

APM



What is APM?

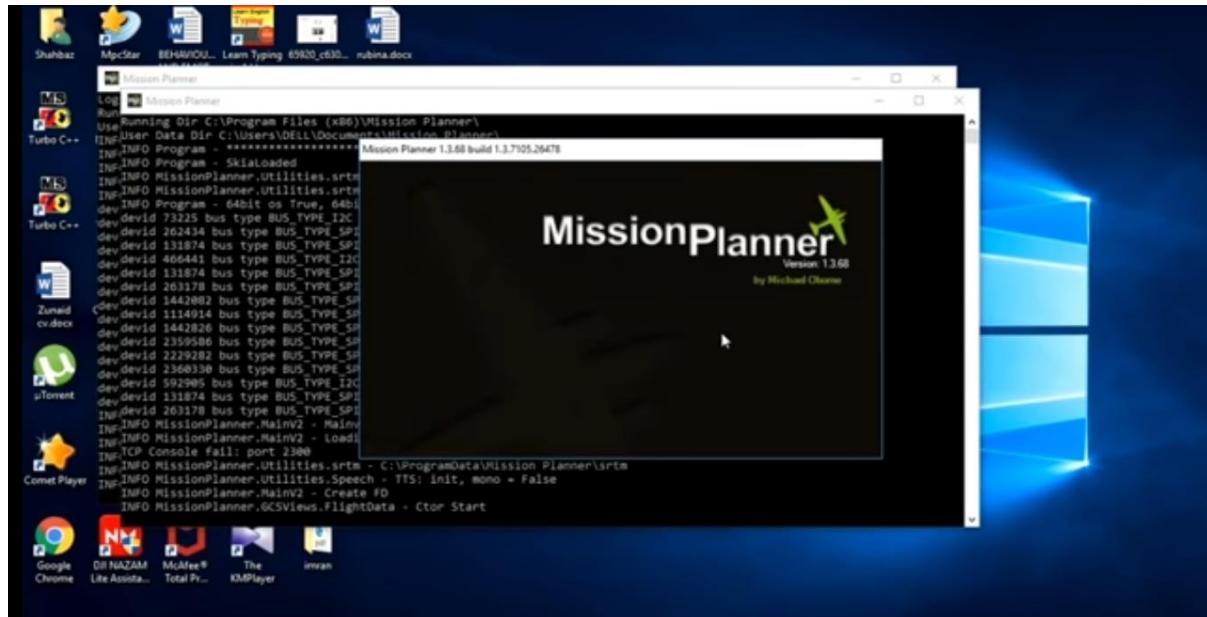
Ardupilot Mega (APM) is a professional quality IMU autopilot that is based on the Arduino Mega platform. This autopilot can control fixed-wing aircraft, multi-rotor helicopters, as well as Drones.

Software for APM

For APM Flight controller we need software called Mission Planner
Download APM 2.8 Mission Planner which is latest version.



Step1: Open Mission Planner



Step 2: Select COM7

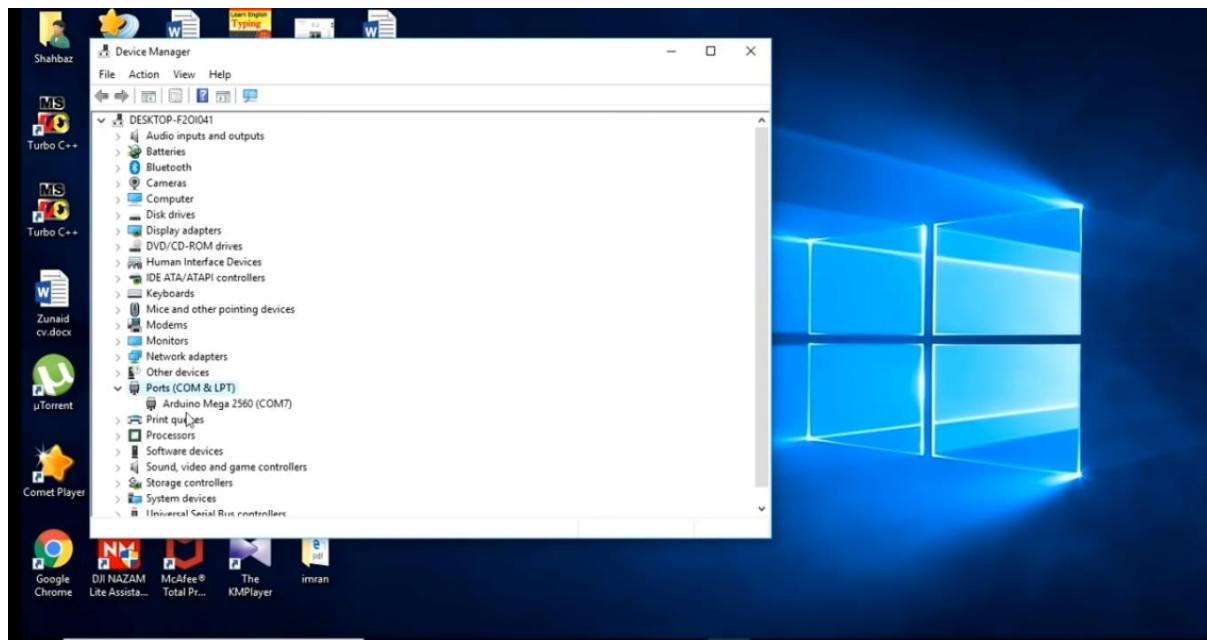
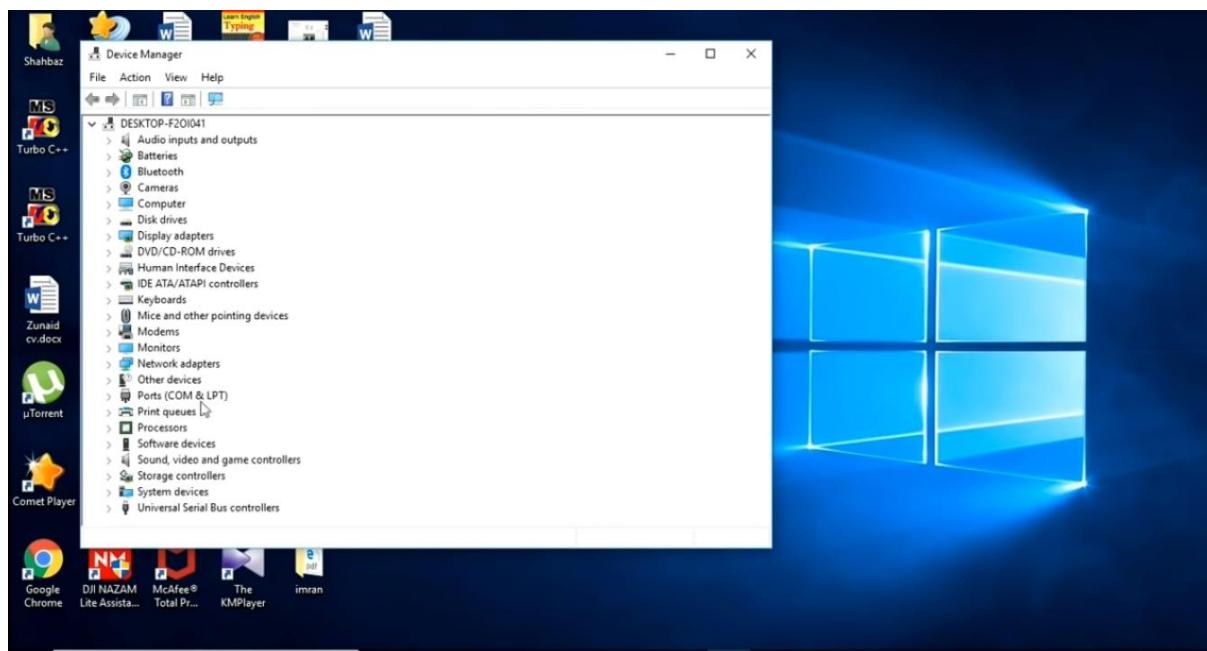


Check in your System which port is suitable eg. COM 4, COM 7, TCP etc.

Process to check:

Go to Device manager \Rightarrow Ports then, check which Aurdino Mega suitable





Step3: Press Connect



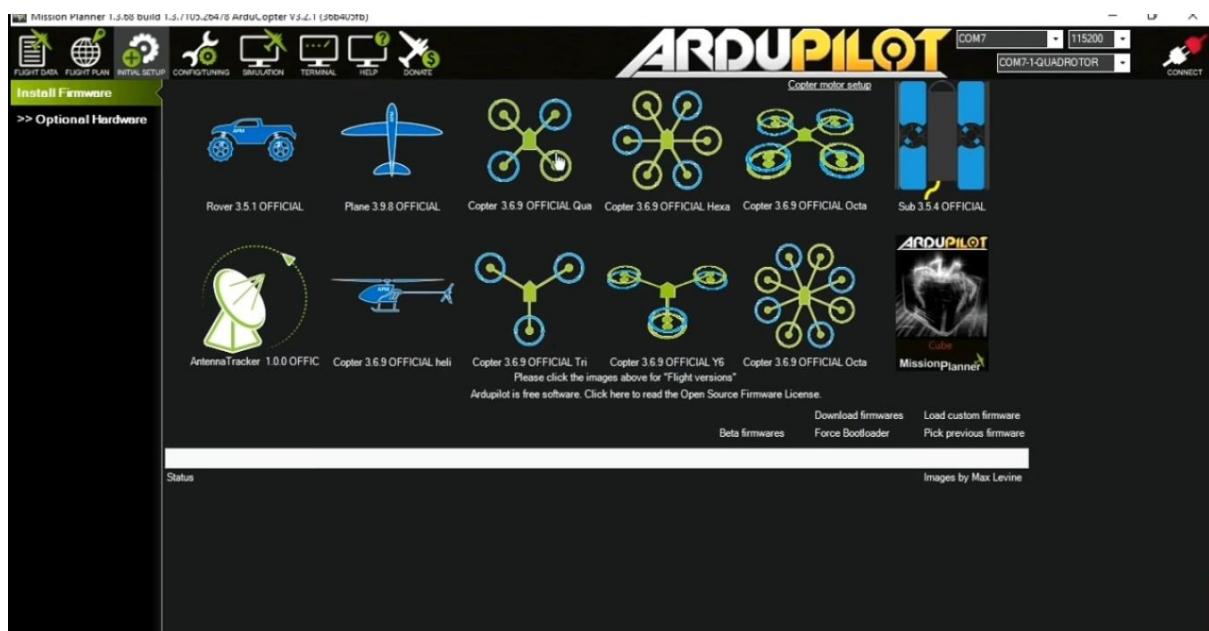
Now you can see it's connected



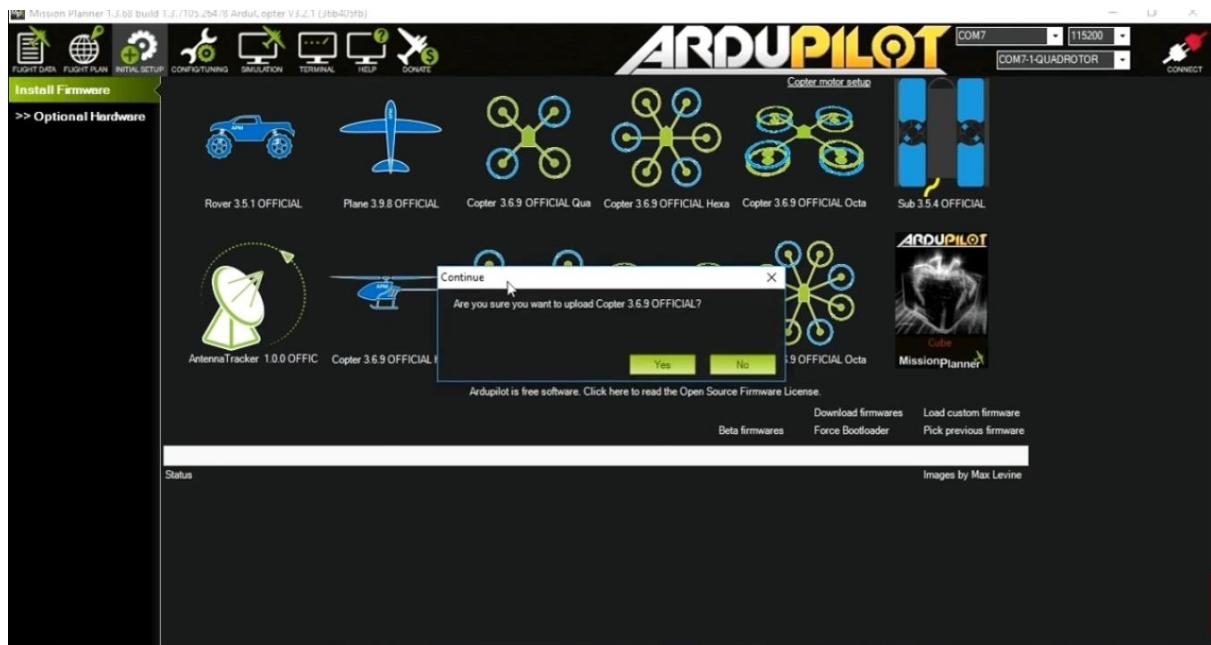
Step 4: Go to Install SetUp and click Install Firmware



Step 5: Select Your Firmware



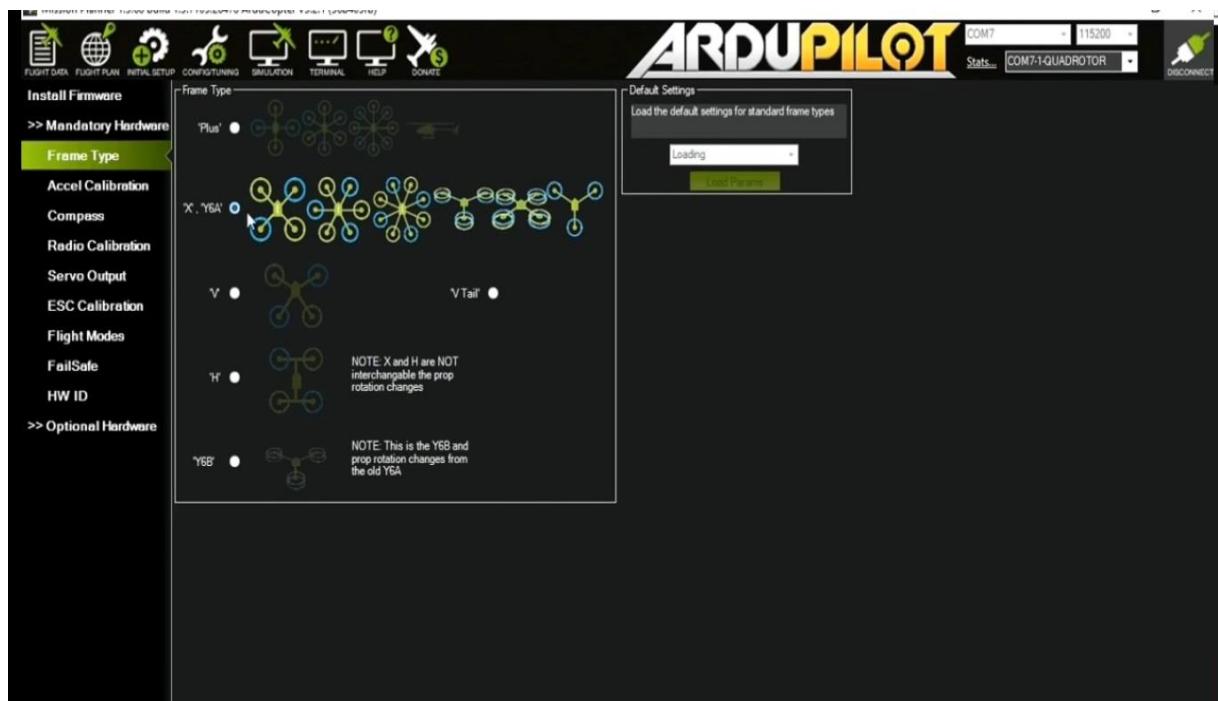
Select Copter 3.6.9



Step 6: Select Mandatory Hardware



Step 7: Select the type of Frame (eg. Quad, Hexa, Octa etc.)



Step 8: Go to Acceleration Calibration and start calibration

In this process move your drone in different at edge

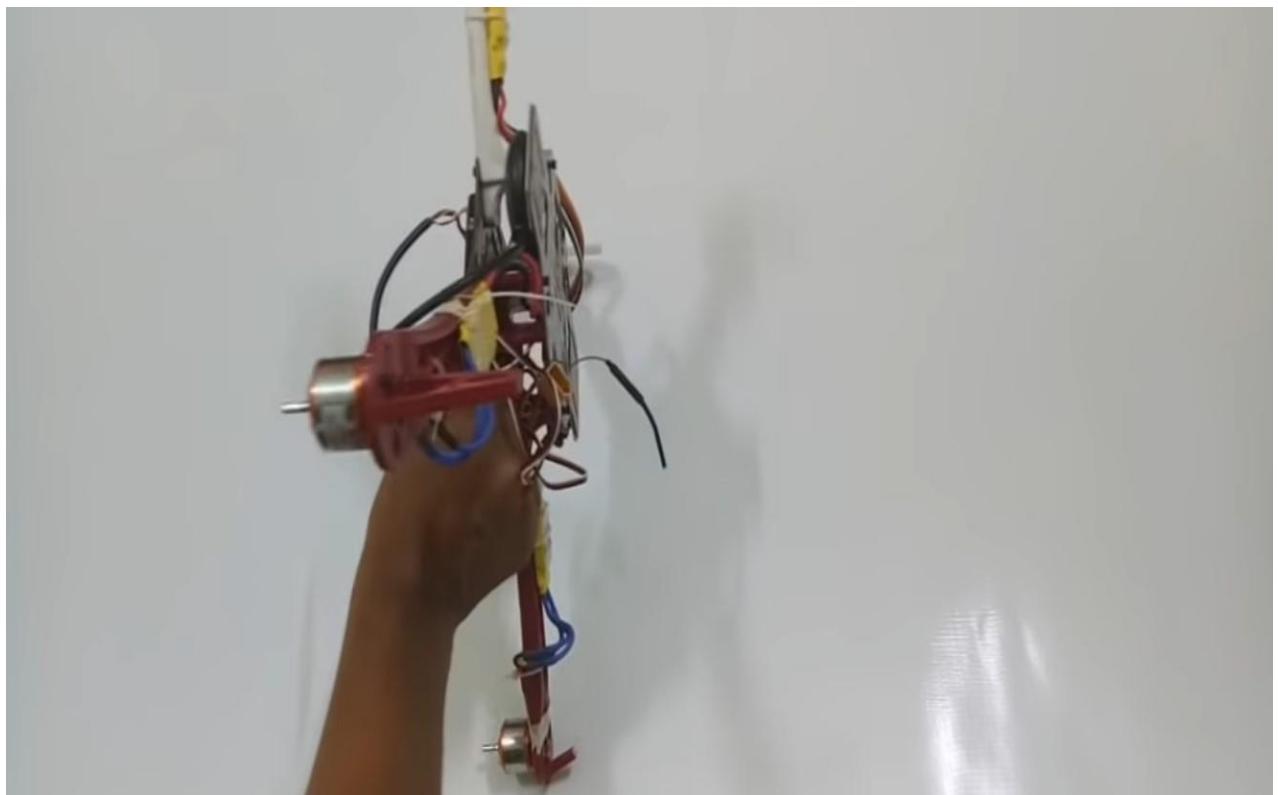
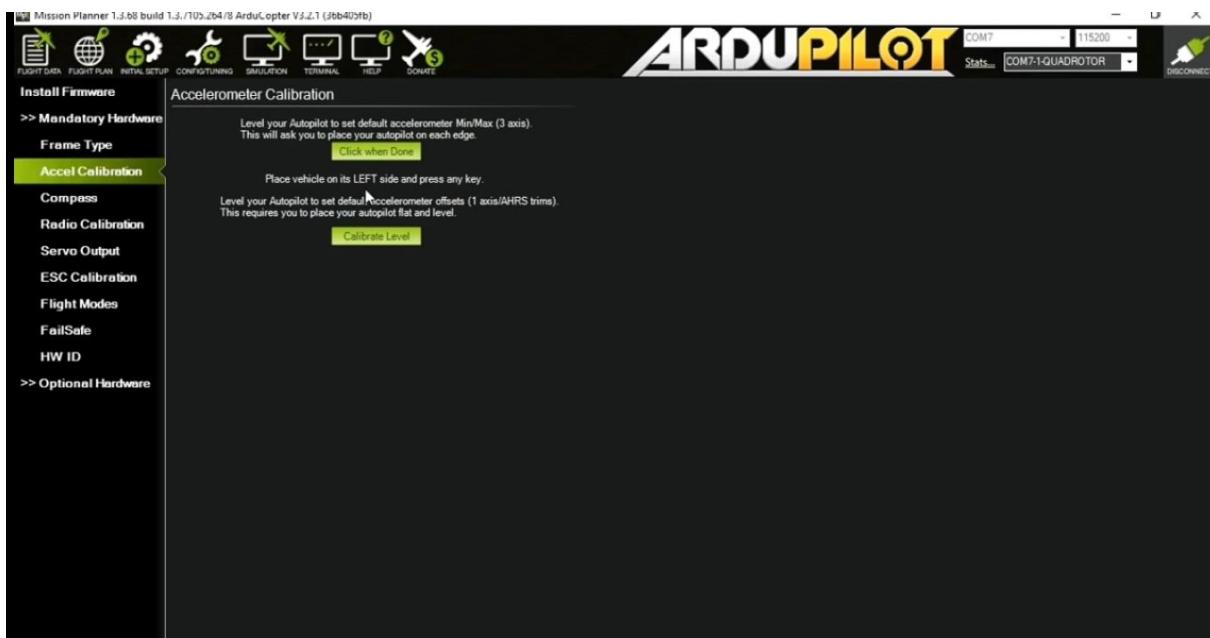


Start Calibration



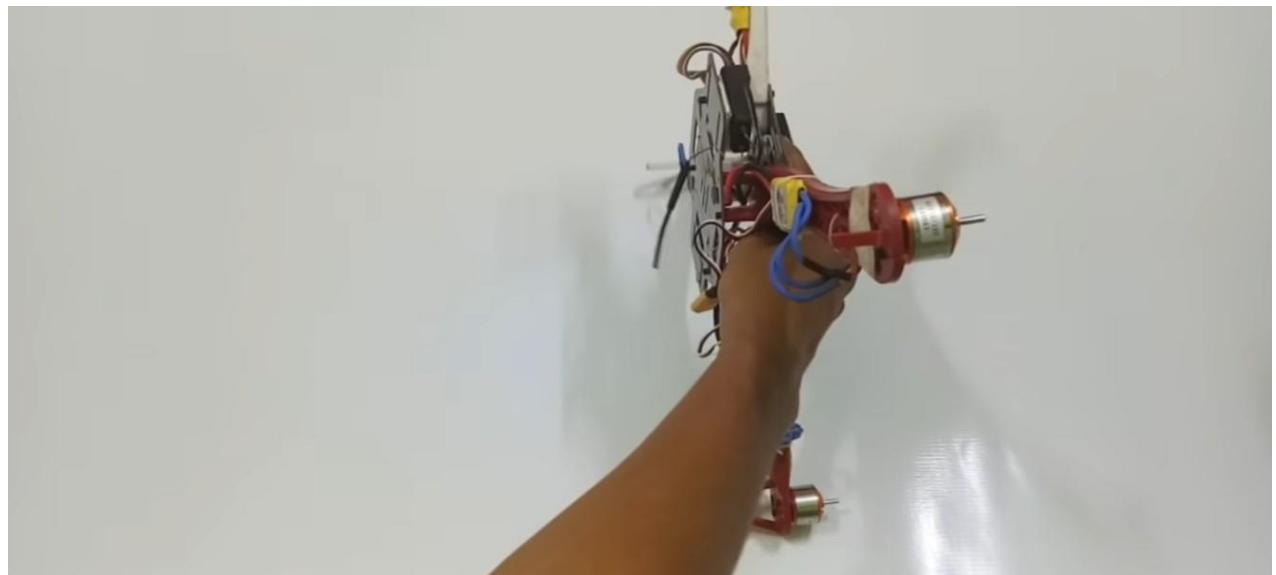
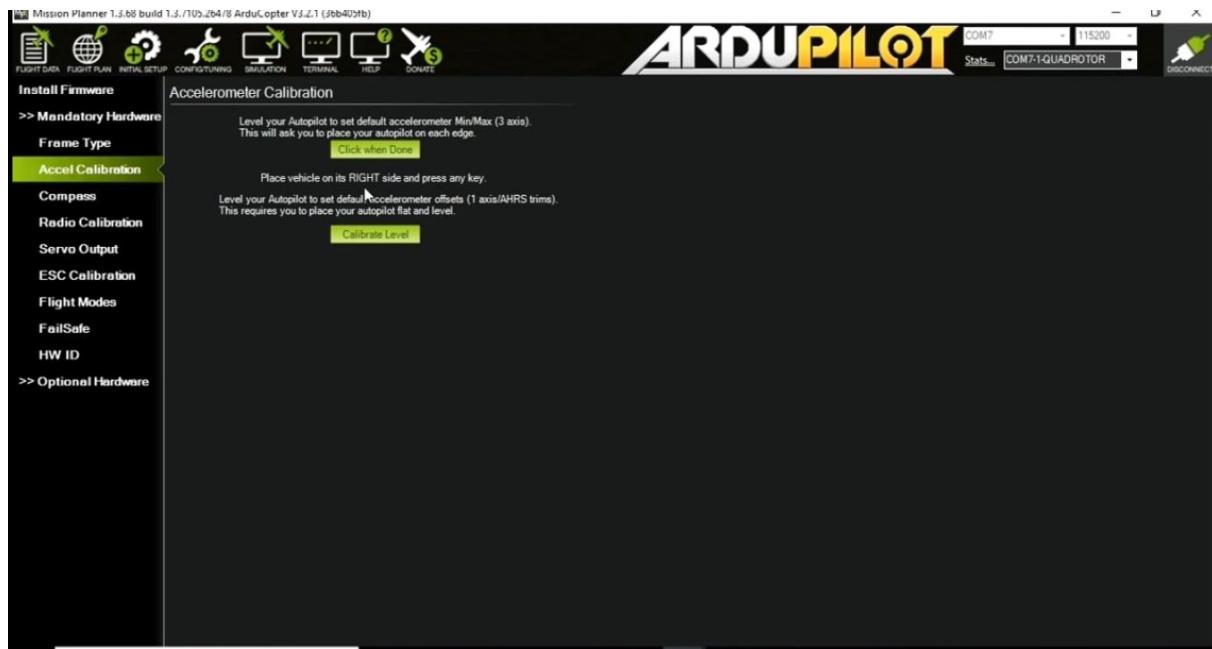
Turn the drone Left side and press any key in the key board

Left



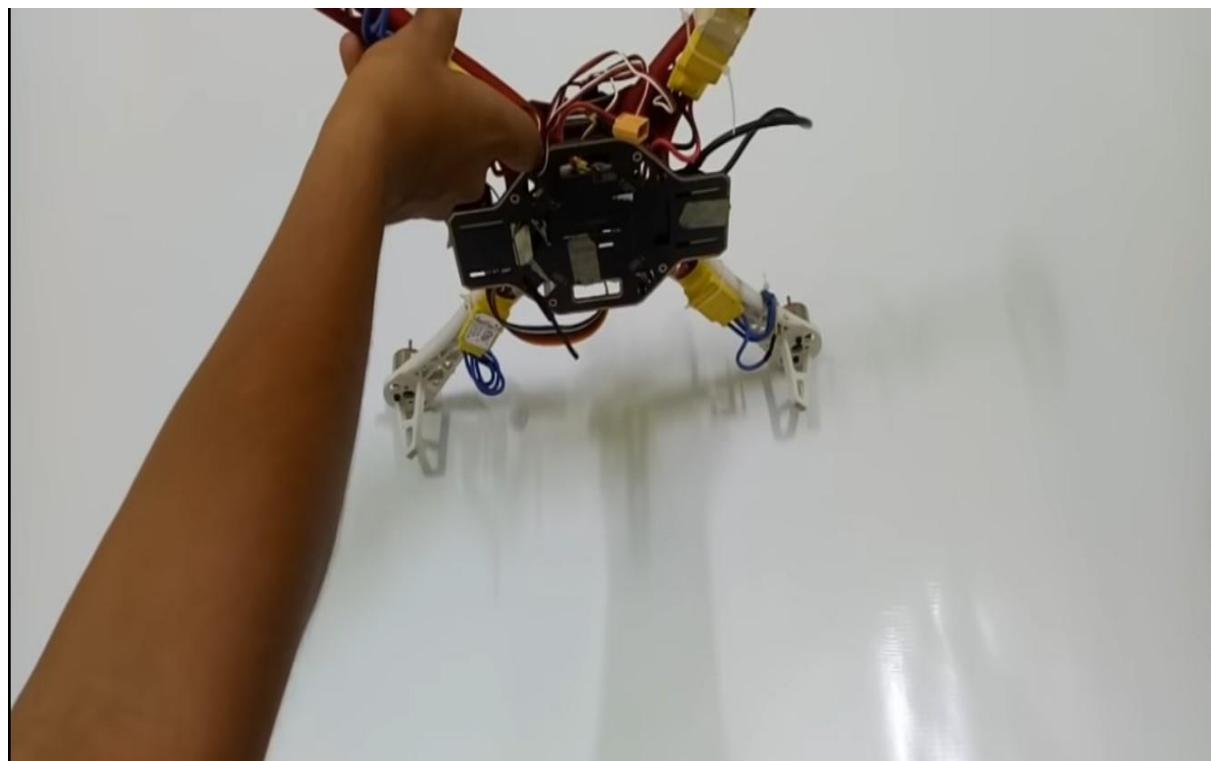
Turn the drone Right side and press any key in the key board

RIGHT



Turn the drone nose Down side and press any key in the key board

DOWN



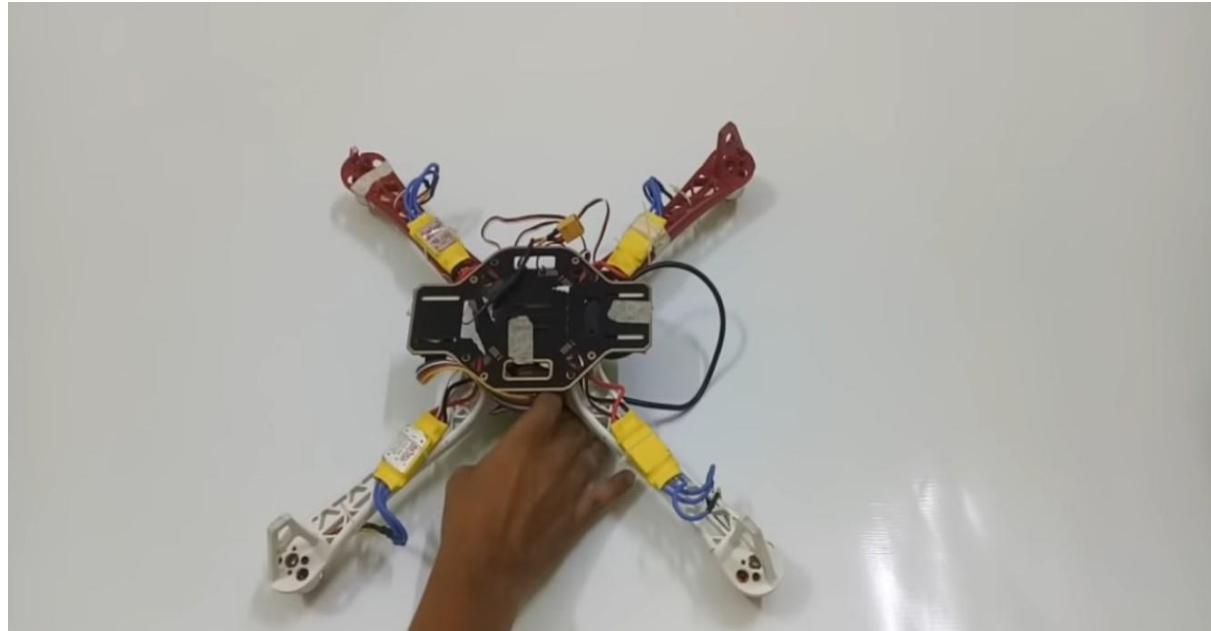
Turn the drone nose Up side and press any key in the key board

UP



Turn the drone Back and press any key in the key board

BACK



Successfully Calibration Done



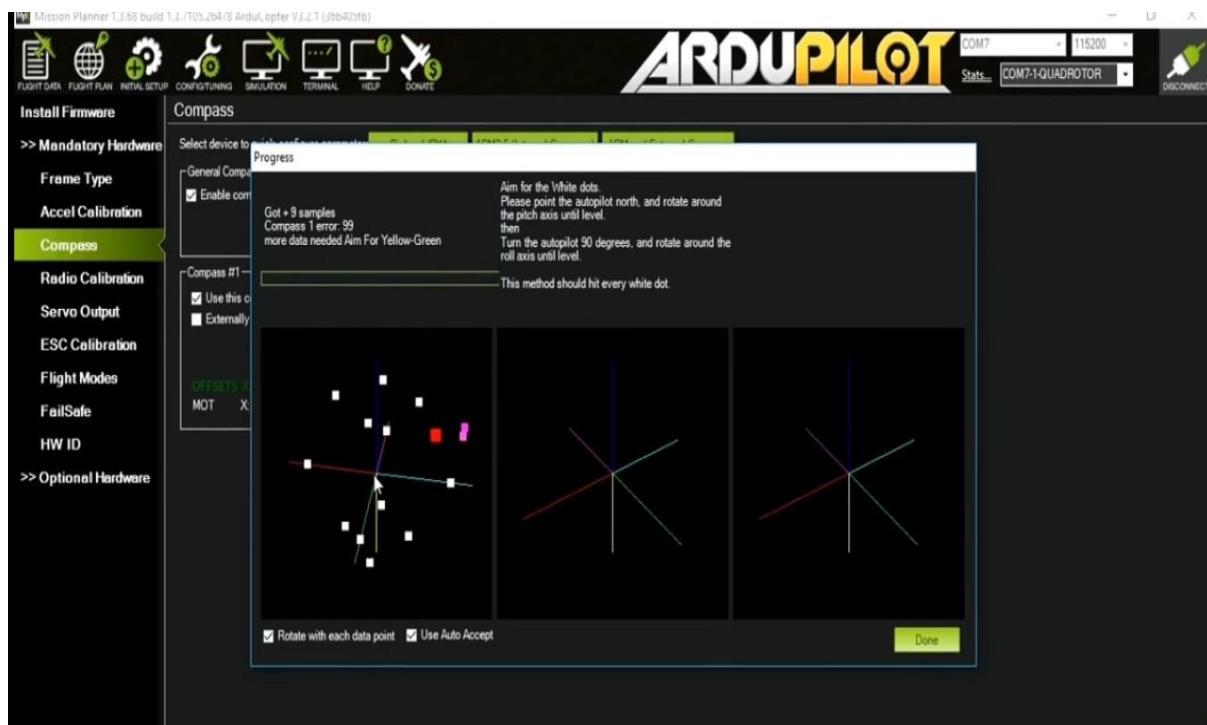
Step 9: Go to Compass and click on Live Calibration for starting calibration

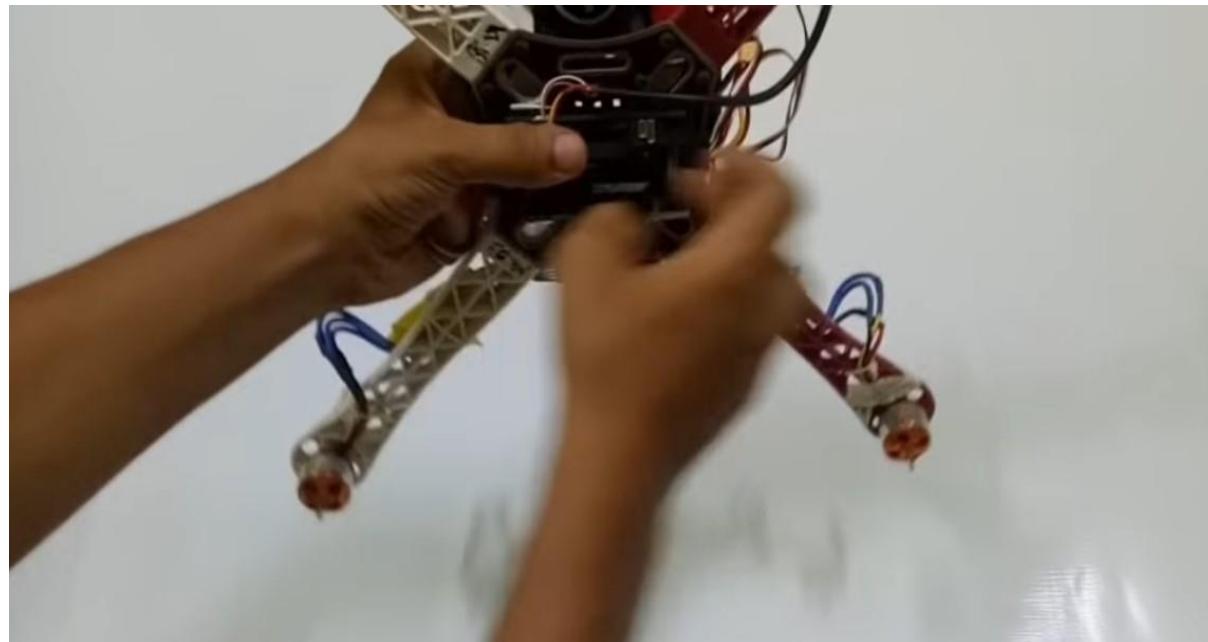
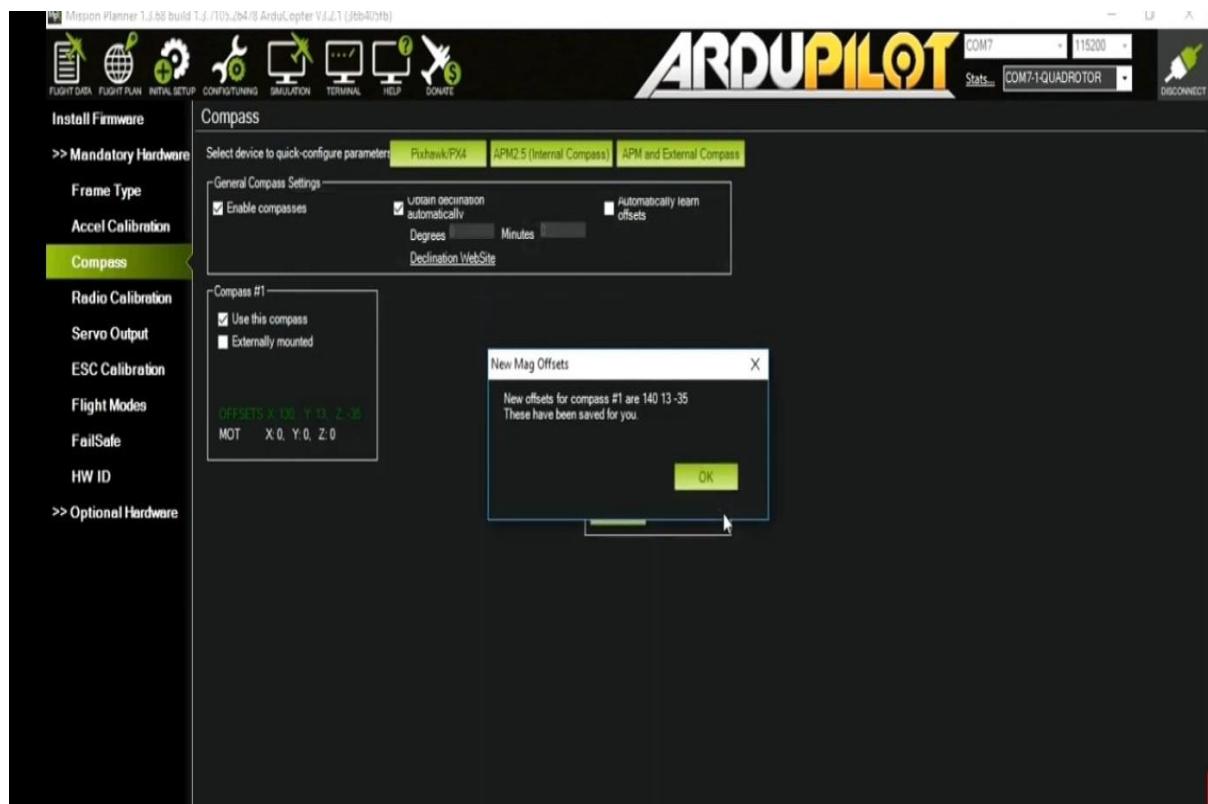
Put the drone Nose Up and rotate the drone 360° , the do same for right

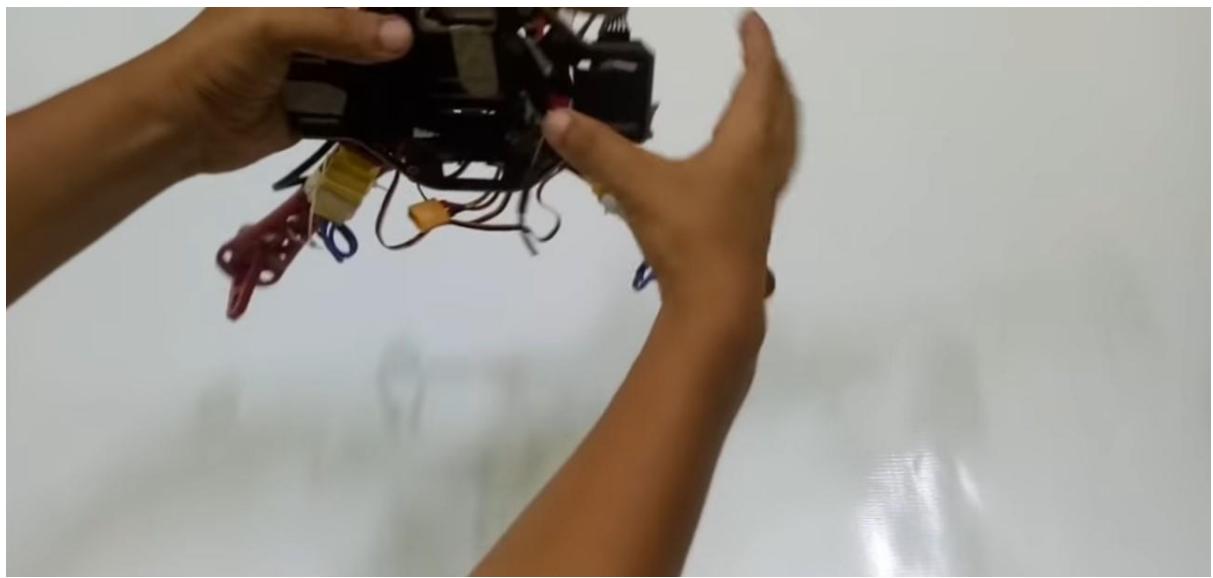
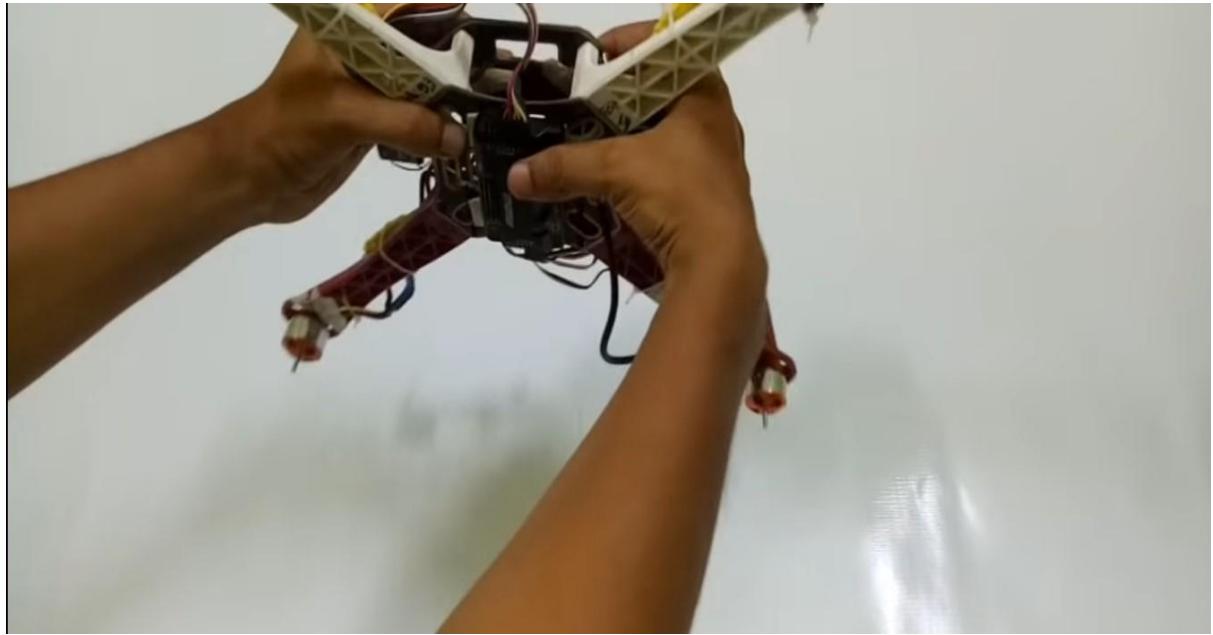




Start Rotating Drone









ARDUPILOT

FLIGHT DATA FLIGHT PLAN INITIAL SETUP CONFIGURING SIMULATION TERMINAL HELP DONATE

COM7 115200 Stats: COM7-1-QUADROTOR DISCONNECT

Install Firmware

>> Mandatory Hardware

Frame Type

Accel Calibration

Compass

Radio Calibration

Servo Output

ESC Calibration

Flight Modes

FailSafe

HW ID

>> Optional Hardware

Select device to quick-configure parameter: Pixhawk/PX4 APM2.5 (Internal Compass) APM and External Compass

General Compass Settings

Enable compasses Use anemometer automatically Automatically learn offsets

Degrees Minutes

Declination WebSite

Compass #1

Use this compass Externally mounted

OFFSETS X: 140 Y: 13 Z: -35
MOT X: 0 Y: 0 Z: 0

New Mag Offsets

New offsets for compass #1 are 140 13 -35
These have been saved for you.

OK

Step 10: Go to Radio Calibration and start calibration by rotating all sticks and switches of transmitter









Step 11: Check Servo output



Step 12: Go to ESC Calibration and start calibration



Step 13: Select the Flight Mode change the first column to Stabilizer and save it



Step 14: Go to Configuration Tuning and select Standard parameter

Select the parameter and save it before Armed the drone



Mission Planner 1.3.08 build 1.3.7105.6478 ArduCopter V3.2.1 (bb4d2fb)

ARDUPILOT

Flight Modes Flight Plan Initial Setup Configuring Simulation Terminal Help Donate

COM7 115200 Stats... COM7-1-QUADROTOR DISCON

Write Params Refresh Params Find

Arm Checks to Perform (bitmask) (ARMING_CHECK)

Description: Checks prior to arming motor. This is a bitmask of checks that will be performed before allowing arming. The default is no checks, allowing arming at any time. You can select whatever checks you prefer by adding together the values of each check type to set this parameter. For example, to only allow arming when you have GPS lock and no RC failsafe you would set ARMING_CHECK to 72. For most users it is recommended that you set this to 1 to enable all checks.

All Barometer Compass GPS lock INS Parameters RC Channels
 Board voltage Battery Level Logging Available Hardware safety switch GPS Configuration
 System

AHRS Trim Roll (AHRS_TRIM_X)

Units: rad

Description: Compensates for the roll angle difference between the control board and the frame. Positive values make the vehicle roll right.

0.011 [] -0.1745 0.1745

OK

AHRS Trim Pitch (AHRS_TRIM_Y)

Units: rad

Description: Compensates for the pitch angle difference between the control board and the frame. Positive values make the vehicle pitch up/back.

0.016 [] -0.1745 0.1745

Battery Current sensing pin (BATT_CURR_PIN)

Description: Sets the analog input pin that should be used for current monitoring.

Disabled []

Battery monitoring (BATT_MONITOR)

Description: Controls enabling monitoring of the battery's voltage and current

Step15: Select Flight Data



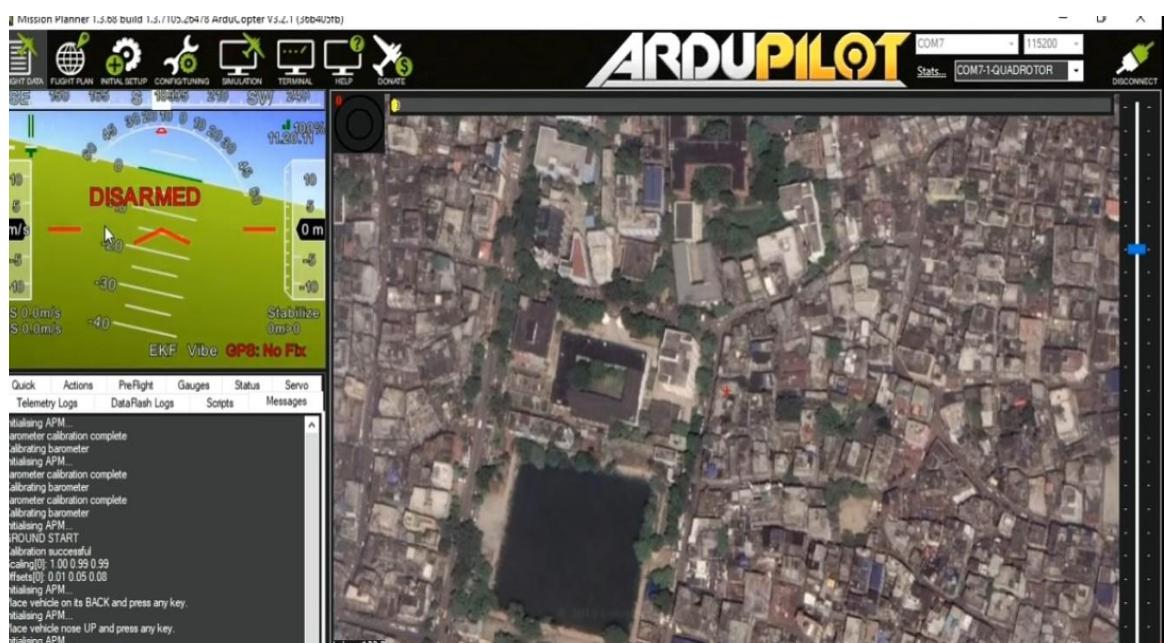
Step16: GO To Flight Data and Armed your drone



Click on message option to check any error



After this if you Tilt Your Drone in the screen
you can identify it also tilt



Step17: click on Disconnect



Conclusion:

Now Successfully Software simulation
Done You Can Fly your Drone.