Week6

a.

We completed all tasks on class:

- We combined our PID controller code with communication code and it worked well
   - We created controller.cpp to read command and control roll/pitch with shared memory
   - We created imu.cpp to receive command and adjust motor controller
- We completed following keyboards control:
   - "a" +2.5 roll angle;
   - "d" -2.5 roll angle;
   - "w" +2.5 pitch angle;
   - "s" -2.5 pitch angle;
   - "h" +25 thrust;
   - "n" -25 thrust;
   - "x" set both roll and pitch angle to 0;
   - "z" set thrust to default;
 - We also adjusted KI from 0.005 to 0.02, to get a better PID controller performance.

b.

1) What went well:
   - We finished keyboards control easily.
2) What did not go well:
   - When we ran the PID controller of roll angle, we found that the quadrotor would lean to +x about 30 degrees at first, then turned back to 0 roll angle position. We finally found it was because of the difference between motor 0 and 1. Thus we adjusted neutral_power value for each according to their performance. We also applied this to motor 2 and 3, and it worked well.
   - We found that the imu.cpp would take last command it received when we ran it again, and the last command was always 'quit' command. Thus, it had problems with running again. We tried to press any key before we ran imu.cpp (we should run controller.cpp first) and it worked well.

c. - Miller 50%
   - Hong 50%
We learn and do everything together, and contribute evenly to our job.

d. Attached codes

Roll angle control: