# Step 1: HOW a BLDC WORKS

A brushless DC motor (also known as a BLDC motor) is an electronically commuted DC motor which does not have brushes. The controller provides pulses of current to the motor windings which control the speed

These types of motors are highly efficient

Brushless DC motor has two basic parts: the rotor and the stator. The rotor is the rotating part and has rotor magnets whereas stator is the stationary part and contains stator windings.

# Step 2: ESC Aka ELECTRONIC SPEED CONTROLLER
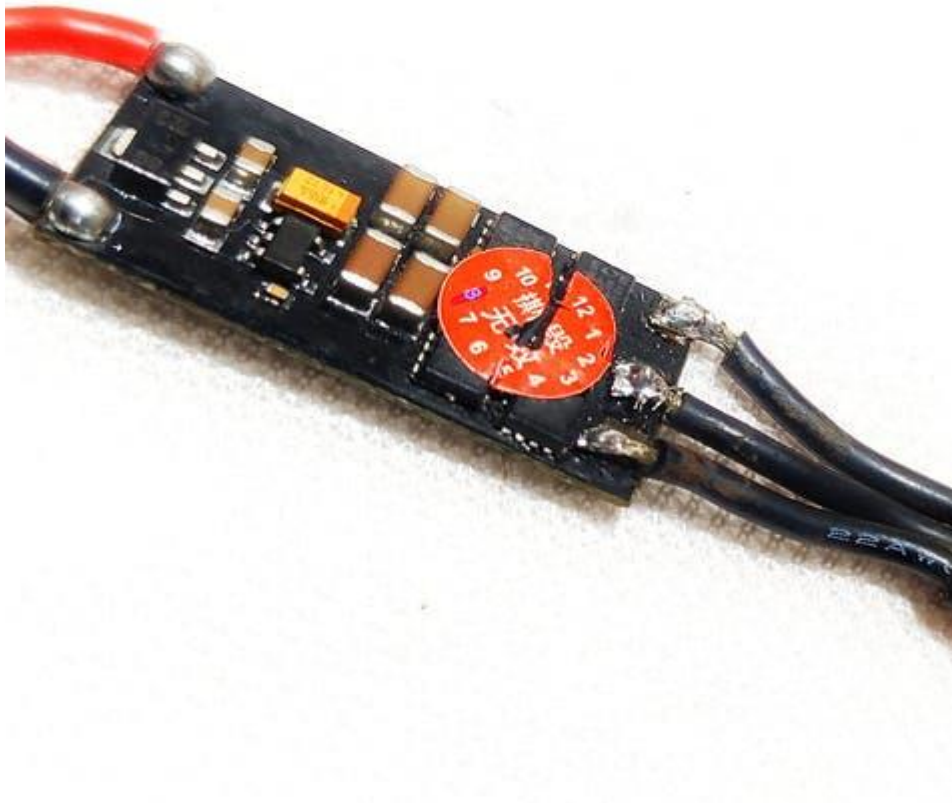
An electronic speed control follows a speed reference signal (derived from a throttle lever, joystick, or other manual input) and varies the switching rate of a network of field-effect transistors (FETs) By adjusting the duty cycle or switching frequency of the transistors, the speed of the motor is changed. The rapid switching of the transistors is what causes the motor itself to emit its characteristic high-pitched whine, especially noticeable at lower speeds.

Step 3: Components Needed for This

- BLDC motor
- ESC
- 7.4V battery
- Arduino
- joystick

Step 4: Circuit Diagram
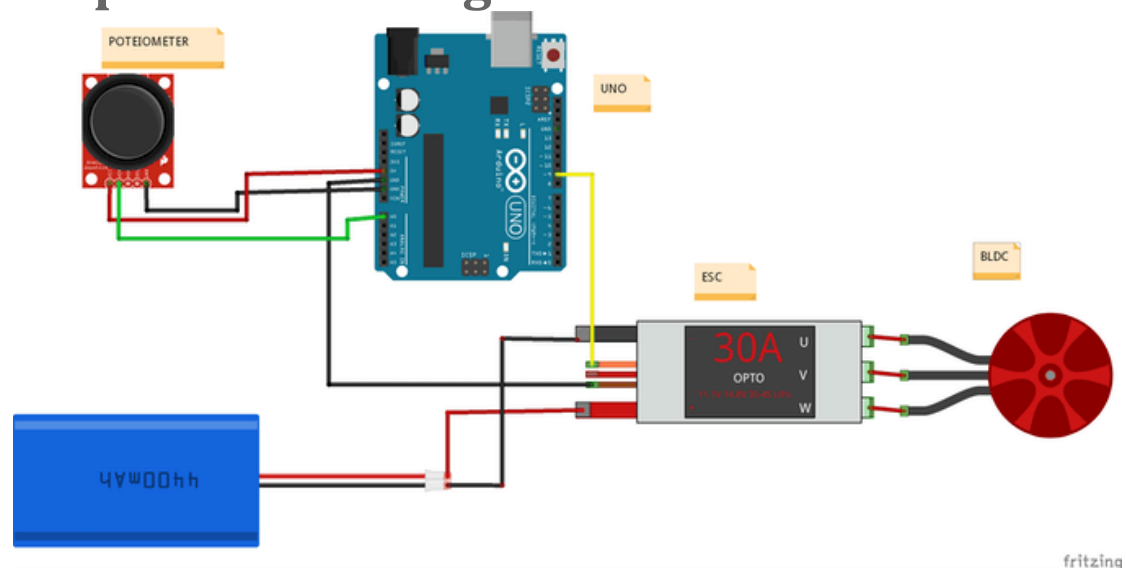
Step 5: Code

```
#include <Servo.h>
        Servo ESC;      // create servo object to control the ESC
        int potValue;  // value from the analog pin
        void setup() {
          // Attach the ESC on pin 9
          ESC.attach(9,1000,2000); // (pin, min pulse width, max pulse width
        in microseconds)
        }
        void loop() {
          potValue = analogRead(A0);    // reads the value of the
        potentiometer (value between 0 and 1023)
          potValue = map(potValue, 0, 1023, 0, 180);    // scale it to use it
        with the servo library (value between 0 and 180)
          ESC.write(potValue);    // Send the signal to the ESC
        }
```