DIY Drone Kit

Fly High: Unleash Your Inner Engineer

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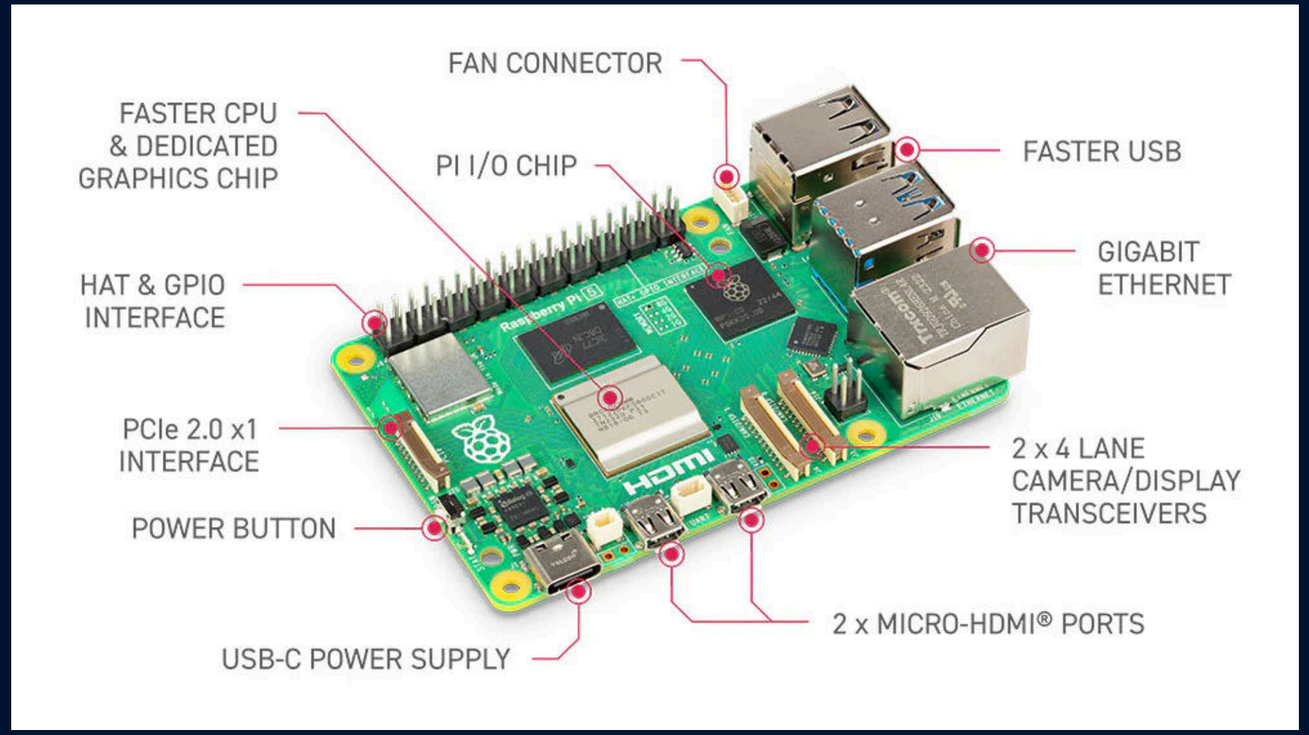
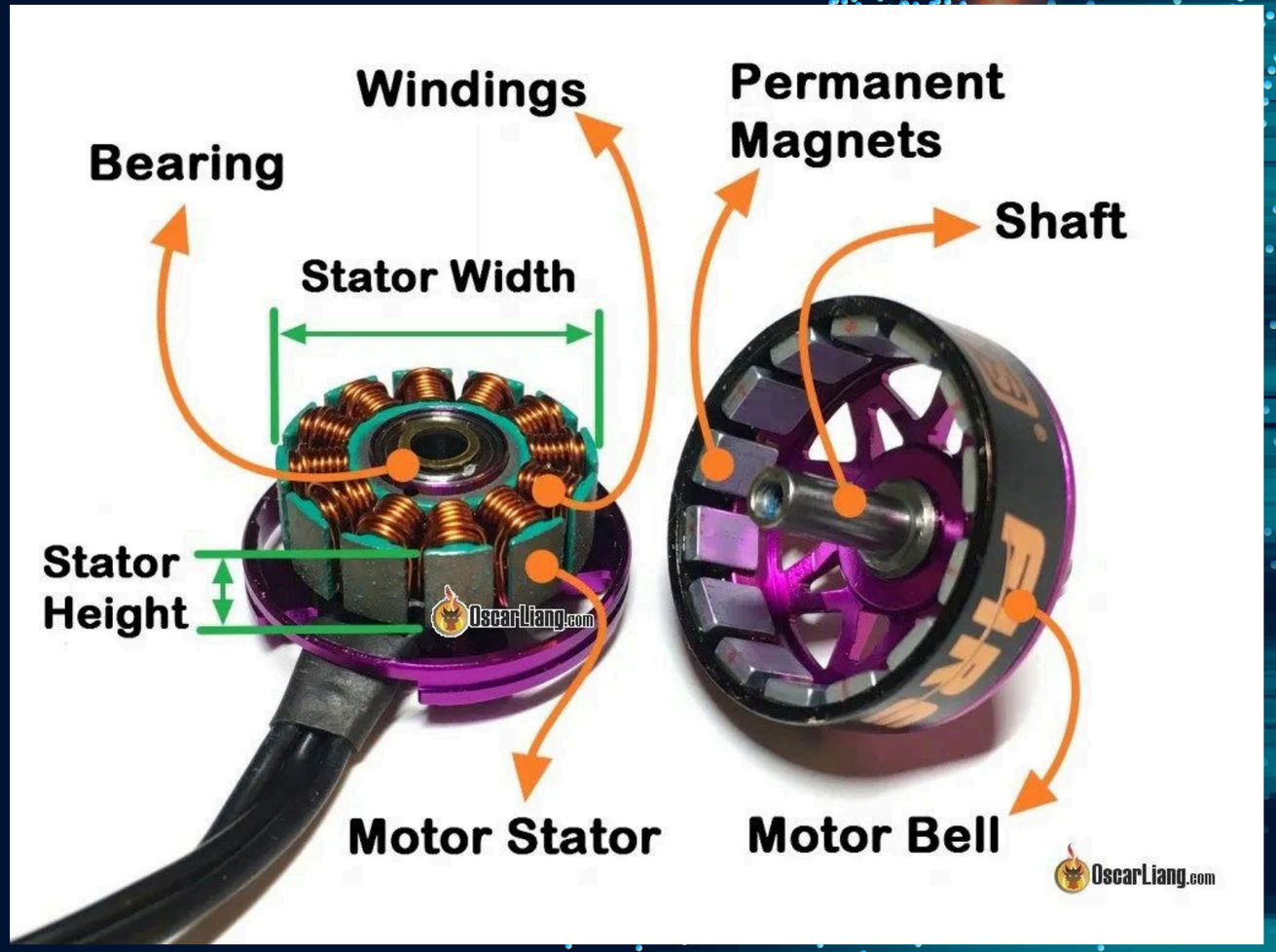
Raspberry Pi 5 (The Brain)

Think of the Raspberry Pi 5 as the “brain” of the drone. It processes information, makes decisions, and controls the other parts to keep the drone stable and follow commands. It runs programs and gathers data from sensors, which helps it decide things like speed, direction, and altitude.



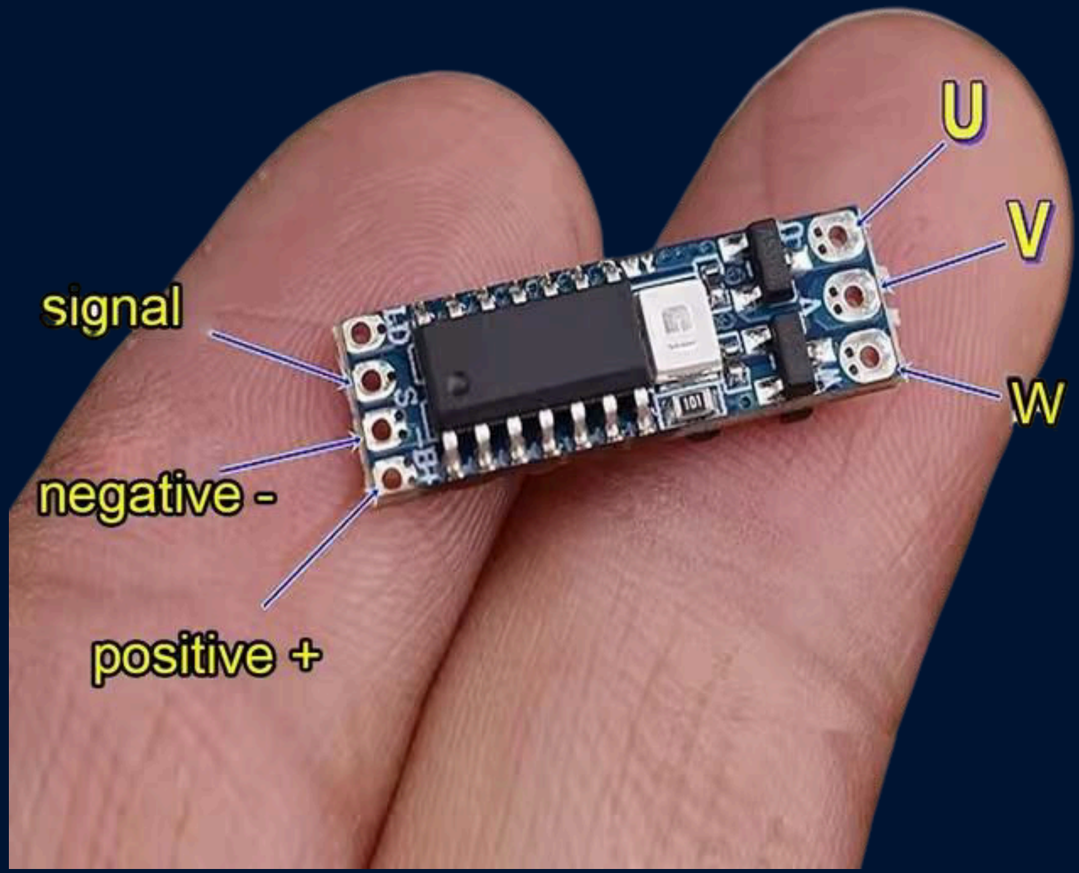
Motors (The Muscles)

Motors are like the “muscles” of the drone, making it move and stay in the air. Each motor spins a propeller, which pushes air downwards to lift the drone up. The faster the motors spin, the more lift the drone has. Our motors are Readytosky RS2205 2300KV Brushless Motors, which means they’re strong and built for fast, precise movements.



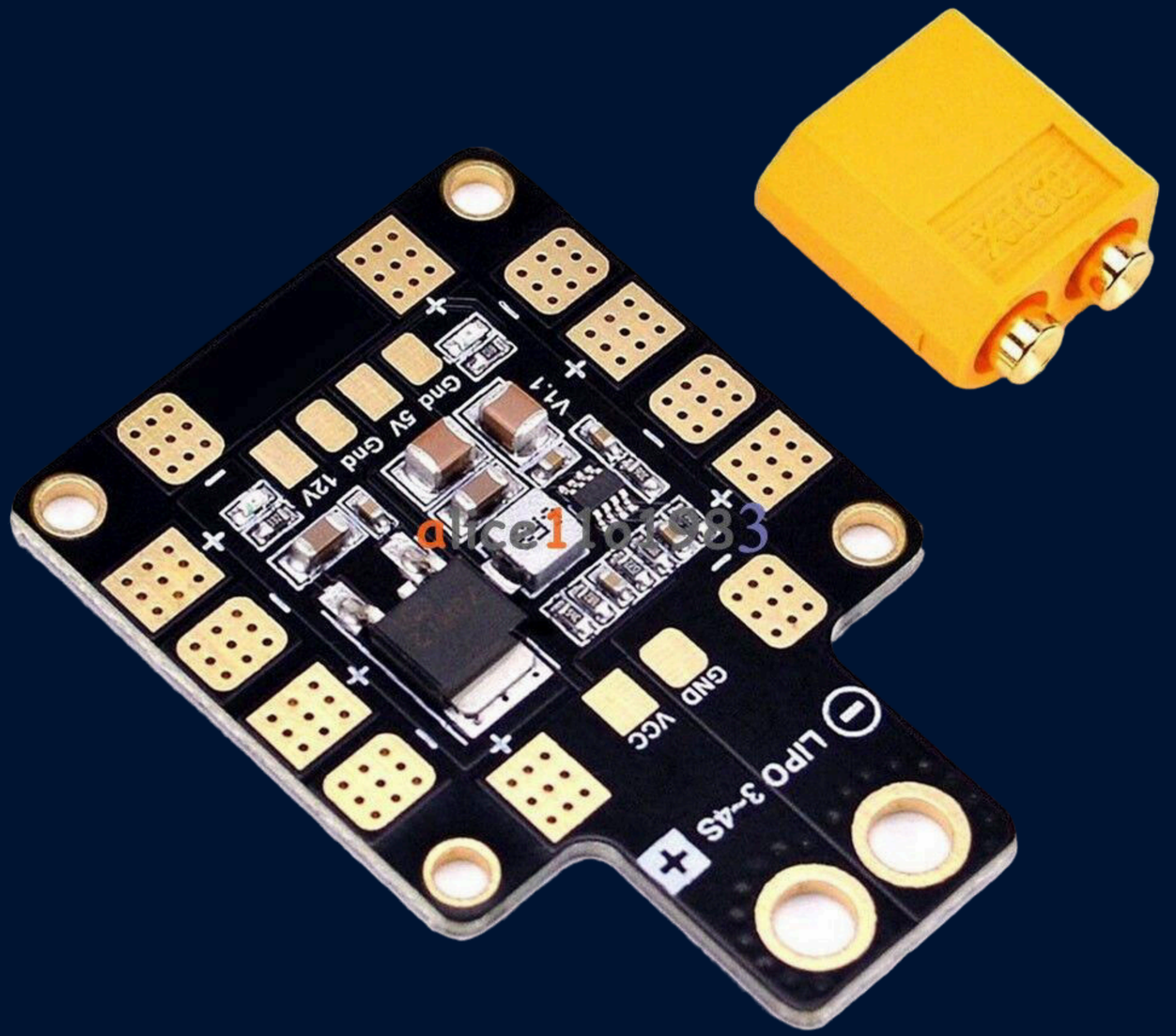
Motor Drivers (The Power Controllers)

Motor drivers, specifically our Cyclone 35A BLHeli_S ones, are like “controllers” that tell the motors exactly how fast to spin. They take instructions from the Raspberry Pi and give the motors the right amount of power to keep the drone balanced and responsive. These drivers help keep everything steady by controlling each motor’s speed accurately.



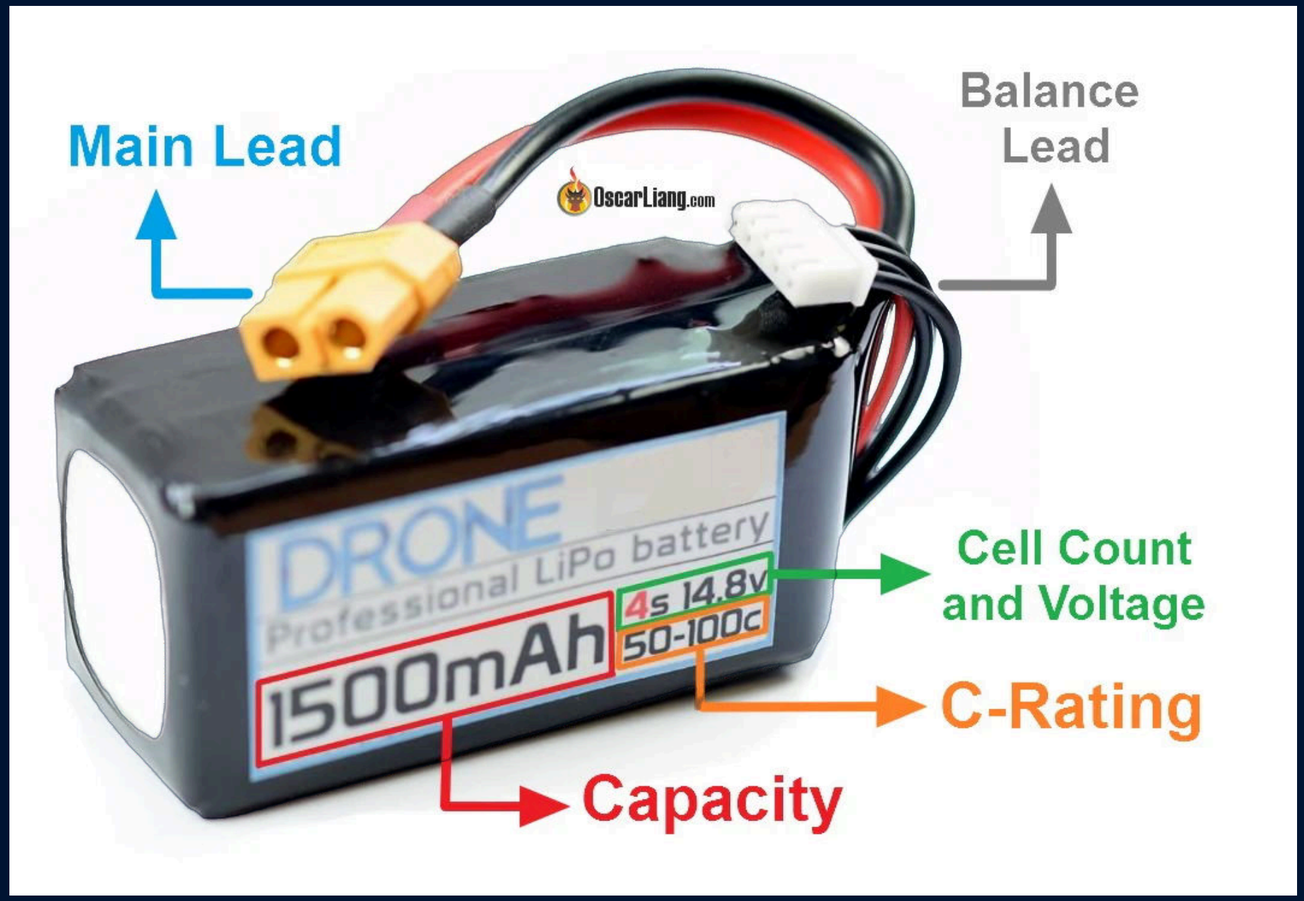
Power Distribution Board (PDB) (The Power Hub)

The PDB is like the “power hub” of the drone. It takes power from the battery and distributes it to all the other parts, so they don’t have to connect directly to the battery. This helps keep everything neat and avoids too many wires. Our Matek Mini Power Hub PDB even includes options for different voltages to power different parts safely.



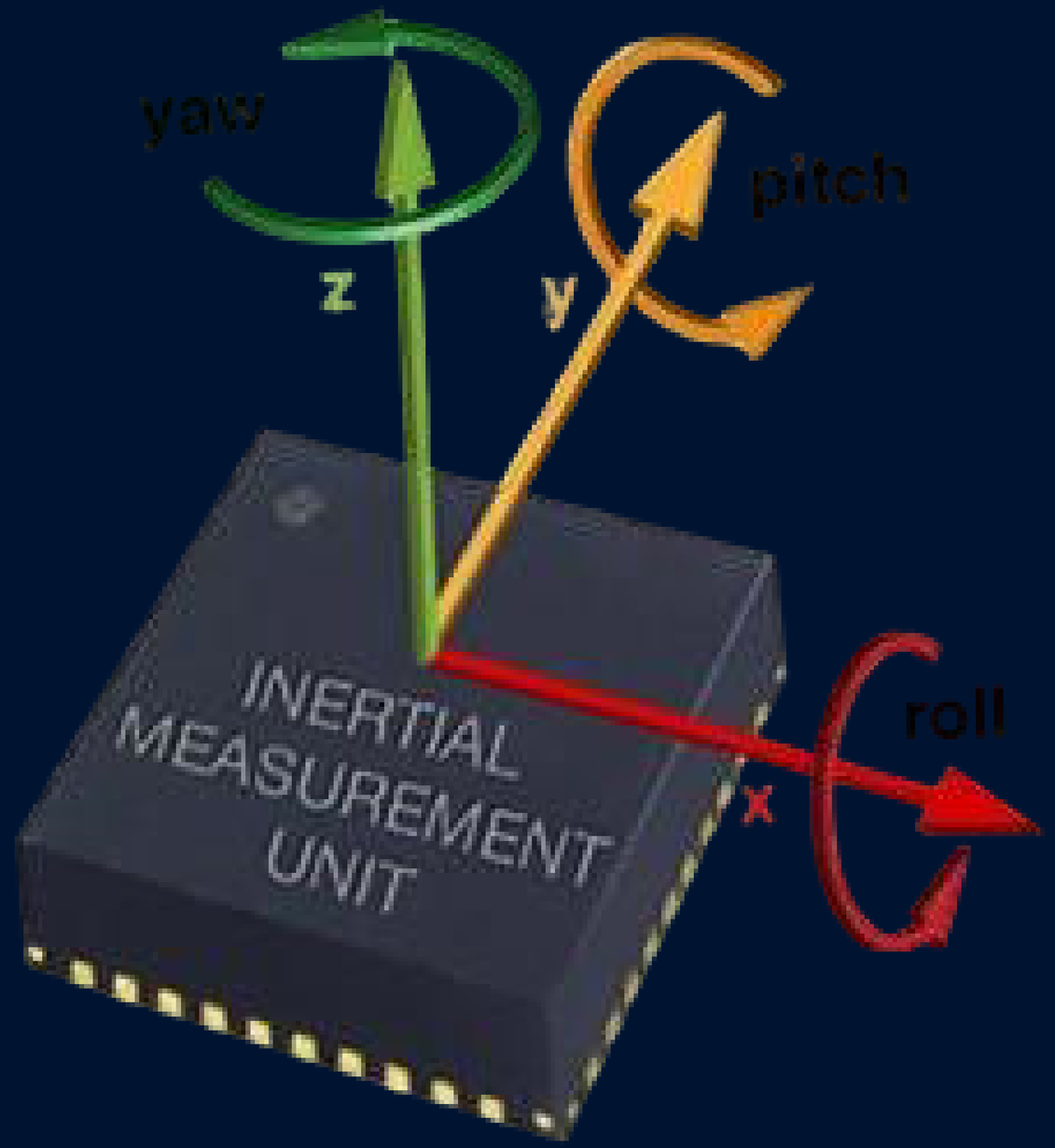
Battery (The Energy Source)

The battery is like the “fuel tank” of the drone, supplying electricity to all its parts. Most drones use rechargeable batteries that provide enough power for a flight, but they have to be recharged after each flight. We’re using a battery that works with the PDB and motor drivers to provide safe and reliable power.



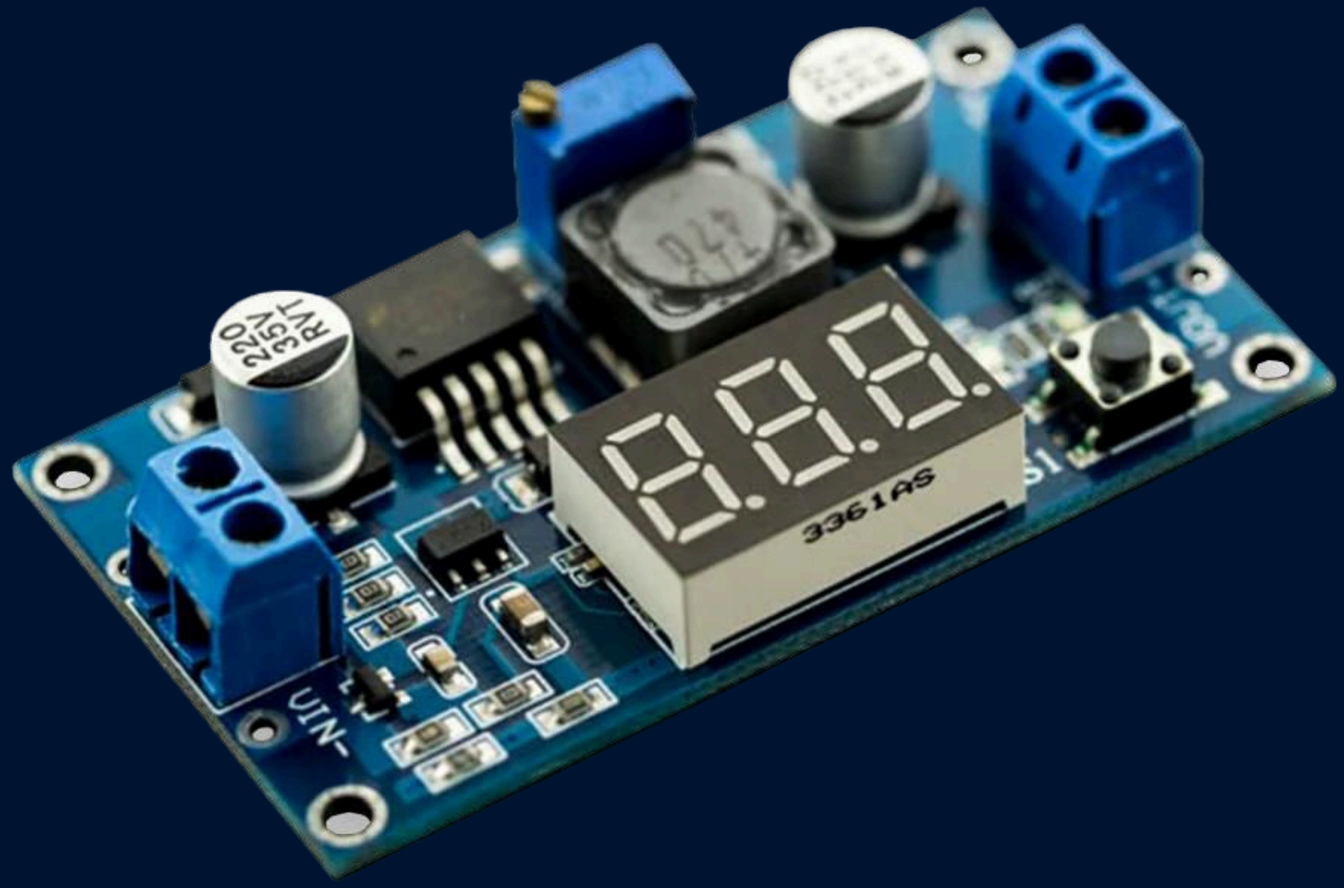
IMU (The Balance Sensor)

The IMU, or Inertial Measurement Unit, is a special sensor that helps the drone understand its position and movement. It can detect if the drone is tilting, speeding up, or slowing down, which helps the Raspberry Pi know when to adjust the motors. This keeps the drone balanced and stable in the air.



Buck Converter (The Voltage Adapter)

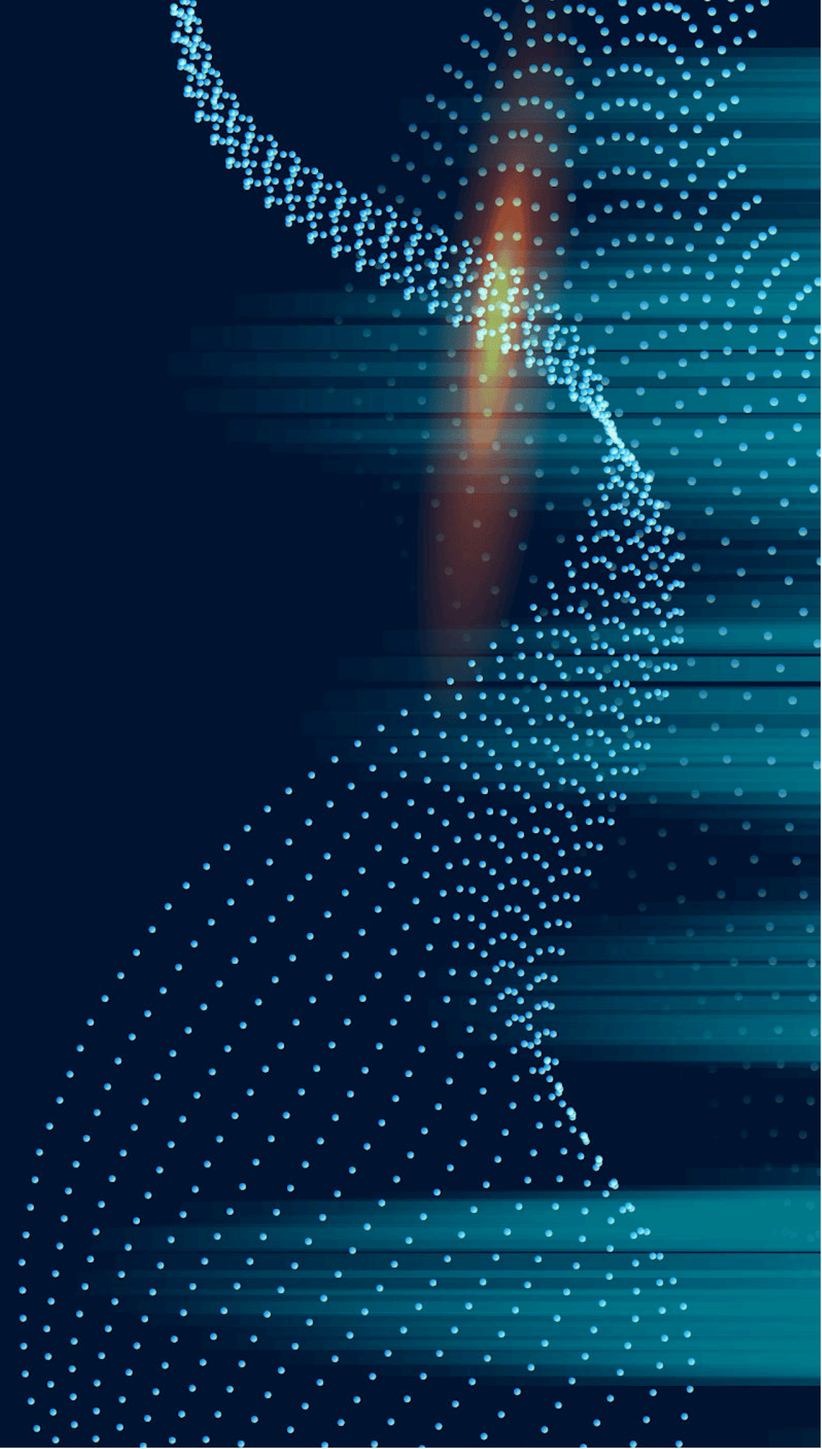
A buck converter is like an “adapter” that steps down the battery’s voltage to a safe level for the Raspberry Pi and other sensitive parts. Without it, the parts could get too much power and potentially get damaged. The buck converter ensures that each part gets the correct voltage it needs to operate safely.



Building Instructions

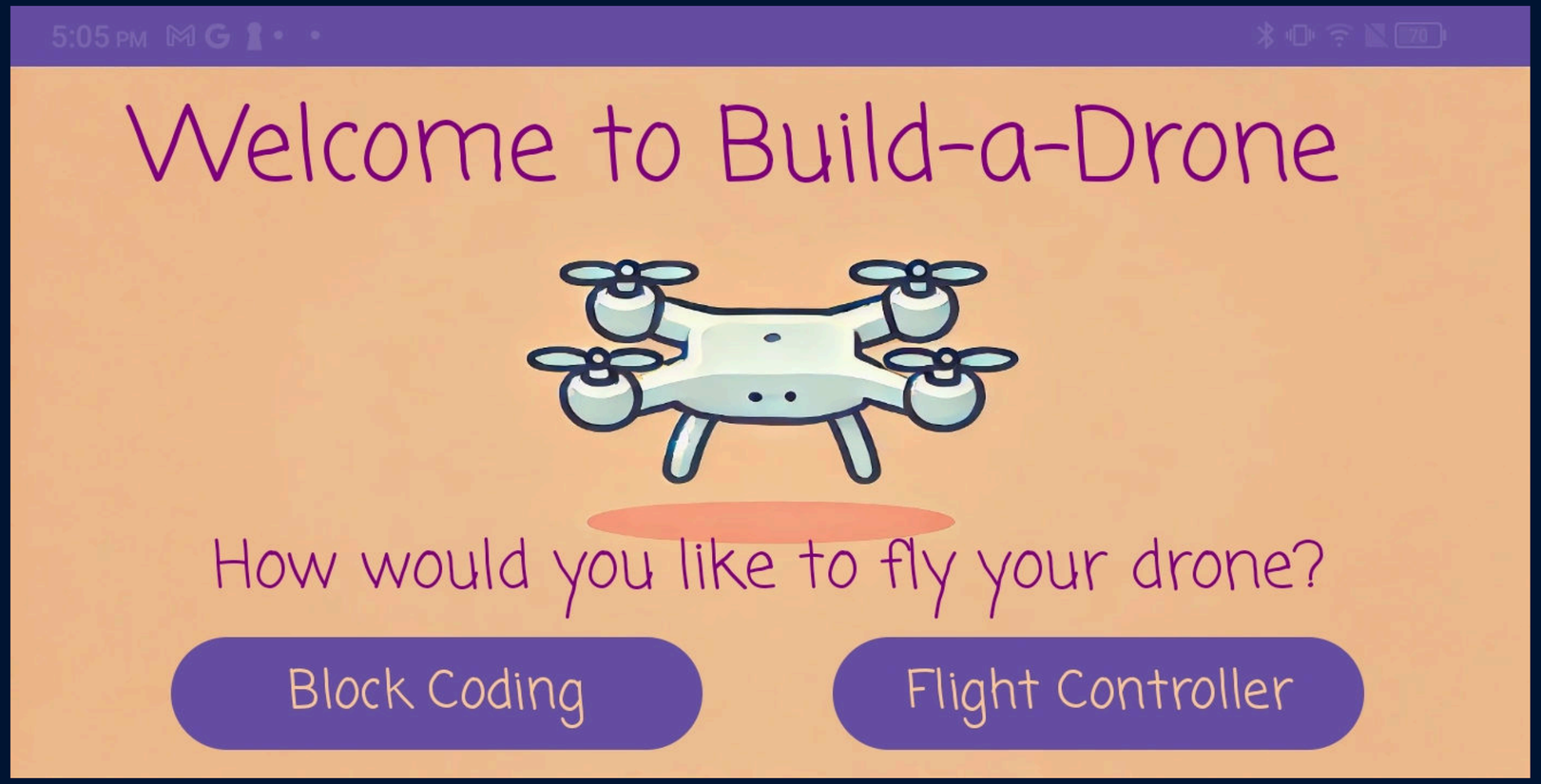
1. 3D Print the chassis
2. Assemble motors onto chassis using screws provided
3. Assemble the Raspberry Pi 5 onto chassis using screws provided
4. Assemble the PDV onto chassis using screws provided
5. Connect motor drivers to motors via pins
6. Clean up the wires using zip ties
7. Put on propellers
8. Download the App and connect

Now that you're equipped with the knowledge of **DIY drone kits**, it's time to take action! Embrace your inner engineer, experiment with designs, and most importantly, have fun flying. Remember, every flight is a new adventure waiting to happen. So, **soar high** and enjoy the journey!



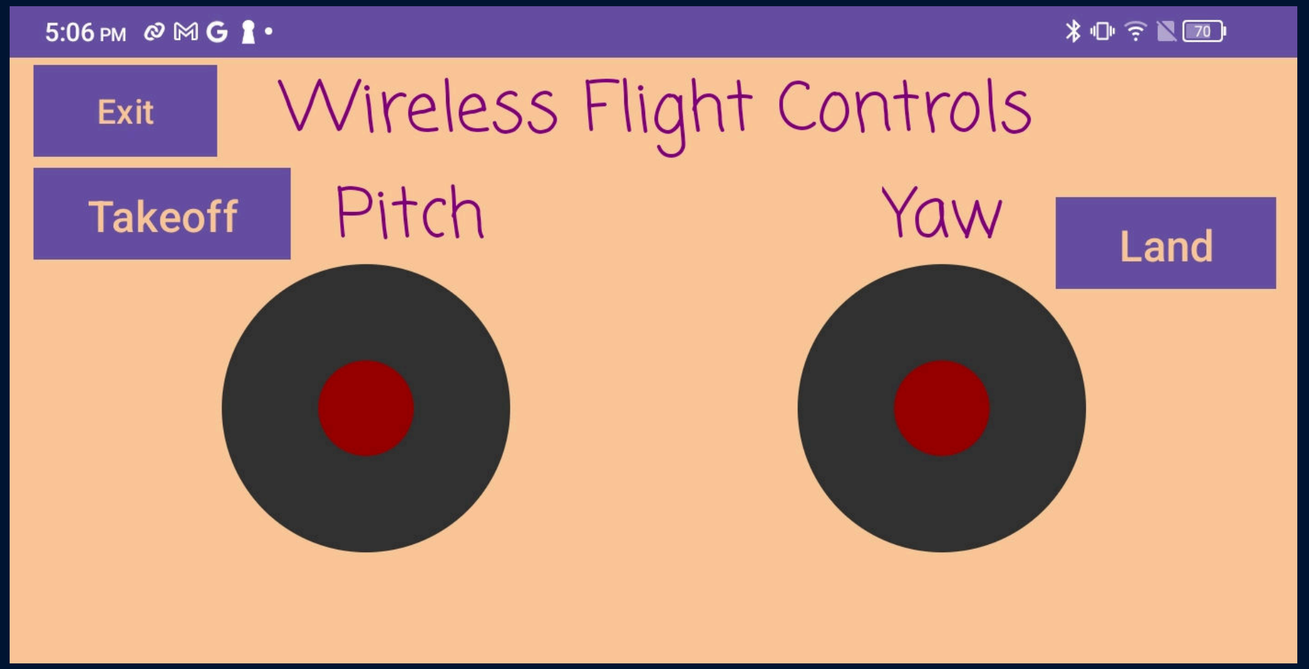
How to Use Our App

There are 2 ways to fly your new drone! Choose the 'Block Coding' option for an easier, more direct way to fly; choose the 'Flight Controller' option for a more experienced, interactive flight.



Flight Controller

There are two joysticks that you will use to fly your new drone. Use these joysticks like a traditional controller; the left joystick controls the pitch, and the right joystick controls the yaw. Select the takeoff button to takeoff. The drone will prepare and then begin to hover. Now it's your turn to take control—let's see if you're as skilled a pilot as you are an engineer! Once you are ready to land, return the drone to a safe landing location and press the land button. The drone will land itself safely.



Block Coding

Select a flying command on the right side of the screen, and the command will enter the command queue on the left. The drone will only take off if you input a safe command, i.e. 'up, left, right, down.' 'Up, up, up, left' is an example of an unsafe flight path. Use the delete button to remove commands from the queue. Once you are happy with your flight path, tap download and watch your creation take flight!