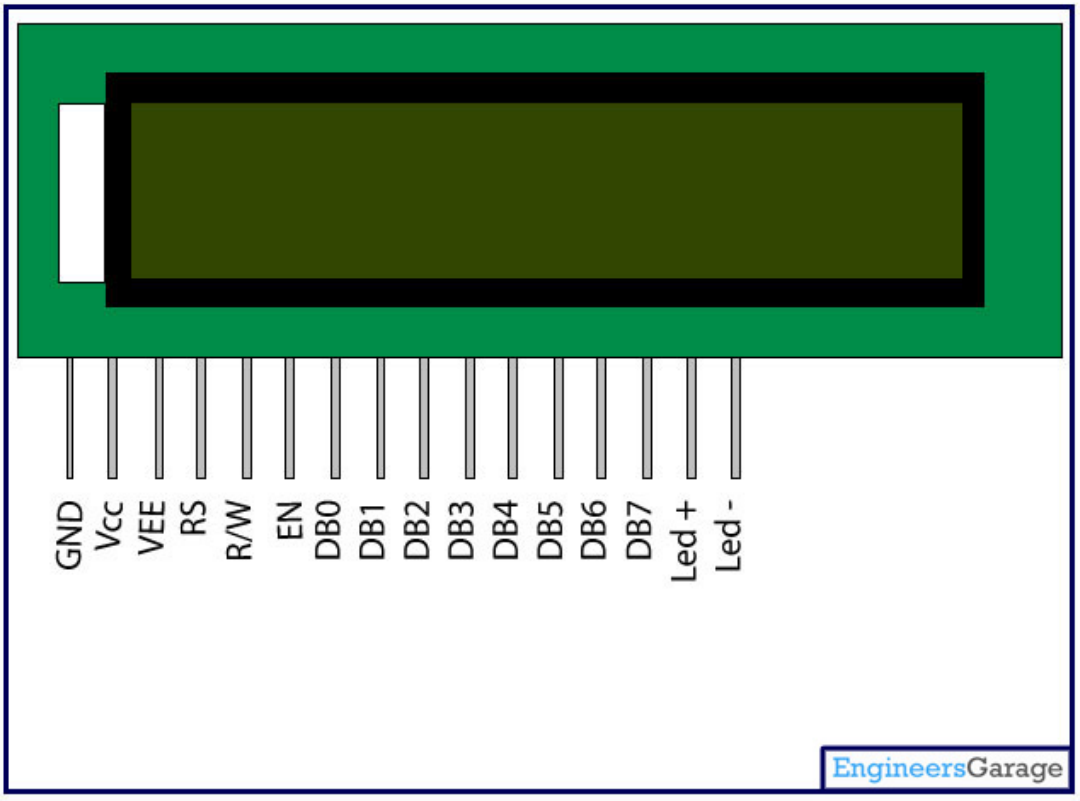
LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. The reasons being: LCDs are economical; easily programmable; have no limitation of displaying special & even custom characters (unlike in seven segments), animations and so on.

A **16x2 LCD** means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data.

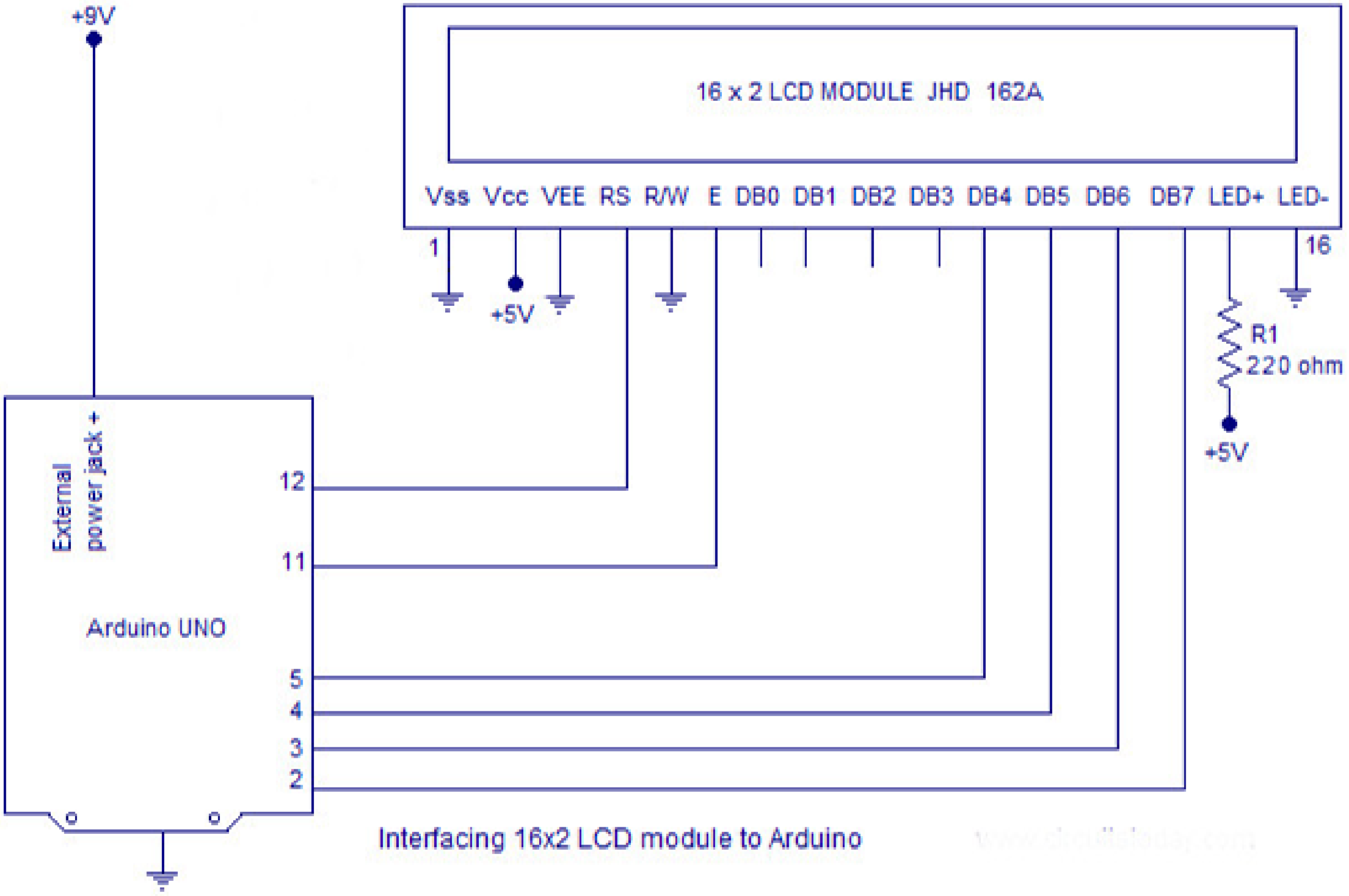
The command register stores the command instructions given to the LCD. A command is an instruction given to LCD to do a predefined task like initializing it, clearing its screen, setting the cursor position, controlling display etc. The data register stores the data to be displayed on the LCD. The data is the ASCII value of the character to be displayed on the LCD. Click to learn more about internal structure of a LCD.

Pin Description:

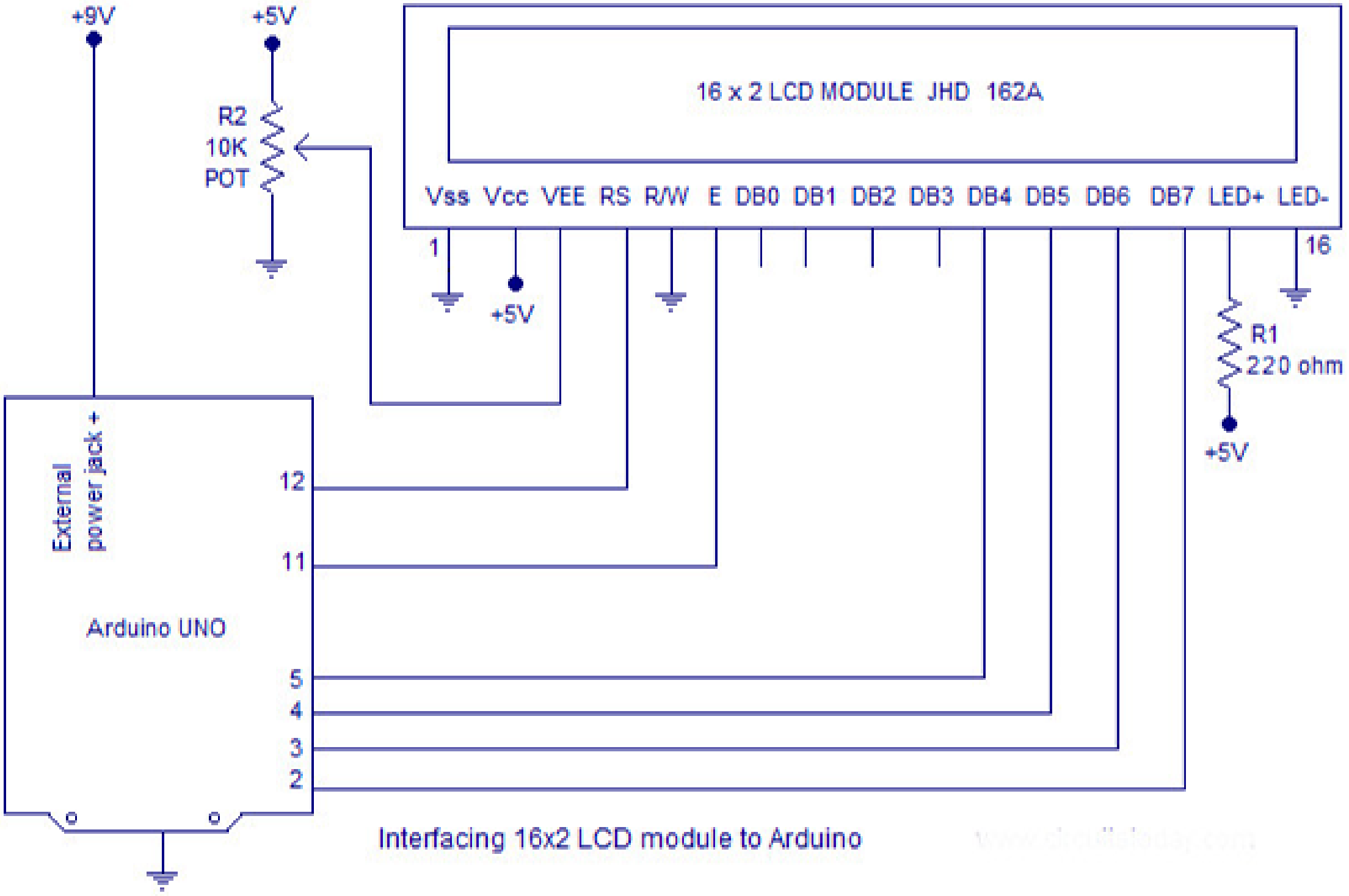
Pin Diagram:



Pin No	Function	Name
1	Ground (0V)	Ground
2	Supply voltage; 5V (4.7V – 5.3V)	Vcc
3	Contrast adjustment; through a variable resistor	V_{EE}
4	Selects command register when low; and data register when high	Register Select
5	Low to write to the register; High to read from the register	Read/write
6	Sends data to data pins when a high to low pulse is given	Enable
7	8-bit data pins	DB0
8		DB1
9		DB2
10		DB3
11		DB4
12		DB5
13		DB6
14		DB7
15	Backlight V_{CC} (5V)	Led+
16	Backlight Ground (0V)	Led-



Interfacing 16x2 LCD module to Arduino



Interfacing 16x2 LCD module to Arduino

```
/*
  SCRITTURA SU LCD
*/

//Includo la libreria LCD nel programma
#include<LiquidCrystal.h>

/* DICHIARO LCD
 *  Nella dichiarazione bisogna indicare i PIN che serviranno
alle seguenti funzioni:
 *  (Register-select, Enable, Dato4, Dato5, Dato6, Dato7)
 *  Abbiamo scelto rispettivamente i PIN:
 *  (4, 5, 8, 9, 10, 11)
 */
LiquidCrystal lcd (4,5,8,9,10,11);
int t;  //dichiaro una variabile intera chiamata t che mi
servirà per contare il tempo

void setup() {
  lcd.begin(16,2);  //inizializzo LCD (larghezza in
caratteri, numero di righe)
  t=0; //inizializzo il tempo a zero
}

void loop() {
  lcd.clear();        //cancello il contenuto
  lcd.setCursor(0,0); //muovo il cursore alla prima riga al
primo carattere
  //scrivo la prima riga di testo
  lcd.print("Tempo = ");
  lcd.setCursor(0,1);  //muovo il cursore sulla seconda riga
  //scrivo la seconda riga col valore del tempo
  lcd.print(String(t) + " s");
  //incremento la variabile tempo
  t=t+1;
  //attendo un secondo
  delay(1000);
}
```