Interfacing LCD with Arduino using AVR-GCC

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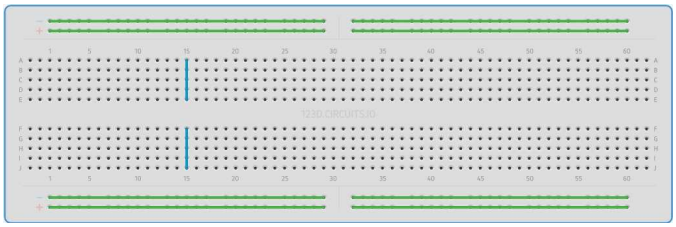

Fig. 1: Breadboard

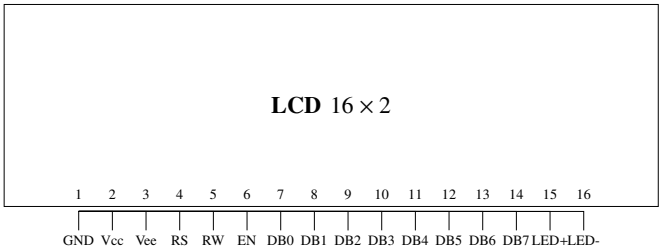

Fig. 2: LCD

***Abstract*—This manual shows how to interface an Arduino to a 16×2 LCD display using AVR-GCC. This framework provides a useful platform for displaying the output of AVR-Assembly programs.**

1 Components

Component	Value	Quantity
Breadboard		1
Arduino	Uno	1
LCD	16×2	1
Jumper Wires		20

TABLE I

2 Display Number on LCD

Problem 1. Plug the LCD in Fig. 2 to the breadboard.

Problem 2. Connect the Arduino pins to LCD pins as per Table II.

Problem 3. Display the number 5 on the LCD

Solution: Download the **Makefile** and **main.c** from

https://github.com/gadepall/EE2110/blob/master/lcd/codes/Makefile
https://github.com/gadepall/EE2110/blob/master/lcd/codes/main.c

TABLE II: Arduino to LCD Pin Connection.

Arduino Pins	LCD Pins	LCD Pin Label	LCD Pin Description
GND	1	GND	
5V	2	Vcc	
GND	3	Vee	Contrast
D8	4	RS	Register Select
GND	5	R/W	Read/Write
D9	6	EN	Enable
D10	11	DB4	Serial Connection
D11	12	DB5	Serial Connection
D12	13	DB6	Serial Connection
D13	14	DB7	Serial Connection
5V	15	LED+	Backlight
GND	16	LED-	Backlight

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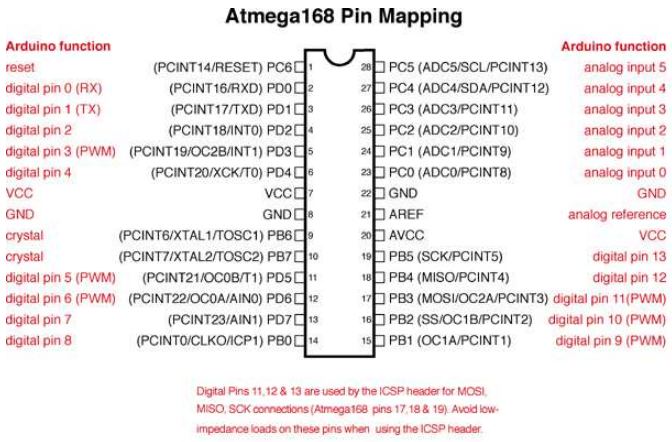

Fig. 3: Arduino-ATMEGA328P pin map.

and execute in the terminal by typing **make**.

Problem 4. Modify the above code so that the numbers from 0 to 9 are displayed repeatedly.

Solution: Replace LCD_Integer(5) by the following code.

```
 for (byte count=0;count<10;count
    ++)
{
LCD_Integer(count);   // show
   counter
_delay_ms(600);       // set
   animation speed
}
```