Liquid Crystal Display with I2C Serial Interface

(Technical Note)

What is I2C LCD?

Liquid Crystal Display (LCD) is a commonly used technology to show alphanumeric characters on an electronic device though changing light transmissive properties of different segments. In this device a 5x7 matrix of dots can be programmed to display numerous characters. This 16x2 display device has two rows of sixteen such matrices.

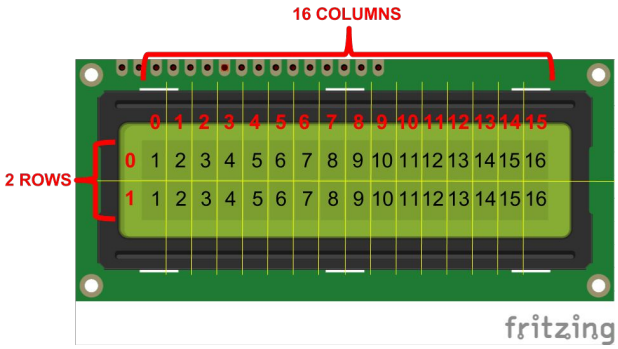
The communication with the device is though serial interface called I2C (Inter-Integrated Circuit) that uses two pins Serial Data (SDA) and Serial Clock (SCL) to trigger data exchange.

Applications

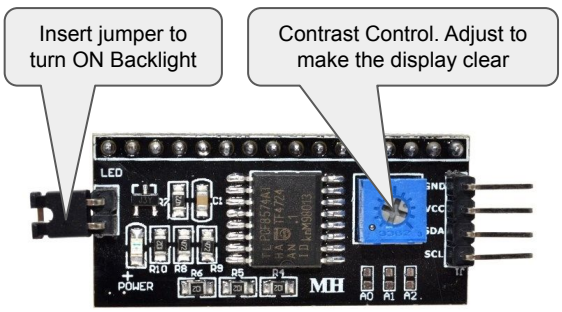
Electronic Toys & Entertainment Devices Consider any entertainment device, be it mobile phone, television or e-book readers, each one of these usually incorporate LCD panels in them for effective usage.

Electronic Sensing Instruments that can measure factors such as temperature, distance,speed and display on screen for the user.

1. https://www.makerguides.com/character-i2c-lcd-arduino-tutorial/



Character position by **lcd.setCursor(Column, Row);**



Z2M Part Number:
EMA-00001-A

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(Application Note)

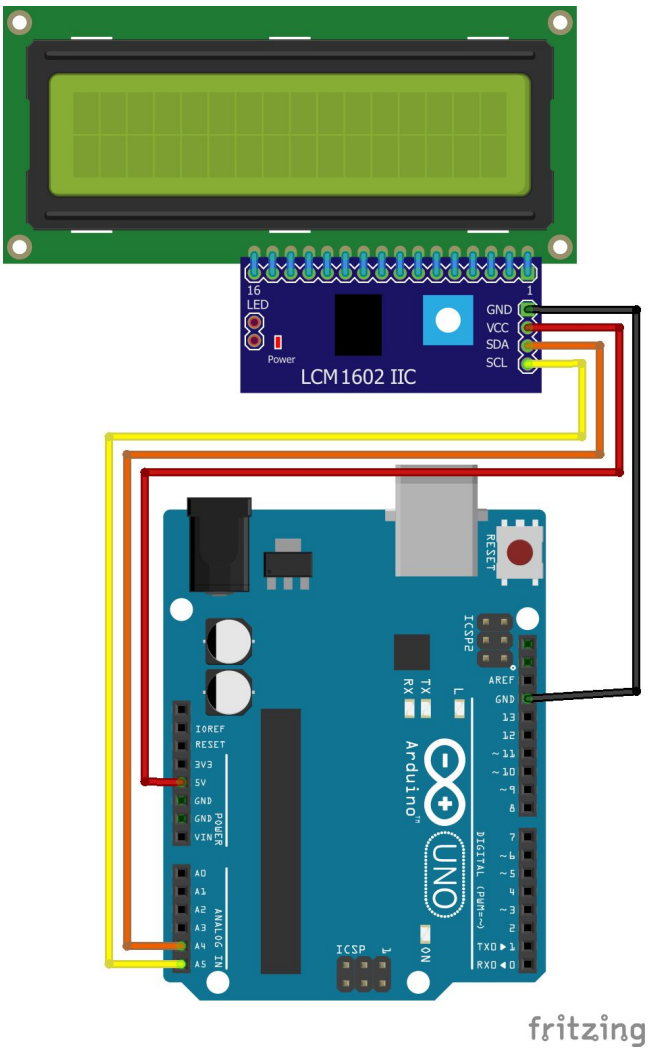
Project

To display characters on 16 X 2 LCD Screen

Procedure

1. Connect Pin SCL (LCD) to Pin A5 (Arduino).
2. Connect Pin SDA (LCD) to Pin A4 (Arduino).
3. Connect Pin GND (LCD) to GND (Arduino).
4. Connect Pin VCC (LCD) to 5V (Arduino).
5. Find and install the required libraries (h files) from https://tinyurl.com/Z2MLibraries.
6. Run the example code given on this page.

Schematic



Challenge Yourself

1. Name Sign: Display your Name on 16X2 LCD
2. Digital Counter: Create a click counter using an I2C LCD display and a push-button switch that counts up for each click of the switch.

Components Required

Component	Z2M Part No.	Quantity
I2C LCD	EMA-00001-A	1
Arduino UNO	EMX-00001-A	1
Jumper M-F	EDA-00001-A	4

Code

```
/*include the following libraries*/
#include <Wire.h>
#include <LiquidCrystal_I2C.h>

/* Set the LCD address to 0x27 for a
16-column and 2-row display*/
LiquidCrystal_I2C lcd(0x27, 16, 2);

void setup()
{
      /* initialize the LCD*/
      lcd.begin();
      /* Turn on the blacklight*/
      lcd.backlight();
}

void loop()
{
/*set the cursor at Column 3, Row 1. Row
1 is 2nd line for LCD. */
       lcd.setCursor(3,1);
   /*print the message*/
       lcd.print("Zero2Maker!");
   /*set the cursor at Column 4, Row 0.
Row 0 is 1st line for LCD.*/
   lcd.setCursor(4,0);
   lcd.print("I feel happy!");
   /*delay for 1 seconds */
   delay(1000);
   /*clear the display content*/
   lcd.clear();
   delay(500);
}
```