



MAKE AN ARDUINO QUADCOPTER DRONE

SUPERVISOR :

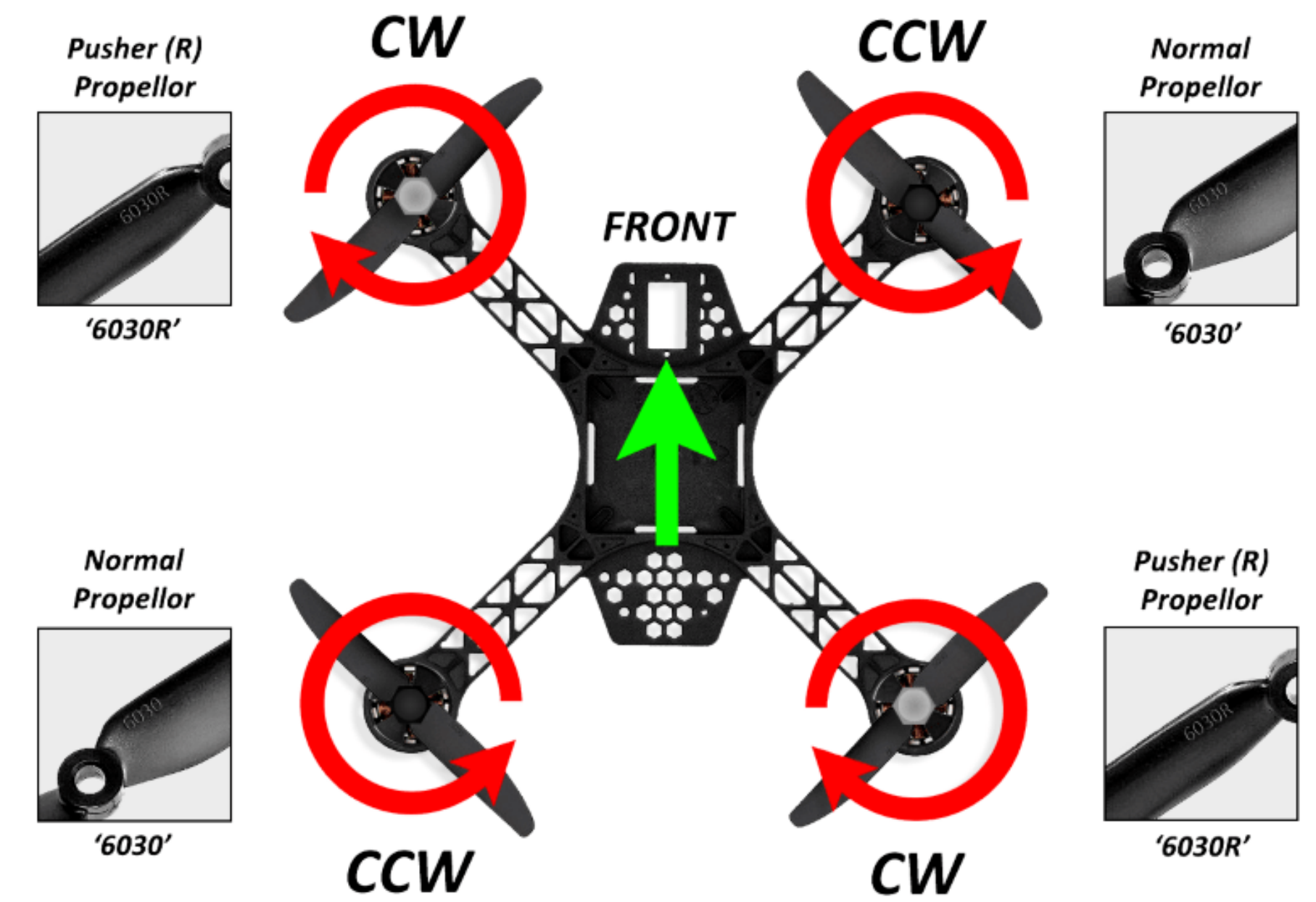
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ABSTRACT :

In the first part, we made a flight controller for our drone using the Arduino Nano and MPU6050 module. In the second part, we made an Arduino-based Remote Controller Pair to control our drone. Now in this final part of our drone series, we are going to assemble the frame of our drone, load it with motors and ESC's and after that, we will complete the circuitry part as well by connecting the Flight Controller and Radio Receiver that we created. The frame that we are going to use here is the DJI F450 Quadcopter frame. Apart from that, we will use BLDC motors with a kV rating of 1400 and some propellers.



COMPONENTS YOU WILL NEED FOR YOUR QUAD:

1 Frame

The “backbone” of the quadcopter. The frame is what keeps all the parts of the helicopter together. It has to be sturdy, but on the other hand, it also has to be light so that the motors and the batteries don’ t struggle to keep it in the air.

2 Motors

The thrust that allows the quadcopter to get airborne is provided by Brushless DC motors and each of them is separately controlled by an electronic speed controller or ESC.

3 ESCS

Electronic Speed Controller is like a nerve that delivers the movement information from the brain (flight controller) to the arm or leg muscles (motors). It regulates how much power the motors get, which determines the speed and direction changes of the quad.

4 Propellers

Depending on the type of a quad you build, you can use 9 to 10 or 11-inch props (for stable, aerial photography flights), or 5-inch racing props for less thrust but more speed.

5 Battery

Depending on your setup maximum voltage level, you can choose from 2S, 3S, 4S, or even 5S batteries. But, for a standard for a quad that is planned to be used for aerial filming or photography (just an example), you will need a 11.4 V 3S battery. You could go with the 22.8 V 4S if you are building a racing quad and you want the motors to spin a lot faster.

6 Arduino board

The choice of the specific model depends on the type of the quadcopter you want to build. Whether you are building for aerial photography, racing, freestyle, or more. We will talk about the right choice of board further down the article.

7 IMU

A board that is basically (depending on your choice) a sum of various sensors that help your quad know where it is and how to level itself.

8 RC Controller

The choice of the transmitter depends on the choice of the protocol you are going to use and the signal receiver that is on board the drone.

