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// "A Writing Brush in 3D Calligraphy"  
// You need only 15 minutes to assemble it, if you have some Materials.  
// Arduino Uno board uploaded this sketch is connected to PC by an USB cable.  
// A sketch of Processing should be run in PC to receive data from Arduino.  
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#include <SPI.h> //1  
short rx, ry, rz;//2  
short ax, ay, az;//3  
boolean s = 0;//4  
  
void L3GD20_write(byte reg,byte val) { //5  
  digitalWrite(2, LOW);  
  SPI.transfer(reg);  
  SPI.transfer(val);  
  digitalWrite(2, HIGH);  
} //10  
void LIS3DH_write(byte reg,byte val) {  
  digitalWrite(3, LOW);  
  SPI.transfer(reg & 0b00111111);  
  SPI.transfer(val);  
  digitalWrite(3, HIGH);  
}  
byte L3GD20_read(byte reg) {  
  byte ret = 0;  
  digitalWrite(2, LOW);  
  SPI.transfer(reg | 0x80);//20  
  ret =SPI.transfer(0);  
  digitalWrite(2, HIGH);  
  return ret;  
}  
byte LIS3DH_read(byte reg) {  
  byte ret = 0;  
  digitalWrite(3, LOW);  
  SPI.transfer(reg | 0b10000000);  
  ret =SPI.transfer(0);  
  digitalWrite(3, HIGH); //30  
  return ret;  
} //32  
  
void setup () { //33  
  Serial .begin(115200);  
  digitalWrite(2, HIGH);  
  digitalWrite(3, HIGH);  
  pinMode(2, OUTPUT);  
  pinMode(3, OUTPUT);  
  SPI.begin();  
  SPI.setBitOrder(MSBFIRST); //40  
  SPI.setDataMode(SPI_MODE3);  
  SPI.setClockDivider(SPI_CLOCK_DIV2);  
  L3GD20_write(0x20, B11001111);  
  LIS3DH_write(0x20, B10010111);  
  L3GD20_write(0x23, B00000000);  
  LIS3DH_write(0x23, B00001000);  
  delay(200);  
} //48  
  
void loop () { //49  
  if( analogRead(A5) > 400 ) { s = 1; }else { s = 0; } //50  
  rx = ( L3GD20_read(0x29) << 8 ) | L3GD20_read(0x28) );  
  ry = ( L3GD20_read(0x2B) << 8 ) | L3GD20_read(0x2A) );  
  rz = ( L3GD20_read(0x2D) << 8 ) | L3GD20_read(0x2C) );  
  ax = ( LIS3DH_read(0x29) << 8 ) | LIS3DH_read(0x28) );  
  ay = ( LIS3DH_read(0x2B) << 8 ) | LIS3DH_read(0x2A) );  
  az = ( LIS3DH_read(0x2D) << 8 ) | LIS3DH_read(0x2C) );
```

```
Serial .print(micros()); Serial .print(",");  
Serial .print(rx); Serial .print(","); //58  
Serial .print(ry); Serial .print(",");  
Serial .print(rz); Serial .print(","); //60  
Serial .print(ax); Serial .print(",");  
Serial .print(ay); Serial .print(",");  
Serial .print(az); Serial .print(","); //63  
Serial .println(s);  
} //65  
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```