**Project:** Group #19 | Raspberry Pi / Drones

**Problem Sponsor:** Company/agency and contact point.

**Meeting Date:** 2023-09-22 / 2:30 PM – 4:30 PM

**Group Members present**: Carlo Leiva, Rayan Rabbi, Aleysha Santiago

**Group Members absent**: Colton Rohan

**Next Meeting: Undecided**

**Summary:**

In this meeting we met at the EE building to discuss the problems we talked about at the previous meeting. Carlo demonstrated the problem with the motors PWM as they would skip or slow down unexpectedly when running the code. We also discussed how we would be able to get the raspberry pi to work wirelessly on Wi-Fi since we had trouble with the FAU network. Aleysha suggested we run it from her home Wi-Fi network. Next, we discussed how we would need a power distribution plate to make sure all the ESCs get equal amounts of power, so the drone is stable in flight. Aleysha researched the right one needed and would 3D print the drone legs. Next, Rayan and Carlo went upstairs to work on the flight software code to try and fix the issue with the motor and Aleysha worked on soldering the ESCs and wires for the drone. Rayan and Carlo looked through the code to locate the problem with the motor and tried to figure out how we could get the motor running without unexpected skips or slowdowns. After messing around with the PWM frequencies and the Duty Cycles within the code, we figured out that the problem was with the target duty cycle power. When increasing the duty cycle power percentage, the motor ran without any hiccups. Rayan then suggested cleaning up the code by writing a for loop to increase the duty cycles in increments and Carlo made one to decrease in increments. This allowed our motor to gradually speed up and slowdown in increments.

Game Plan:

* 1 raspberry pi Pico, make our own flight software, 4 ESC modules, 1 lightweight battery, quad propellor, receiver, transmitter, gyroscope, Nazgul drone body.
* Make all motors work with our flight software code.
* Use the power distribution plate to output equal power to all ESCs.
* Mount all four motors and wire up their individual ESC modules. Assemble all parts to drone.

**Action Items:**

* **The drone is in a rough draft state and is ready to put the electronics onto the body.**
* **The fight software has successfully been loaded onto the raspberry PI.**
* **The raspberry pi has the correct IDE that we will use to code the software onto the device.**
* **We successfully coded one of the motors.**
* **We are going to be using Thonny IDE for programming the device.**
* **We will meet again to assemble hardware pieces as a group.**