hour – meeting and discussing plan of action for the week with the team
* Tuesday: 2.5 hours – attempting to get Kd and Kt values for the big quad by using motor characteristics and microcart code. Ran into some troubles
* Wednesday: .5 hours - met with Grant, Ben and Nick, to help them set up the big quad so that they could attempt to fly it using the client.
* Sunday: 2 hours – weekly report and document that has a backup plan in case some proponents of our project do not work as planned.

Nick:

* Monday: 2 hours, group meeting and Ki,KD values,
* Tuesday: 1 hour, researched alternative MOI methods
* Wednesday: 2 hours, took more measurements in order to find KI and KD values
* Friday: 3 hours, Completed testing and matlab calculations for KI and Kd

Grant:

* Monday: 1.5 hour- meeting and team review
* Tuesday: 1 hour – discussing with Ian on Moment of inertia machine and what to do moving forward
* Wednesday: 3.5 hours – trying to find new MOI machine and working with Cole and Nick to get quad flying
* Sunday: 2 hours – working with MATLAB code for backup solution in case mesh network does not work

Jake:

* Tuesday: 2 hours – tested sending communication with wifi module
* Thursday: 4 hours – transitioned all communication to the wifi module
* Sunday: 2 hours – trouble shooting communication

Ben:

* Monday: 1 hour – Meeting
* Tuesday: 1 hour – Trying to see if there was another way to find the MOI
* Wednesday: 1 hour – Trying to fly big quad
* Friday: 4 hours – Working on Matlab code to visualize CRTP packets
* Friday: 1 hour – Working on Matlab code to visualize CRTP packets
* Sunday: 4 hours – Working on Matlab code to visualize CRTP packets

Tianxiang Shen:

* Monday: 1 hour – meeting
* Friday 1.5 hours: searched and tried one moment of inertia testing

Chengrui:

* Monday: 1 hour – group meeting
* Wednesday: 2 hours – online research about testing of MOI
* Thursday: 3 hours – designed a test bench and shopped all the materials needed
* Friday 1.5 hours – built the test bench