

LAB 9

LCD INTERFACING

OBJECTIVES:

- To understand the operation modes of an LCD.
- To interface and program an LCD.

REFERENCE:

- Mazidi & Naimi “The STM32F103 Arm Microcontroller and Embedded Systems,” Chapter 9

MATERIALS:

- Keil IDE
- Blue Pill or any other STM32F10x trainer board
- ST-Link V2
- 20x2 LCD DMC20261 from Optrex DMC series
- Bread board

ACTIVITY 1

Connect the LCD to your trainer board and run a program to display a text on the LCD.

Troubleshooting: If no text appeared on the LCD, check the followings:

- Turn the contrast potentiometer clockwise until the text appears or the whole LCD becomes dark. If the whole LCD becomes dark and no text appears, turn the potentiometer counter-clockwise, until the darkness disappears.
- Check the connections

Check your code

ACTIVITY 2

Connect the LCD to your trainer board. Then write and run a program to display your name on line 1 of the LCD (first name followed by last name with a space in between).

ACTIVITY 3

Repeat Activity 2 while also putting the current year on the second line. Both should be in the middle of the line. When you run your program the LCD should show (for example):

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ACTIVITY 4

Write a program that show a second timer on the LCD. (Hint: define an integer variable and initialize it with zero. Increase the variable and display it on the LCD every second. To show the value of the variable on the LCD, convert its value to string using *sprintf* or *itoa* functions. Then, show the string on the LCD.)