A Drone with Automatic Take-off and Landing Functions

By Piercen Lewis and Evan Buck

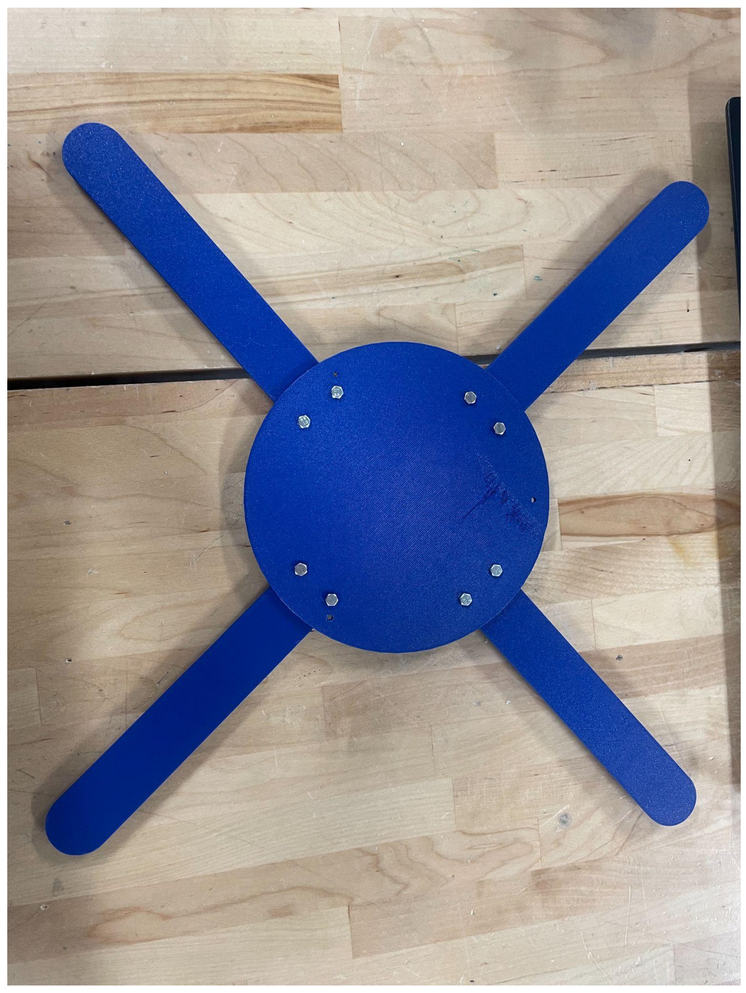
Intro

This drone is just like any quadrocopter. Four propellers, four motors, all the wiring in the middle. It has buttons to make it take off and land, and buttons for all of the controls, like pitch, yaw throttle and roll. We are using the app called Blynk to control this, and on the app, there will be an LCD that gives you the altitude.

How does it work?

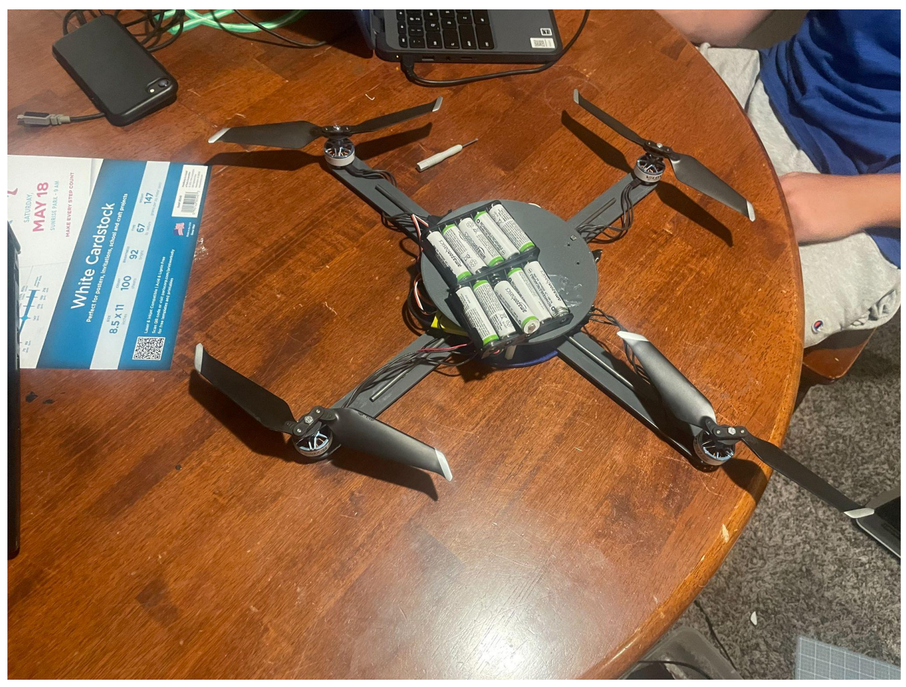
The Blynk app sends inputs via Wifi, which we will use an ESP, which can send and receive Wifi inputs and outputs. The Blynk template will have the takeoff button, which will start the motors and take the drone up to about five feet off of the ground, and a land button, which will slowly bring it down until it is below one foot above the ground, and then it will shut off all of the motors. It will also have pitch controls, yaw controls and throttle controls.

3D Prints



Schematic

Finished Product



Challenges

We had many challenges making this project work. We kept having to redesign the frame because it either broke or we needed to make slight adjustments. It also took us way too long to get all four motors working at once, before the two broke. Blynk was also an insane challenge, because after you've setup a Wifi signal on one of the ESP boards, it is extremely difficult to change that. Also, in my experience, if you have been uploading too many pieces of code onto one board, it will stop letting you upload anything. That might have been something bad on my part, but we tried at least 6 different boards and it happened on all of them after a while. If I could do this project again, I would definitely figure out the frame and all of the motors spinning at once as soon as I can.