

ELEC 3300

LAB 3: COLOR LCD INTERFACING

A. OBJECTIVE:

1. To familiarize yourself with the MINI-V3 Development Board.
2. To understand the control of the Graphic LCD.

B. PRE-LAB ASSIGNMENT:

1. Study the information about MINI-V3 Development Board from the course website.
2. Study the information about Fire Debugger from the course website.
3. Study the Tutorial for LAB3.
4. Study the Graphic LCD Datasheet from the course website.

C. LAB SETUP DETAILS

1. Connect the Fire Debugger according to the information about Fire debugger. Make sure that the Green LED of the Fire Debugger is ON.
2. Follow the Tutorial for CubeMX, and information on Tutorial for LAB3 generate a Project for LAB3 Task 1 to Task 4 using CubeMX. Please be reminded to set the external clock and debugger interface in CubeMX.

D. EXPERIMENT

In this LAB, there are 4 tasks.

Task 1 – Use either LCD_DrawChar or LCD_DrawString procedures in main.c to write your English name shown on your Student ID on the LCD.

Task 2 – Implement the LCD_DrawDot to turn on a particular dot on the LCD.

Task 3 – Implement LCD_DrawEllipse by using LCD_DrawDot

Task 4 – Program display white background color at the beginning.

After K2 pressed, it will display Last Character of your Chinese Name shown on your Student ID Card

E. PROCEDURE

Task 1 – Use either LCD_DrawChar or LCD_DrawString procedures in main.c to write your English name shown on your Student ID on the LCD.

You can choose any location and any color you like.

Show your result to TA

Task 2 – Implement the LCD_DrawDot to turn on a particular dot on the LCD.

Open the lcd.c, locate the line;

```
//Task 2  
void LCD_DrawDot(uint16_t usCOLUMN, uint16_t usPAGE, uint16_t usColor)
```

Please implement the LCD_DrawDot using the information described in Tutorial 3.
You can implement your own function or with reference to the two functions.

```
void LCD_OpenWindow, void LCD_FillColor
```

Show your result to TA

Task 3 – Implement LCD_DrawEllipse by using LCD_DrawDot

Open the lcd.c, locate the line;

```
//Task 3  
void LCD_DrawEllipse (uint16_t usC, uint16_t usP, uint16_t SR, uint16_t LR, uint16_t  
usColor);
```

(usC, usP) represents the center point of the Ellipse

SR is the short radius of the Ellipse

LR is the long radius of the Ellipse

usColor represents the Ellipse color.

Verify your LCD_DrawEllipse function by writing the line below at main.c

```
LCD_DrawEllipse(120, 160, 75, 25, BLACK);
```

Show your result to TA

Task 4 – Program display white background color at the beginning.

After K2 is pressed, it will display the Last Character of your Chinese Name shown on your Student ID Card

Example 陳大文, Display 文

If you do NOT have a Chinese Name shown on your Student ID Card, you need to display one character depending on your student ID

Each Chinese Character should be at least 24 pixels x 24 pixels

You can use any Chinese Character fonts you like as long as the character is clearly readable

| Character | 六國論 |
|-----------|----------------|
| 00 to 09 | 六國破滅 非兵不利 戰不 |
| 10 to 19 | 善 弊在賂秦 賂秦而力虧 |
| 20 to 29 | 破滅之道也 或曰 六國互 |
| 30 to 39 | 喪 率賂秦耶 曰 不賂者以 |
| 40 to 49 | 賂者喪 蓋失強援 不能獨 |
| 50 to 59 | 完 故曰 弊在賂秦 也 秦以 |
| 60 to 69 | 攻取之外 小則獲邑 大則 |
| 70 to 79 | 得城 較秦之所得與戰勝 |
| 80 to 80 | 而得者 其實百倍 諸侯之 |
| 90 to 99 | 所亡與戰敗而亡者 其實 |

ID : 20123456
Character to display

56 → 秦

Show your result to TA.