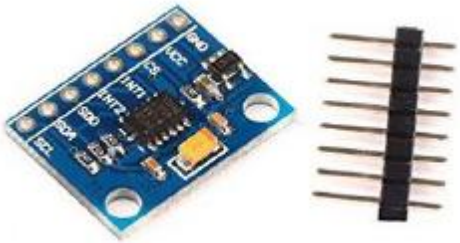
# ADXL345

## Overview



This lesson will teach you how to use the ADXL345 module, and display the three axis data on the LCD.

## Specification

Please view "ADXL345.pdf"

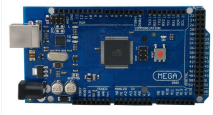
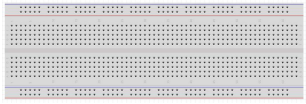
Path: \Public_materials\Datasheet\ ADXL345.pdf

## Pin definition

| ADXL345 | Arduino |
|---|---|
| GND | ->GND |
| VCC | ->+5V |
| CS | ->+5V |
| INT1 | ->null |
| INT2 | ->null |
| SDO | ->null |
| SDA | ->A4 |
| SCL | ->A5 |

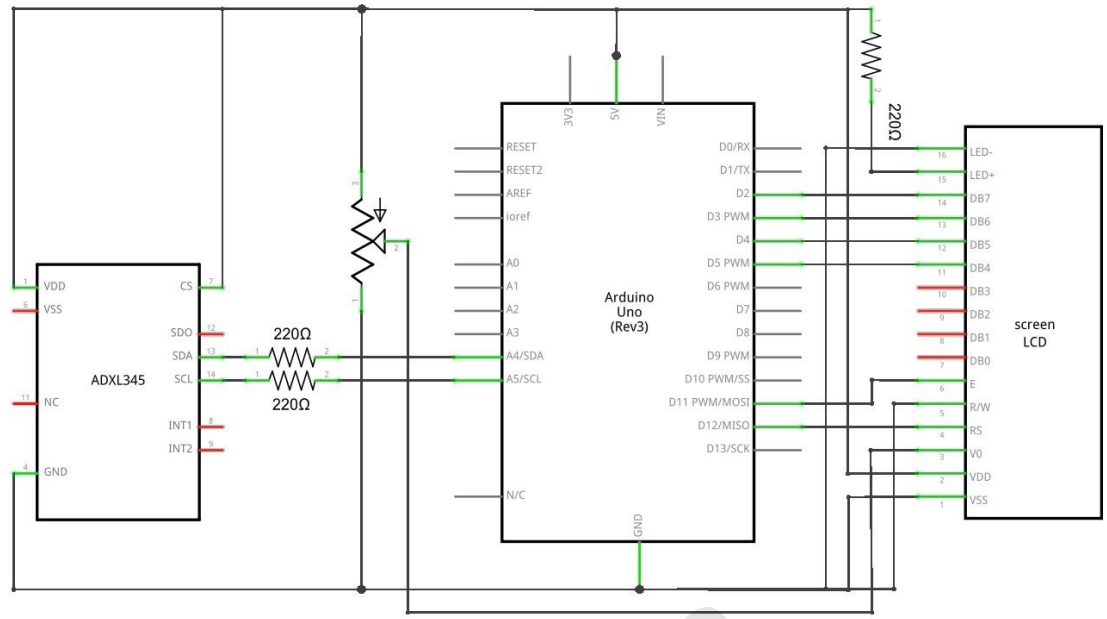


## Hardware required

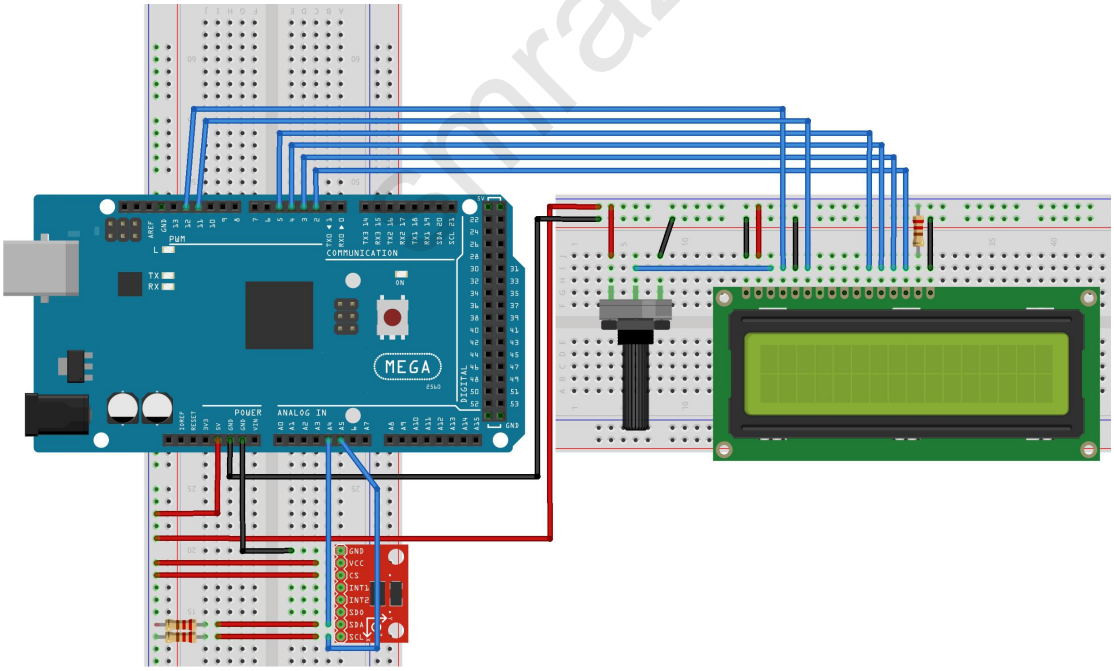
| Material diagram | Material name | Number |
|---|---|---|
|  | ADXL345 | 1 |
|  | 220/330Ω resistor | 3 |
|  | USB Cable | 1 |
|  | MEGA 2560 | 1 |
|  | Breadboard | 1 |
|  | Jumper wires | Several |

## Connection

## Schematic




## Connection diagram




Note： The middle pin of the potentiometer is connected to the LCD1602 port VO.

## Sample code

Note: sample code under the **Sample code** folder

```
#include <Wire.h>
#include <LiquidCrystal.h>
#define Register_ID 0    //Configuration Register Address
#define Register_2D 0x2D
#define Register_X0 0x32
#define Register_X1 0x33
#define Register_Y0 0x34
#define Register_Y1 0x35
#define Register_Z0 0x36
#define Register_Z1 0x37

LiquidCrystal lcd(12, 11, 5, 4, 3, 2);//LCD pin

int ADXAddress = 0xA7>>1; //Converted into 7-bit address
int reading = 0;
int val = 0;
int X0,X1,X_out;
int Y0,Y1,Y_out;
int Z1,Z0,Z_out;
double Xg,Yg,Zg;

void setup()
{
    lcd.begin(16, 2); //Initialization LCD
    delay(100);
    Wire.begin(); //Initialization IIC
    delay(100);
    Wire.beginTransmission(ADXAddress);
    Wire.write(Register_2D);
    Wire.write(8);
    Wire.endTransmission();
    lcd.print(" Welcome to ");
    lcd.setCursor(0,1);
    lcd.print("      Smraza");
    delay(2000);
    lcd.clear();
}

void loop()
{
    Wire.beginTransmission(ADXAddress);
    Wire.write(Register_X0);
    Wire.write(Register_X1);
    Wire.endTransmission();
```

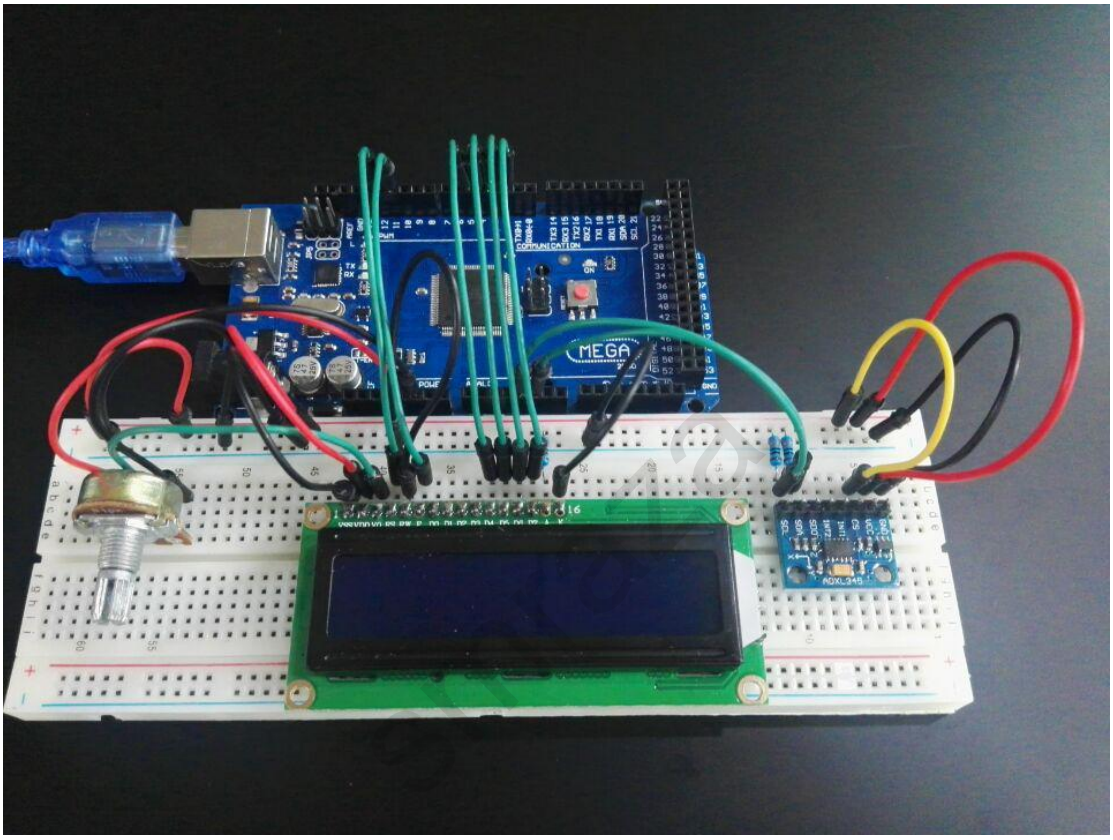
```
Wire.requestFrom(ADXAddress,2);
if(Wire.available()<=2);
{
    X0 = Wire.read();
    X1 = Wire.read();
    X1 = X1<<8;
    X_out = X0+X1;
}
Wire.beginTransmission(ADXAddress);
Wire.write(Register_Y0);
Wire.write(Register_Y1);
Wire.endTransmission();
Wire.requestFrom(ADXAddress,2);
if(Wire.available()<=2);
{
    Y0 = Wire.read();
    Y1 = Wire.read();
    Y1 = Y1<<8;
    Y_out = Y0+Y1;
}

Wire.beginTransmission(ADXAddress);
Wire.write(Register_Z0);
Wire.write(Register_Z1);
Wire.endTransmission();
Wire.requestFrom(ADXAddress,2);
if(Wire.available()<=2);
{
    Z0 = Wire.read();
    Z1 = Wire.read();
    Z1 = Z1<<8;
    Z_out = Z0+Z1;
}

Xg = X_out/256.00;
Yg = Y_out/256.00;
Zg = Z_out/256.00;
lcd.clear();
lcd.print("X=");
lcd.print(Xg);
lcd.setCursor(8, 0);
lcd.print("Y=");
lcd.print(Yg);
lcd.setCursor(0, 1);
lcd.print("Z=");
```

```
    lcd.print(Zg);
    lcd.setCursor(10, 1);
    lcd.print("Smraza");
    delay(300); //Delay 0.3 seconds, the refresh rate is adjusted here
}
```

## Example picture



## Language reference

**Tips**：click on the following name to jump to the web page.
If you fail to open, use the Adobe reader to open this document.

wire
wire.write
wire.read
WireEndTransmission
WireAvailable
WireRequestFrom
WireBeginTransmission
WireBegin
WireSend
WireReceive

## Application effect

By turning the ADXL345 module, the data displayed on the LCD will be changed.

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* About Smraza:
* We are a leading manufacturer of electronic components for Arduino and Raspberry Pi.
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Amazon DE store: http://www.amazon.de/shops/AVEAJYX3AHG8Q
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Amazon IT store: http://www.amazon.it/shops/AVEAJYX3AHG8Q
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