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. Watch the Video 1 – Part I : Development Environment from the course Canvas.
2. Watch the Video 2 : Intro to CubeIDE from the course Canvas.
3. Study the information about MINI-V3 Development Board from the course Canvas.
4. Study the Tutorial for LAB3.
5. Study the Graphic LCD Datasheet from the course website.

C. LAB SETUP DETAILS
1. According to the information from Tutorial for LAB3, generate a Project for LAB3 Task 1 to Task 4 using CubeIDE.

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 – After K2 is pressed, anything showing on the screen will be cleared, and after that, it will display your Last Character of 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, 25, 75, BLACK);
```

Show your result to TA

Task 4 – After K2 is pressed, anything showing on the screen will be cleared, and after that, it will display your Last Character of 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.