GY-521

**GY-521:** This is a breakout board for the MPU-6050 MicroElectroMechanical System (MEMS).

A close-up of a circuit board

Description automatically generated with medium confidence

The black square in the middle is the MPU-6050. The MPU-6050 features:

1. 3-axis Gyroscope: This is used to measure the change in motion on all 3 orthogonal axes x, y, and z.
2. 3-axis Accelerometer: This is a tool that measures the acceleration of any body or object in its instantaneous rest frame.
3. Temperature Sensor
4. Digital Motion Processor (DMP): This is used to compute complex algorithms like to turn raw values from the sensor into stable position data.

CONNECTIONS:

1. VCC (3.3 V – 5V)
2. GROUND
3. SCL: Serial Clock Line
   1. Note: SCL and SDA are both pins that are part of the I2C serial bus/communication protocol. This pin is for it to act as a slave and Arduino as master.
4. SDA: Serial Data Line
   1. Note: SCL and SDA are both pins that are part of the I2C serial bus/communication protocol. This pin is for it to act as a slave and Arduino as master.
5. XDA: This is Auxiliary Data Line
   1. => I2C master Serial Data Line for connecting module to external sensors
6. XCL: This is Auxiliary Clock Line
   1. => I2C master Serial Clock Line for connecting module to external sensors

Note: The XCL and XDA allow for the GY-521 to gather extra data from other external sensors without needing a middle main system processor such as an Arduino uno.

1. AD0:
   1. If LOW: I2C address is **0x68**
   2. If HIGH: I2C address is **0x69**
2. INT: This stands for interrupts and is used to handle interrupts