INTRODUCTION TO DRONES

ASSIGNMENT 5

INSTALLATION OF PLUTO X CONTROLLER.

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AIM - Installation of Pluto X Controller and After installing the app check setting tab of the software.

STEPS -

A. Install “Pluto Controller” App Controller from Play Store or App Store

Pluto Controller - Apps on Google Play

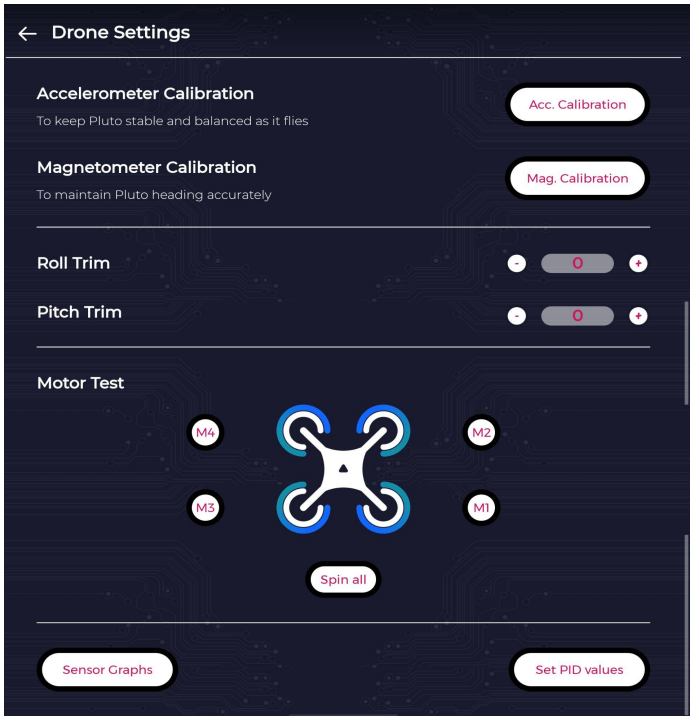
Pluto Controller on the App Store

B. Plug in Battery in drone
C. Turn on the drone

Switch on PlutoX using the slide switch on the right side of the drone.

D. Connect to your drone
   a. PlutoX generates its own wifi hotspot. Using wifi settings on your smart-phone,you will discover PlutoX_xxxx wifi hotspot.
   b. Connect to the hotspot using the password provided in the box.
   c. Open the Pluto Controller app.
   d. Click on the CONNECT button.
E. Preflight Checklist
   a. Prop-guards are attached securely.
   b. There are two sets of propellers A & B. You can find the markings near the hub of the propeller. Make sure that the propellers are mounted.
   c. Battery voltage before arming should be above 3.8V. This ensures good flight

d. Please ensure that the motors are connected in the right ports: M5,M6, M7,M8.
e. Perform motor test using “Pluto Controller”.
   1. Go to Menu > Drone Settings > Motor test
   2. Tap on “Spin all”
   3. Verify if all propellers are rotating. If not, please verify step D

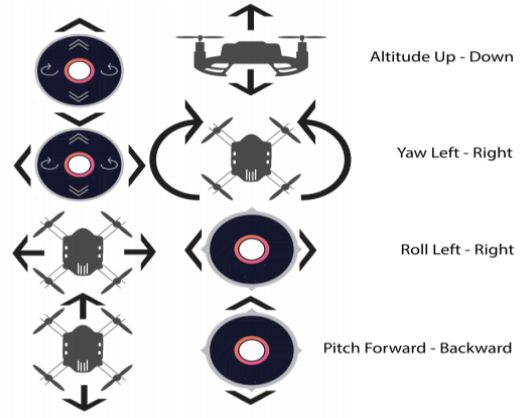


f. Perform accelerometer calibration. Perform motor test using “Pluto Controller”.
1. This calibration accounts for misalignment of the flight controller and frame.
2. Place PlutoX on a perfectly level surface.
3. In the app, go to: Menu > Drone Settings > Acc. Calibration
4. This will reduce the drift, but not eliminate it completely. For eliminating the drift you will have to trim the drone.

g. Perform Magnetometer calibration
1. This calibration accounts for stray magnetic fields. This is essential to achieve good yaw stability.
2. In the app, go to: Menu > Drone Settings>Mag.Calibration.

F. Understanding controls

- It’s very important to understanding the Controls before you start flying.Please go through the following



G. Arming the Drone

- The ARM switch controls power to the motors. It can be thought of as a safety switch. If at anypoint you want to shut the motors, you can use the ARM switch to do so.

- Disarming the PlutoX will land it. You can disarm by clicking on the arm button again.

H. Fly it!

1. Click the ARM button.
2. Make sure you have a lot of free space.
3. Click on the Take-off button. PlutoX should take off to a height of about 3 feet.
4. Try to control only the roll and pitch of the drone. This significantly makes the flying task easy. Your first task is to hover at a point.
5. To land your drone, press the Land button.

Control Settings

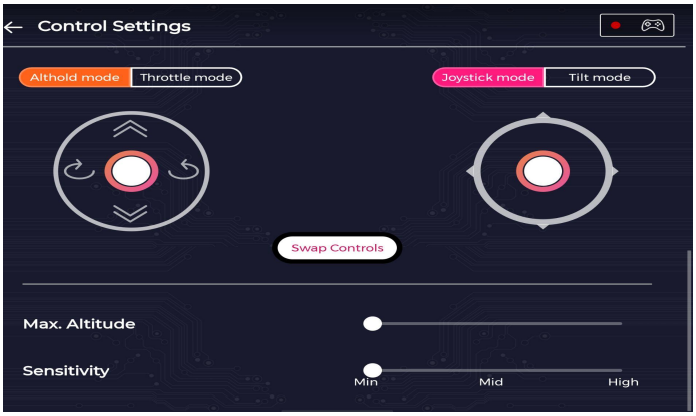
1. **Flight Modes:**PlutoX has various flight modes. Changing the flight mode will change the way you control your drone.
2. **Althold / Throttle mode:**This controls how you control the drone in the Z-axis.
3. **Throttle mode:** When you choose this mode, you control the amount of power supplied to the motors. This essentially controls the acceleration of the drone in the Z-axis. This mode can be hard for a beginner as you would constantly need to provide input to maintain altitude.
4. **Althold mode:** When you choose this mode, you control the velocity of the drone in the Z-axis. This is much easier to control. When the control stick is in the center, the drone tries to maintain its altitude.
5. **Headfree mode:** This mode affects the way you control roll and pitch of the drone. If the pilot loses orientation of the drone, it can be quite challenging to control the drone.When headfree mode is on, the pilot doesn't need to worry about the yaw angle of the drone, the drone manupalites the roll and pitch inputs accounting for changed yaw.

6. Control Modes:

A. **Joystick/Tilt mode:** This customises how you control the roll/pitch of the drone.

B. **Joystick mode:**In this mode, the roll/pitch of the drone is controlled by an on screen joystick.As the touch screen lacks tactile feedback,it requires some getting used to.

C. **Tilt mode:** In this mode, the roll/pitch of the drone is controlled by the tilt of your phone. This mode is much easier to fly for beginners.



Sensitivity: Sensitivity refers to the level of response the drone gives to the controller inputs. For higher sensitivity, even a small input would reflect a huge difference and for lower sensitivity, large inputs would be required for noticeable change. Adjust the sensitivity according to the Pilots style of flying.

Max Altitude: This setting helps you limit the drones maximum height. By default your drone does not limit the height.

Summary: In this assignment we learn to install plutoX, to set up plutoX, setting and how to use plutoX. It will help to control drones.