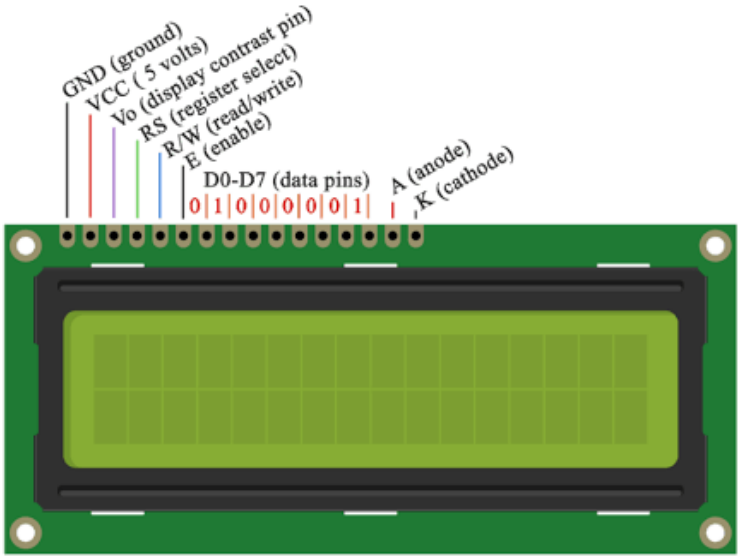
STAC
For software solution

LiquidCrystal LCD



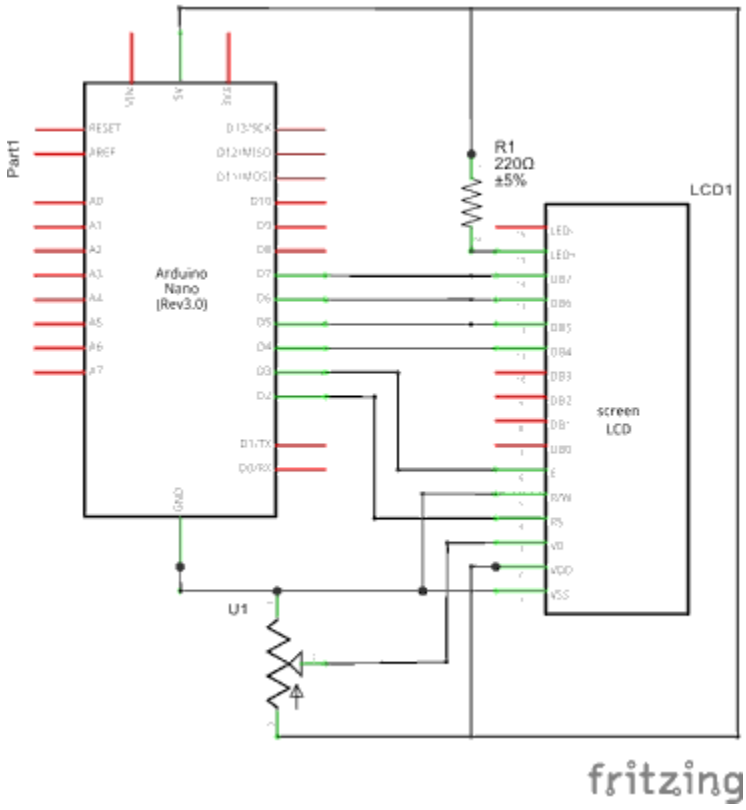
Pin	Name	Descriptions
1	VSS	0V power supply ,GND
2	VDD	+5V positive power supply
3	V0	LCD contrast reference supply (لتحديد شدة اضاءة الشاشة ويتم توصيله بمقاومه متغيره)
4	RS	Register selected RS= HIGH : transferring display data RS= LOW : transferring instruction data مسئوله عن اختيار حالة الشاشة هل سنرسل لها بيانات) تعرضها ام اوامر لتنفذها)
5	R/W	Read/write control bus R/W =HIGH : Read mode selected R/W =LOW : Write mode selected

		(تحدد وظيفة الشاشة هل سنقرا منها ام سنكتب عليها)
6	E	Data enable (طرف تفعيل البيانات وتخزينها)
7	D0	Data bus (اطراف نقل البيانات)
:	:	
14	D7	
15	A	Led backlight positive leg
16	K	Led backlight negative leg

Algorithm :

Print "hello world" and the time in sec

Schematic :



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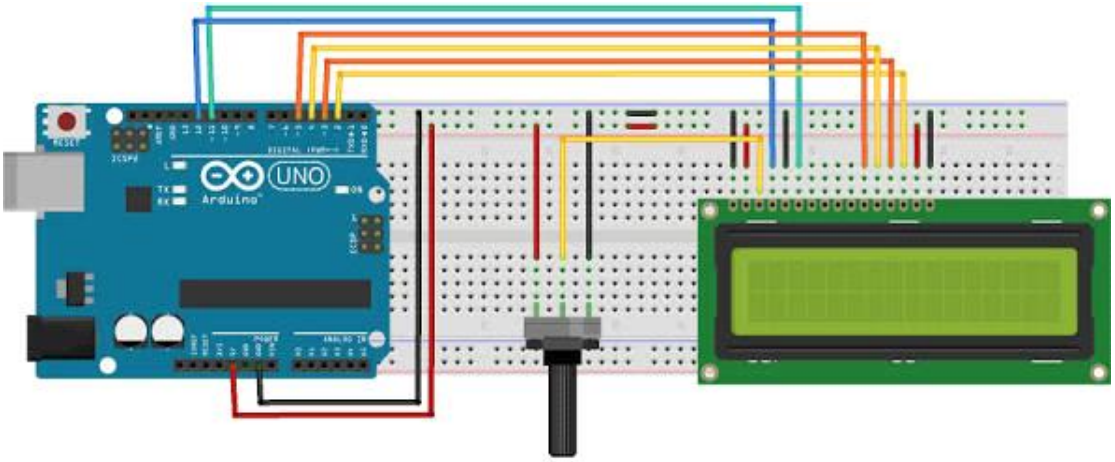
 The circuit:
* LCD RS pin to digital pin 12
* LCD Enable pin to digital pin 11
* LCD D4 pin to digital pin 5
* LCD D5 pin to digital pin 4
* LCD D6 pin to digital pin 3
* LCD D7 pin to digital pin 2
* LCD R/W pin to ground
* LCD VSS pin to ground
* LCD VCC pin to 5V
* 10K resistor:
* ends to +5V and ground
* wiper to LCD VO pin (pin 3)
```

on Arduino :



Code :

```
// include the library code:
#include <LiquidCrystal.h>

// initialize the library with the numbers of the interface pins
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

void setup() {
  // set up the LCD's number of columns and rows:
  lcd.begin(16, 2);
  // Print a message to the LCD.
  lcd.print("hello, world!");
}

void loop() {
  // set the cursor to column 0, line 1
  // (note: line 1 is the second row, since counting begins with 0):
  lcd.setCursor(0, 1);
  // print the number of seconds since reset:
  lcd.print(millis() / 1000);
}
```