CECS 447 Project 4 – ST7735R Color LCD

By Dr. Min He

Preparation

Purchase the following components: ST7735R 128x160 Color LCD.

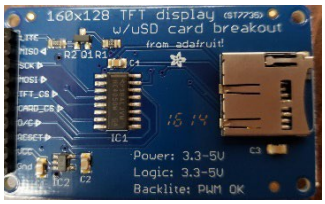
Reference code

ST7735_Walk_Man.

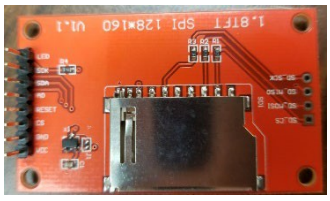
Purpose

This lab will help students become familiar with the ST7735R 128x160 Color LCD. Students should use the basic library functions provided by ST7735 to develop graphical figures.

Two different models and their pinout connections.



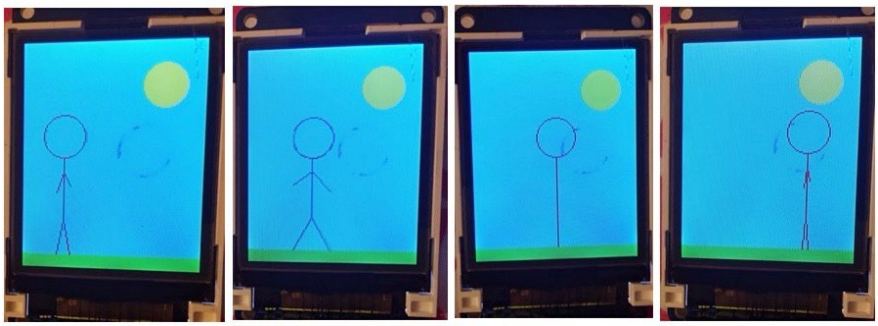
The blue model ST7735 Pin out:
// Backlight (pin 10) +3.3 V (use resistor if necessary)
// MISO (pin 9) NC
// SCK (pin 8) PA2 (SSI0Clk)
// MOSI (pin 7) PA5 (SSI0Tx)
// TFT_CS (pin 6) PA3 (SSI0Fss)
// CARD_CS (pin 5) NC
// Data/Command (pin 4) PA6, high for data, low for command
// RESET (pin 3) PA7 (GPIO)
// VCC (pin 2) +3.3 V
// Gnd (pin 1) ground



// The red model:
// LED: Backlight (pin 8) connected to +3.3 V
// SCK (pin 7) connected to PA2 (SSI0Clk)
// SDA: MOSI (pin 6) connected to PA5 (SSI0Tx)
// A0:Data/Command (pin 5) connected to PA6 (GPIO)
// RESET (pin 4) connected to PA7 (GPIO)
// CS (pin 3) connected to PA3 (SSI0Fss)
// Gnd (pin 2) connected to ground
// VCC (pin 1) connected to +3.3 V

Tasks

1. Run the example code provided, your output should be something like the images below.



2. Use devise driver functions available in the graphics library to create a new graphic that meets the following requirements:
   a. Background has at least two colors (different from the example code inn both color and size)
   b. Include the following shapes in your object: circle, vertical, horizontal, and diagonal lines
   c. Has at least one moving object.
   d. Display at least one line of color text with at least three different size and three different colors
3. You are required to use SysTick timer to control time delay: replace DelayWait10ms() with SysTick timer.

Extra Credit Features

1. (**5 points**) Implement image display: generate data for the 2 to 4 images and do a slide show for the images.
2. (**5 points**) Implement SD card and image display, generate data for the 4 images and storethem on the SD card. Do a slide show for the 4 images.

Deliverable

1. Demonstrate your system on LaunchPad.
2. Submit your project report.
3. Submit a video or video link for your demonstration.
4. Submit all source code in separate files.