

This is a demonstration program to display life video captured from OmniVision OV9650 cmos camera module on a 3.5" TFT display panel.

Solomon SSD1928 image processor is used as the decoder engine for OV9650 with a Microchip PIC32MX360F512L 32-bit microcontroller as the host.

Images of jpeg and bmp formats stored in a microSD card are decoded and displayed as well.

This program serves as a foundation for applications that require cmos camera and images display on small TFT panels.

Software:

Microchip MPLAB IDE version 8.63

Installation path at C:\Program Files\Microchip

C32 Compiler versions 1.10

Installation path at C:\Program Files\Microchip\MPLAB C32

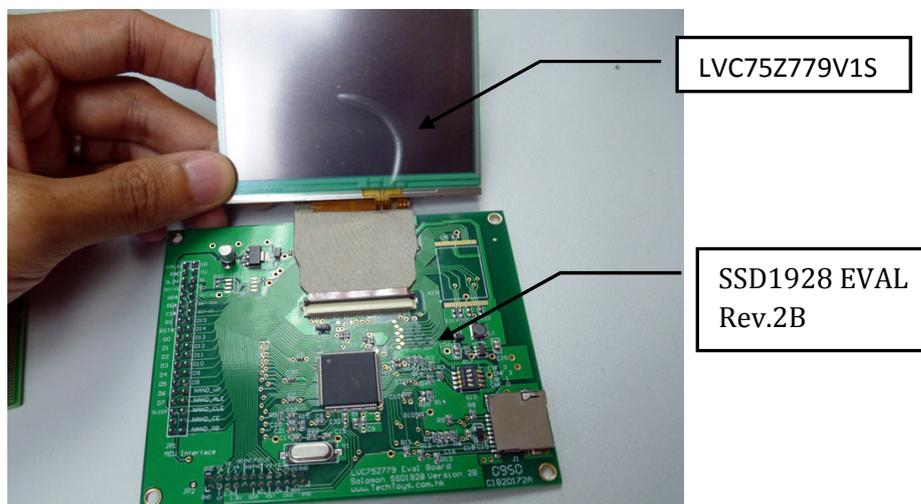
Microchip Graphics library version 1.60

The source code of this graphics library has been included in the project under the Microchip folder.

Microchip IDE and C32 compiler can be downloaded from Microchipⁱ web site.

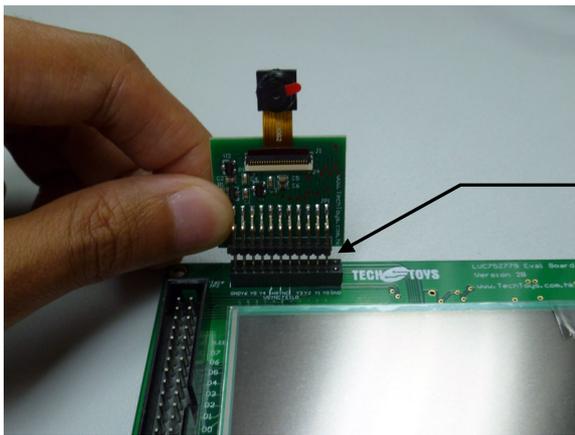
Hardware:

1. Evaluation kit for Solomon SSD1928 Image Processorⁱⁱ (part# SSD1928 EVAL Rev.2B) completed with a 3.5" TFT color LCD moduleⁱⁱⁱ (part# LVC75Z779V1S)



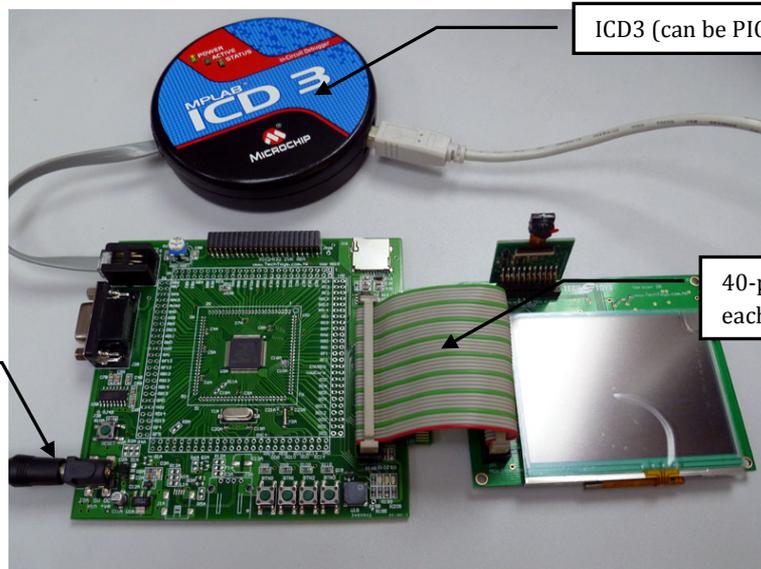
2. OmniVision OV9650 1.3MPixel color CMOS Camera Module^{iv} (part# OV9650B0 R1B) to be installed at JP2 of SSD1928 evaluation kit.

Remarks: It is a 2x12 2.00mm receptacle on SSD1928 evaluation kit whereas the header on OV9650 cmos camera module is a 2x11 2.00mm pin header due to a version difference. However, they are totally compatible. Please swift the camera module to the left and ignore pin 23 & 24 of JP2 on SSD1928 evaluation kit as they are not connected to anything.



Install by swifting cmos camera module to the left

3. PIC24/32 EVK RD4 with PIC32MX360F512L option as the host
4. MPLAB ICD2 or ICD3^v. Alternatives are PICKit2 or PICKit3^{vi} low cost debuggers by Microchip. These are programmer and debugger for Microchip microcontrollers.
5. A microSD card of 2GB or smaller. Source of jpeg and bmp pictures is included in the project folder under the `\pictures` directory. Copy the pictures to the microSD card and plug in the socket J18 onboard.
6. A 5V regulated power supply of 1A current or higher. Put up the boards as shown below to complete the setup.



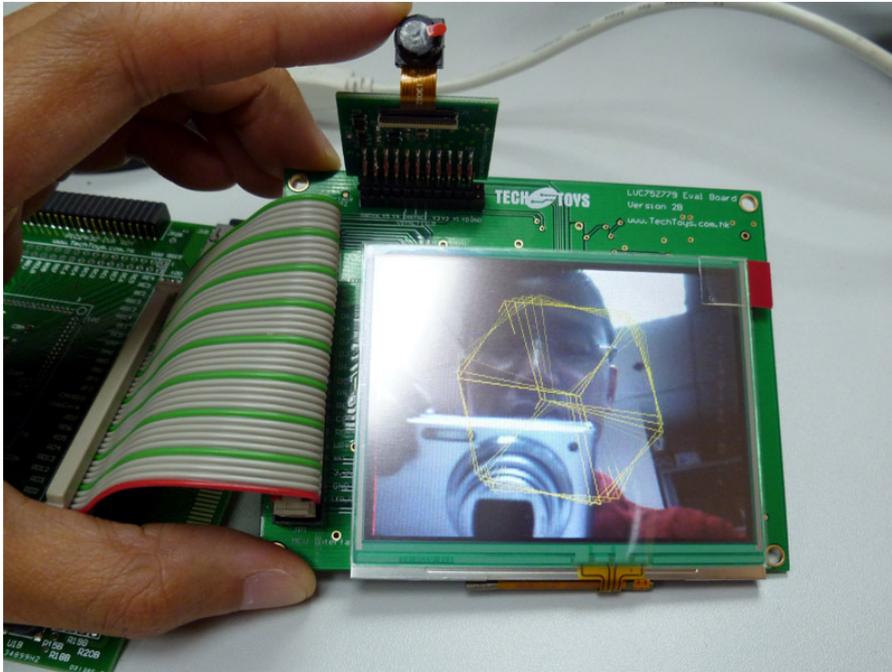
ICD3 (can be PICKit2/3 or ICD2)

40-pins ribbon cable included with each PIC24/32 EVK board

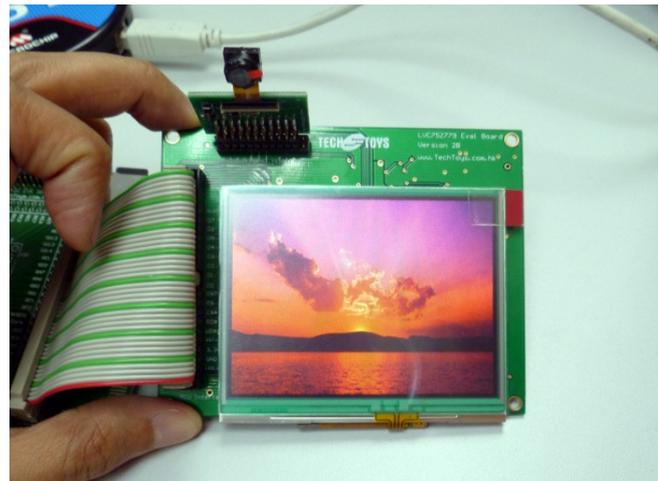
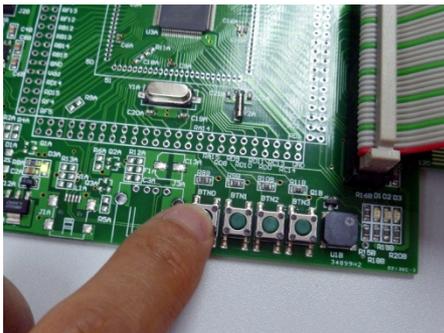
5V 1A DC supply

Results:

Finally, compile and program this project to the PIC32MX MCU. You will see a self-portrait with animation on top of your face.



To display JPEG/BMP images from the microSD, press BUTTON0. The program will go back video display after cycling all images on the microSD.



Hyperlink

ⁱ <http://www.microchip.com/>

ⁱⁱ <http://www.techtoys.com.hk/Displays/SSD1928EvalRev2B/SSD1928%20Eval%20Rev2B.htm>

ⁱⁱⁱ <http://www.techtoys.com.hk/Displays/LVC75Z779V1S/LVC75Z779.htm>

^{iv} http://www.techtoys.com.hk/Components/OV9650_MOD/OV9650%20CMOS%20Camera%20Module.htm

^v http://www.microchip.com/stellent/idcplg?IdcService=SS_GET_PAGE&nodeId=1406&dDocName=en537580

^{vi} http://www.microchip.com/stellent/idcplg?IdcService=SS_GET_PAGE&nodeId=1406&dDocName=en538340