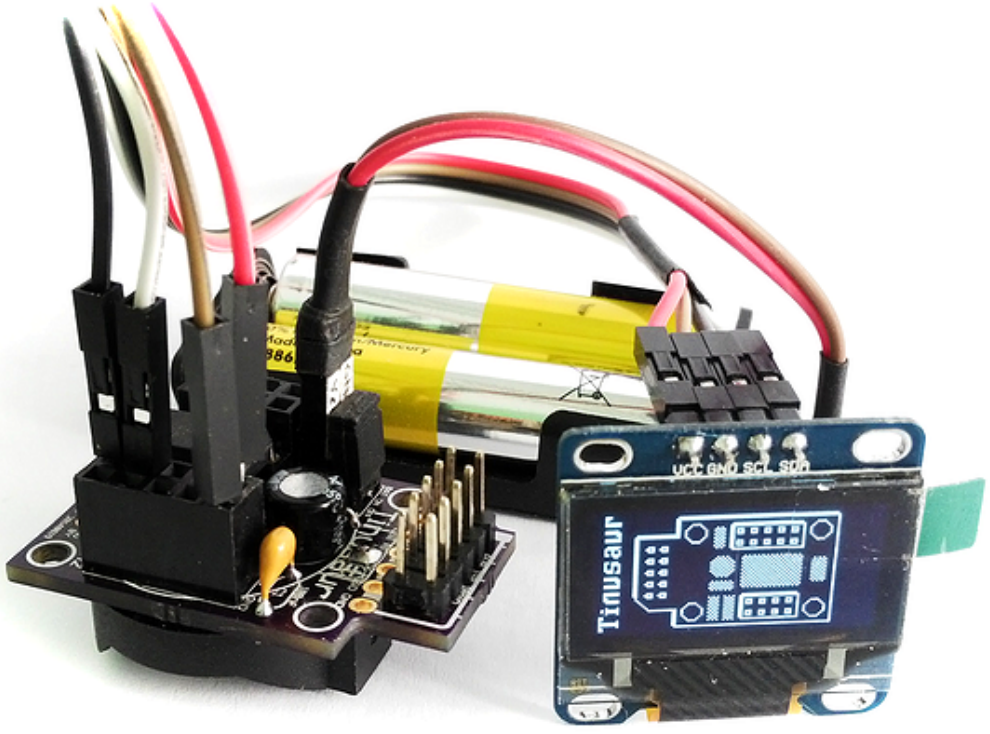
The Tinusaur Project

SSD1306xLED

SSD1306xLED is a C library for working with the **SSD1306 (http://www.solomon-systech.com/en/product/display-ic/oled-driver-controller/ssd1306/)** display driver to control dot matrix **OLED (http://en.wikipedia.org/wiki/OLED)**/PLED 128×64 displays. It is intended to be used with the Tinusaur board but should also work with any other board based on **ATtiny85 (http://www.atmel.com/devices/attiny85.aspx)** or similar **microcontroller (http://en.wikipedia.org/wiki/Microcontroller)**.



The 128×64 OLED is controlled by a **SSD1306 (http://www.solomon-systech.com/en/product/display-ic/oled-driver-controller/ssd1306/)** circuit and could be interfaced over **I²C (http://en.wikipedia.org/wiki/I%C2%B2C)**.

The code could be divided in 3 pieces:

1. Communication over I²C with the SSD1306;
2. Sending graphical commands to the display;

3. High-level functions such as printing characters.

The I²C communication part is based on a code from the IIC_wtihout_ACK library that is available on the Internet but its original website (**http://www.14blog.com/archives/1358 (http://www.14blog.com/archives/1358)**) is no longer functional. Basically, the SSD1306xLED library makes SSD1306 to work with ATtiny85 and Tinusaur.

How to use it

Using this library to control an OLDE display is very easy. The necessary header files that should be included with the program could be found in the source code repository – the link is at the bottom of this document.

First, the controlling PINs should be specified in the source code:

```
#define SSD1306_SCL PB2 // SCL, Pin 3 on SSD1306 Board
#define SSD1306_SDA PB0 // SDA, Pin 4 on SSD1306 Board
```

There are defaults, of course, but make sure they work for you.

There is also I2C slave address specified in the source code but you probably don't want to change that.

Second, the display controller should be initialized.

```
_delay_ms(40);
ssd1306_init();
```

The delay is necessary if the initialization is at the beginning of the program. This is required by the SSD1306 circuit as it needs time to initialize itself after power-on.

Then, the simplest example would be to clear the screen (fill it out with blanks) and output some text.

```
ssd1306_fillscreen(0x00);
ssd1306_setpos(0, 10);
ssd1306_string_font6x8("Hello World!");
```

The **ssd1306_string_font6x8** function call will output at the specified by the **ssd1306_setpos** function coordinates the provided text using 6×8 character font.

Similarly, a bitmap could be output on the screen with the following code:

```
ssd1306_draw_bmp(0,0,128,8, img1_128x64c1);
```

The above function call specifies (0,0) coordinates, width of 128 pixels and height of 8 bytes – 64 pixels.

Documentation

This project often changes so more current information could be found in the source code repository – in the text files and source files as well.

Source code

The source code along with very simple example is available on Bitbucket at this address: **https://bitbucket.org/tinusaur/ssd1306xled (https://bitbucket.org/tinusaur/ssd1306xled)**

This SSD1306xLED library still needs more work and some improvements.

Uh oh! We’re having technical difficulties.

Do it for the

55 thoughts on “SSD1306xLED”

Rodrigo says:
2017-02-19 at 15:14

1. Ol´á,

   How do I use this SSD1306xLED library for my 6-pin display?

OLED_MOSI 9 //=> SDA
OLED_CLK 10 //=> SCK = SCL
OLED_DC 11 //=> A0 = D/C
OLED_CS 12 //=> não usa
OLED_RESET 13 //=> Reset

It is possible?

rodepedroso says:
2017-02-19 at 15:22

2. Olá,

   How do I use this SSD1306xLED library for my 6-pin display?

   OLED_MOSI 9 //=> SDA
   OLED_CLK 10 //=> SCK = SCL
   OLED_DC 11 //=> A0 = D/C
   OLED_CS 12 //=> não usa
   OLED_RESET 13 //=> Reset

   It is possible?

Neven Boyanov says:
2017-03-05 at 23:24

3. You should first verify if your display has the I2C interface or not. The SSD1306xLED library is specifically developed for the I2C interface – that's why it runs so fast.

   You've got a "MOSI" pin and that may mean that it is serial OLED which means that it will not be supported by the library.

Sherm Stebbins says:
2017-07-06 at 22:21

4. I was able to get this working.. I'm new and would like a different larger font.. what is yhe best source?

   Sherm

Neven Boyanov says:
2017-07-10 at 22:20

5. Check this source code: **https://github.com/avitkinov/tinusaur-two-rows-led-matrix** – it is a good start.