Overview

The MPU6050 is a widely used six-axis motion tracking device with an integrated 3-axis gyroscope and 3-axis accelerometer.The accelerometer works on the principle of piezo electric effect, the ability of certain materials to generate an electric charge in response to applied mechanical stress.Gyroscopes work on the principle of Coriolis acceleration. Imagine that there is a fork like structure, that is in constant back and forth motion. It is held in place using piezo electric crystals. The MPU6050 communicates with the microcontroller through an I2C interface and supports a variety of motion processing algorithms.

Specification

Accelerometer: (1)Range: ±2g, ±4g, ±8g, ±16g; (2) Sensitivity: varies depending on the range, up to 16384 LSB/g

Gyroscope: (1) Range: ±250°/s, ±500°/s, ±1000°/s, ±2000°/s; (2) Sensitivity: varies depending on the range, up to 131 LSB/°/s

Communication interface: I2C (up to 400kHz)

Power supply voltage: 2.3V-3.4V

Operating temperature range: -40°C to +85°C

Output: Digital output (16-bit ADC conversion value)

Testing

Fix the MPU6050 and the mobile phone together, pay attention to the same direction of x,y and z axes, use the "phyphox" app on the mobile phone to measure the actual linear acceleration and angular acceleration, and make a comparison at the same time

to obtain the sensitivity and accuracy of the sensor. Under the condition that all conditions remain unchanged, the output value of the sensor at different times is recorded to obtain drift.