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Project 4 rev 2 – Drone Flight
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Requirements

The drone assembly, calibration, and flight should be accomplished with the use of provided video and text guides provided in the Project statement.

Design

This drone was assembled as follows

- QWinOut Quadcopter frame, legs, and arms are attached together with screws

- 4 motors and props are attached to the arms and connected to ESCs

- The ESCs are connected to a microcontroller (in this case a Mini Pix flight controller)

- A gps, safety switch and buzzer, and radio controller are connected to the mini pix fc with provided connectors

- A LiPo battery powers the drone and components

- Using Mission planner for Radiolink software, the mini pix fc is connected to usb and calibrated, including the gps, level and orientation, and radio/controller parameters

- The drone should take flight

Implementation

The drone was assembled and made a semi successful first flight, but one motor was spinning slightly slower than the others, causing an unintended trip to the ground. I instead used the mini pix flight controller and was able to better calibrate the drone and achieve flight. Switching to the mini pix was not without issue however, the RC cable did not provide power to the rc receiver even though other videos only described connecting the receiver to the sbus channel. I was able to resolve this by

soldering leads from the power module that came with the mini pix to the rc receiver. Plugging in these pins powered the receiver, which allowed me to finish calibrating the drone, and finally take flight.

Demo

The drone achieved tethered flight and was able to respond properly to all controls.

https://drive.google.com/file/d/1OUpxlKDInEz6dwRWXBrAXMR6qsmN5YLd/view?usp=sharing

References

https://jhu.instructure.com/courses/64026/pages/module-5-project-04-development-of-assemble-and-fly-quadcopter?module_item_id=3471827