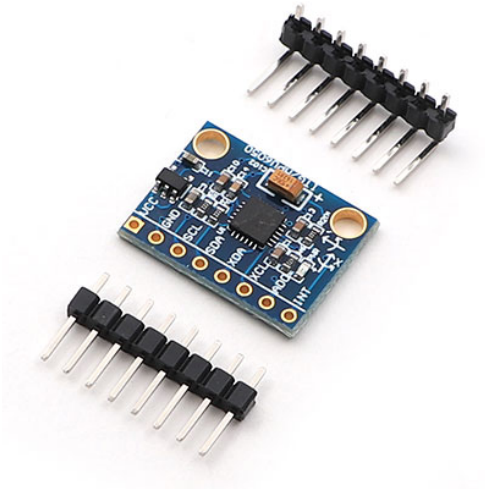
ARDUINO 6DOF SENSOR MODULE

Model:GY-521 MPU-6050

User Manual



Introduction:

The InvenSense MPU-6050 (412 ARDUINO 6DOF SENSOR MODULE) sensor contains a MEMS accelerometer and a MEMS gyro in a single chip. It is very accurate, as it contains 16-bits analog to digital conversion hardware for each channel. Therefor it captures the x, y, and z channel at the same time. The sensor uses the I2C-bus to interface with the Arduino.
The MPU-6050 is not expensive, especially given the fact that it combines both an accelerometer and a gyro.

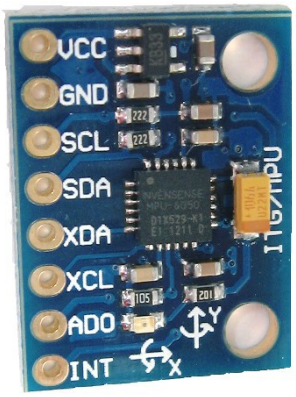


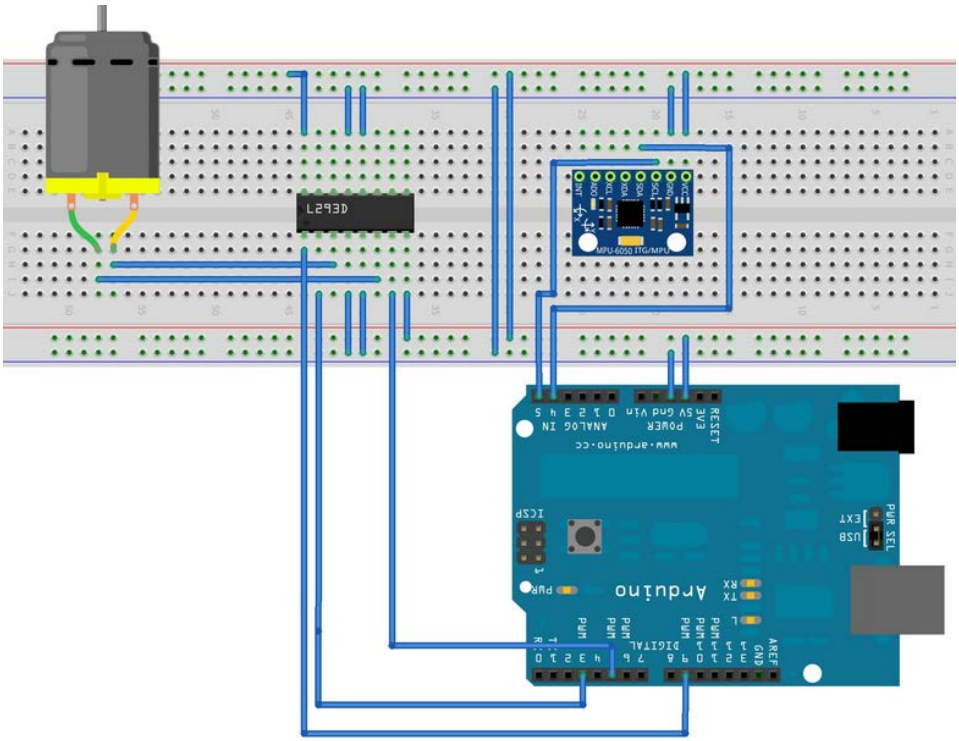
Photo: GY-521 breakout board

Also note that Invensense has combined the MPU-6050 with a magnetometer (compass) in a single chip called 412 ARDUINO 9DOF SENSOR MODULE.

Materials to use:

1. Arduino UNO
2. GY-521 (MPU-6050)
3. L293D Driver IC
4. DC Motor
5. Breadboard
6. Jumper wire

Wiring Diagram:



How to add library:

Distract the folder found in software, and just like adding any other library, copy the folder to My Documents -> Arduino -> libraries.

Arduino Code

```
#include <Wire.h>
#include<I2Cdev.h>
#include<MPU6050.h>
MPU6050 mpu;
int16_t ax, ay, az;
int16_t gx, gy, gz;
#define pin1 3
#define pin2 5

void setup(){
 Serial.begin(9600);
 Serial.println("Initialize MPU");
 mpu.initialize();
 //Serial.println(mpu.testConnection() ? "Connected" : "Connection failed"); pinMode(pin1,OUTPUT);
 pinMode(pin2,OUTPUT);
}
```

```
void loop(){
 mpu.getMotion6(&ax, &ay, &az, &gx, &gy, &gz);

 ax = map(ax, -17000, 17000, -1500, 1500);

 //Serial.println(ax);
 if(ax > 0){
  if(ax<255){
  Serial.println(ax);
  analogWrite(pin2,ax);
 }
 else{
  Serial.println("+255");
  analogWrite(pin2,255);
 }
 }
 if(ax<0){
  if(ax>-255){
  Serial.println(ax);
  analogWrite(pin1, ax-ax-ax);
 }
 else{
  Serial.println("-255");
  analogWrite(pin1, 255);
 }
 }
 delay(1000);
}
```

Note: More example codes are found in Software (MPU6050/examples).

How to open Software:

- Enter to http://www.ekt2.com/products/productdetails?ProductId=5895F99D-B324-46DF-B6D2-8444F8123127

- Press the icon to start the download