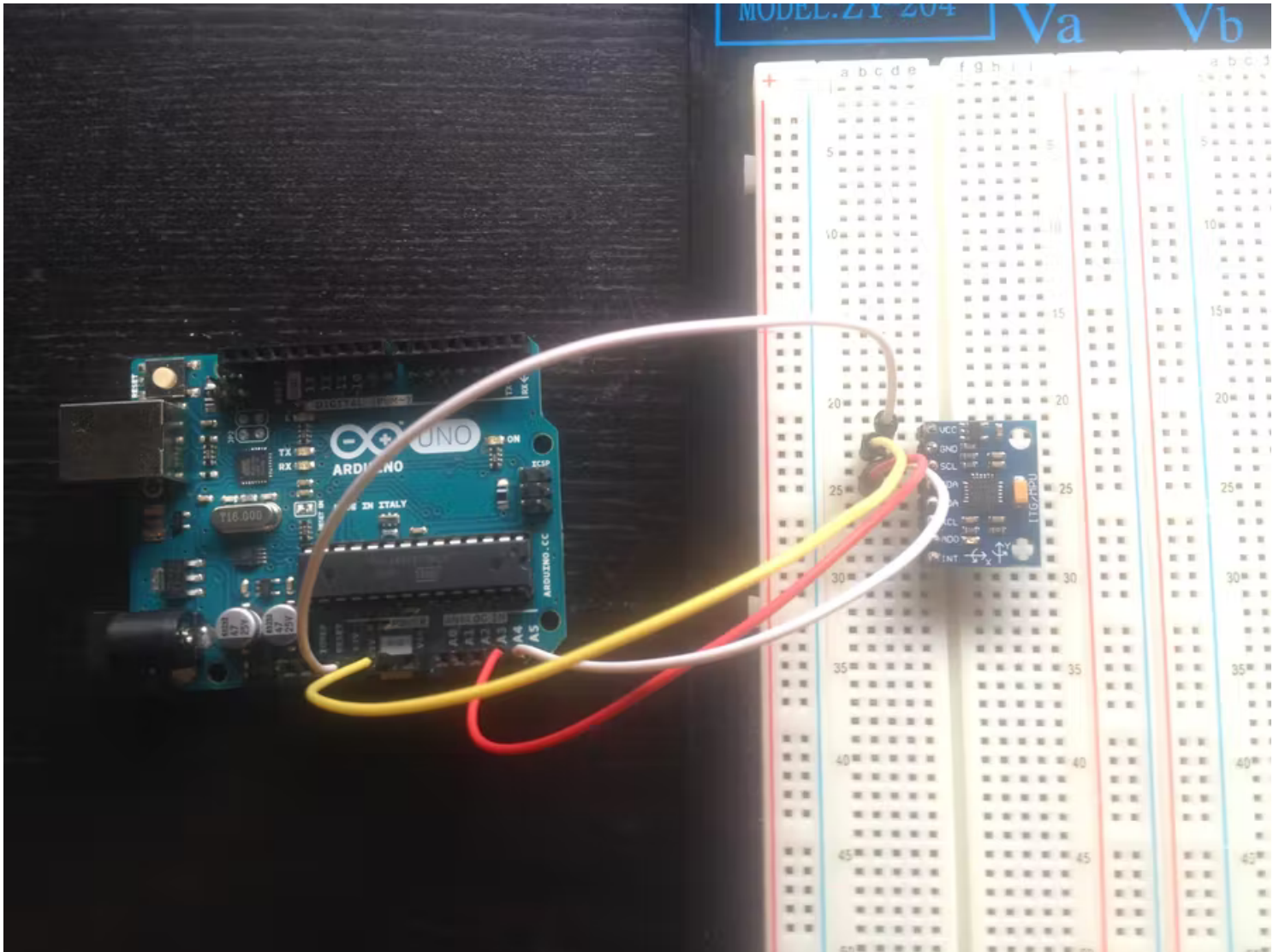


Sign In ([https://www.hackster.io/users/auth/arduino?](https://www.hackster.io/users/auth/arduino?current_site=arduino&setup=true&redirect_to=%2Fprojecthub%2FNicholas_N%2Fhow-to-use-the-accelerometer-gyroscope-gy-521-6dfc19)

[current_site=arduino&setup=true&redirect_to=%2Fprojecthub%2FNicholas_N%2Fhow-to-use-the-accelerometer-gyroscope-gy-521-6dfc19](https://www.hackster.io/users/auth/arduino?current_site=arduino&setup=true&redirect_to=%2Fprojecthub%2FNicholas_N%2Fhow-to-use-the-accelerometer-gyroscope-gy-521-6dfc19))



How to use the accelerometer- gyroscope GY-521

Find out how the world turns. Read the values of the accelerometer and the gyroscope.


accelerometer (/projecthub/projects/tags/accelerometer)

gyroscope (/projecthub/projects/tags/gyroscope)

sensor (/projecthub/projects/tags/sensor)

204,141 VIEWS 25 COMMENTS 48 RESPECTS

COMPONENTS AND SUPPLIES



Arduino UNO

(/projecthub/products/buy/41?s=BAhJlhIONzY3NCxQcm9qZWNOBjoGRUY%3D%0A)

(/projecthub/products/buy/41?s=BAhJlhIONzY3NCxQcm9qZWNOBjoGRUY%3D%0A)

×1

((/projecthub/products/buy/41?s=BAhJlhIONzY3NCxQcm9qZWNOBjoGRUY%3D%0A)

🛒


(/projecthub/products/buy/41?s=BAhJlhIONzY3NCxQcm9qZWNOBjoGRUY%3D%0A)

S
/
b
u
y
/
4
1
?
s
=
B
A
h
Jl
h
l
O
N
z
Y
3
N
C
x
Q
c
m
9
q
Z
W
N
O
B
j
o
G
n

K
U
Y
%
3
D
%
0
A
)

GY-521 MPU-6050 3 Axis
Gyroscope + Accelerometer
Module For Arduino

(/projecthub/products/buy/190?
s=BAhJIhIONzY3NCxQcm9qZWNOB
joGRUY%3D%0A)

× 1 
((/proj (/projecthub/prod
/ ecthu ucts/buy/190?
p b/pro s=BAhJIhIONzY3N
r ducts CxQcm9qZWNOBj
o /buy/ oGRUY%3D%0A)
j 190?
e s=BAh
c JIhION
t zY3N
h CxQc
u m9qZ
b WNOB
/ joGRU
p Y%3D
r %0A)
o
d
u
c
t
s
/
b
u
y
.

/

1

9

0

?

s

=

B

A

h

Jl

h

I

O

N

z

Y

3

N

C

x

Q

c

m

9

q

Z

W

N

O

B

j

o

G

R

U

Y

%

~

5
D
%
O
A
)

ABOUT THIS PROJECT

The accelerometer measures the acceleration along one direction, while the gyroscope measures the angular acceleration on one axis.

Connections:

VCC -> 3.3 V / 5 V (better)

GND -> GND

SCL -> A5

SDA -> A4

XDA ->

XCL ->

ADO ->

INT ->

The analogic pins are not set on INPUT because it's their default setting. The values read by the analogic pins will be sent to the serial port.

Open the *Serial Monitor*, move the sensor and try to see how the values change.

Accelerometers can be used for fun projects, for example to realize a game controller.

CODE

Project code Arduino



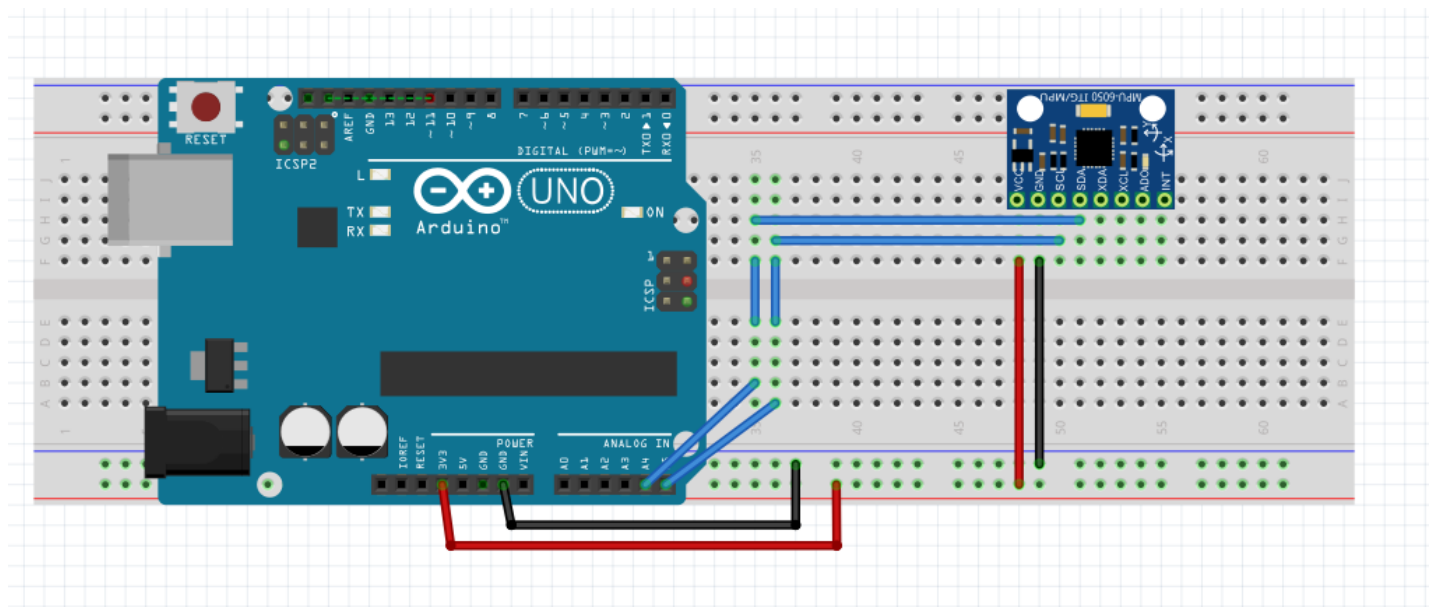
(/PROJECTHUB/CODE_FILES/126928/DOWNLOAD)

```
1  #include<Wire.h>
2  const int MPU=0x68;
3  int16_t AcX,AcY,AcZ,Tmp,GyX,GyY,GyZ;
4
5  void setup(){
6      Wire.begin();
7      Wire.beginTransmission(MPU);
8      Wire.write(0x6B);
9      Wire.write(0);
10     Wire.endTransmission(true);
11     Serial.begin(9600);
12 }
13 void loop(){
14     Wire.beginTransmission(MPU);
15     Wire.write(0x3B);
16     Wire.endTransmission(false);
17     Wire.requestFrom(MPU,12,true);
18     AcX=Wire.read()<<8|Wire.read();
19     AcY=Wire.read()<<8|Wire.read();
20     AcZ=Wire.read()<<8|Wire.read();
```

SCHEMATICS

c
i
r
c
u
i
t
d
i
a
g
r
a
m

DOWNLOAD ([HTTPS://HACKSTERIO.S3.AMAZONAWS.COM/UPLOADS/ATTACHMENTS/327695/GY-521_BREAKOUT_BOARD_V1.0.pdf](https://hacksterio.s3.amazonaws.com/uploads/attachments/327695/GY-521_BREAKOUT_BOARD_V1.0.pdf))



COMMENTS

Please log in (/projecthub/users/sign_in?

id=47674&m=project&reason=comment&redirect_to=%2Fprojecthub%2FNicholas_N%2Fhow-to-use-the-accelerometer-gyroscope-gy-521-6dfc19%23comments) or sign up (/projecthub/users/sign_up?

id=47674&m=project&reason=comment&redirect_to=%2Fprojecthub%2FNicholas_N%2Fhow-to-use-the-accelerometer-gyroscope-gy-521-6dfc19%23comments&source=popup) to comment.



David Held (/projecthub/dheld)

5 years ago

What is the reason for the bit shift and is that an ORing? in the lines like: AcX=Wire.read()
 <<8|Wire.read();
 dheld)
 d)



Nicholas_N (/projecthub/Nicholas_N)

5 years ago

That line reads two registers. With two registers we have one variable.