

## 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	《香港科技大學校歌》 (粵語版)
00 to 09	日有光 映照海角 學有進
10 to 19	境 紅鳥坐看 香港廣州 與
20 to 29	時並進 精英 先進開新領
30 to 39	域 未來在繼承 任重道遠
40 to 49	願歲月可見證 願世上有
50 to 59	呼應 清水一灣 修養內涵
60 to 69	沙洲一片 建立杏壇 成就
70 to 79	創 遠景跨出象限 工商輝
80 to 80	映 千里萬難 薪火相接 文
90 to 99	理同盼 科技登高峰 極目

ID : 20123456  
Character to display

56 → 修

Show your result to TA.