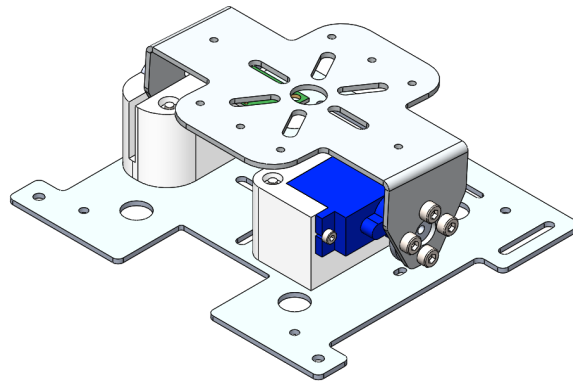


Electronic Gimbal Documentation

Davis Drone Club

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More text.

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4.1 Arduino Code

The gimbal code is designed to run on the 16MHz Arduino Nano. The program consists of library and variable instantiation, setup procedure, loop procedure, and IMU interfacing methods.

4.1.1 Libraries

The Wire library is pre-installed with the Arduino IDE and provides methods for using the I2C communication protocol to interface with the MPU6050. The Servo library is also pre-installed with the Arduino IDE and provides methods for driving servo motors.

The PID_v1 library can be downloaded from [the PID Library Github](#).

```
#include <Wire.h>
#include <PID_v1.h>
#include <Servo.h>
```

4.1.2 Variable Instantiation

Variable instantiations begin with user changeable fields:

```
//NUMBER OF POINTS TO AVERAGE IN OUTPUT AVERAGING
#define NUM_AVG 5

//PID TUNING VALUES- TUNE THE PID LOOP HERE
double kp = 0.4;
double ki = 3;
double kd = 0.0016;
```

4.2 Python Code