OLED Graphical Display

Crisp, clear graphics and text for BrainBoard

MindKits Invent

Contents

Introduction

Our OLED (Organic Light Emitting Diode) module plugs right into BrainBoard and provides easy display of text and graphics for real-time sensor measurements (try graphing temperature!), program modes, commands, and so on.

OLED displays have exceptionally high image quality and use very little power because unlike LCD displays, OLEDs don't have a backlight. They are the backlight! Each pixel illuminates itself, so off pixels don't emit anything — much more efficient than LCDs. It's pretty awesome tech. Check it out on Google.

This also means OLED displays have extremely good contrast, so images and text are crisp and clear under any lighting conditions.

Features

- Extremely high contrast display provides crisp and clear graphics and text.
- Low-power, efficient display technology.
- Very compact package.
- 4,096 individual pixels (128 x 32 resolution) — plenty for text and graphics.
- Supplied graphics library includes different text styles, and examples for simple shapes and raster (bitmap) graphics for drawing your own shapes or graphs.
- Plugs directly into BrainBoard hardware I2C/TWI serial port — this is a multi-master serial bus so you can use it with other I2C modules and devices.
- Onboard level translation from 5V to 3.3V.
- Male and female plug options for flexible connectivity with hookup leads — solder on header pins to mount the module externally.
- Duplicated ISP / SPI header pins in case those are needed.
- Note that digital pin 11 is dedicated to the OLED reset line and should be left disconnected.

Getting Started

First we need to download and install the OLED display and graphics libraries kindly made publicly available by Adafruit.

Then we will open an example sketch and upload it to BrainBoard to demonstrate text and graphics. You can then modify this demo for your own projects.

This guide assumes you have already set up the Arduino environment and can program BrainBoard.

Downloading Libraries

1. Download and install the Adafruit I2C OLED and Adafruit GFX libraries for Arduino from the product page on MindKits. Note that these libraries have been modified slightly to work with BrainBoard, and the original libraries from Adafruit won't work.

Adding Libraries

2. Open Arduino.
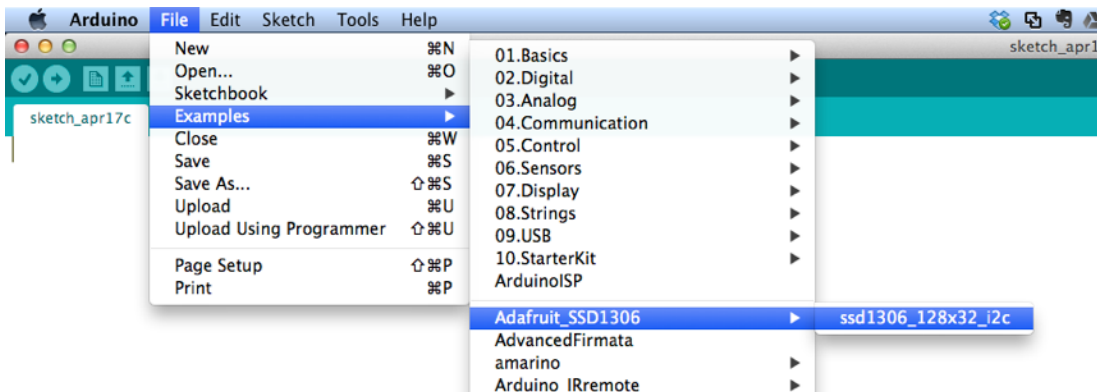3. Add the libraries you just downloaded:
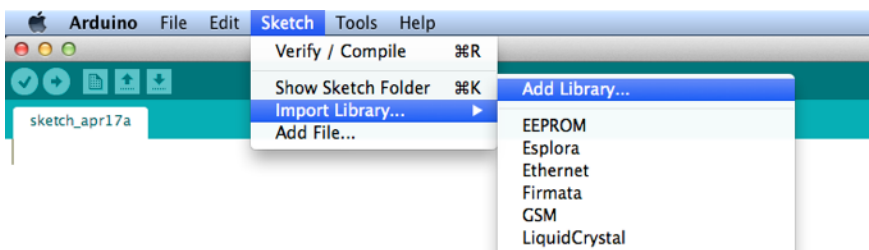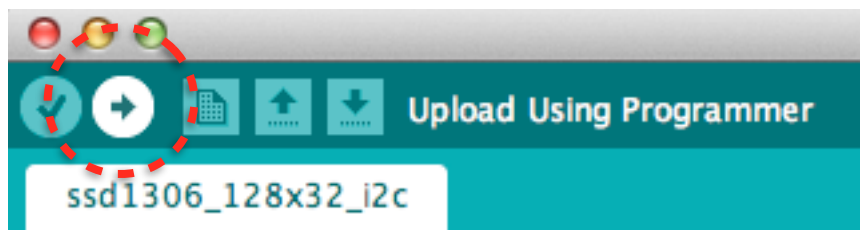

Choose one file then repeat for the other:
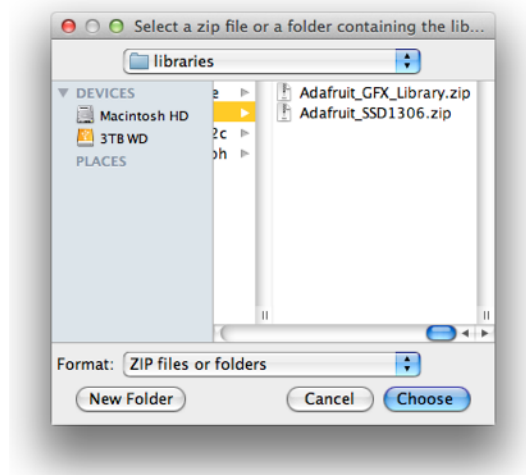
Arduino will respond with "Library added to your libraries…" after adding each library.
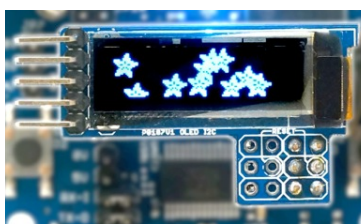
Loading a Demo

4. Open the example sketch:

5. Now with your OLED display plugged into BrainBoard and BrainBoard plugged in and ready to program, click Upload:

If everything was successful you should see a demo playing with text and animations:

What's Next?

Try studying the example code and learning how text and graphics are displayed. Feel free to use your imagination and modify the example to try something new.

You don't need to worry about breaking the display by doing something wrong. If your code stops working and you can't figure out why, you can always reload the example to make sure everything is still working.

Do You Want to Read This? Sure Do!

Right, got your attention! Here are some important notes to protect your OLED display.

Digital pin 11 is dedicated to the OLED reset line and should be left disconnected.

Also, be careful when removing and handling the OLED module. OLED displays are very fragile, and are not designed to be handled carelessly. We have designed the carrier board to provide some protection to the display module (the flat glass panel), but it must be handled and removed carefully to avoid breaking the display or its delicate cable.

To remove the module, gently grasp the ends and **wiggle back and forth a few times** until the module comes loose. **If you pull on it hard one side will lift and bend the connector pins** — easy does it. Don't hold the module by the ends because this way provides less control when pulling.
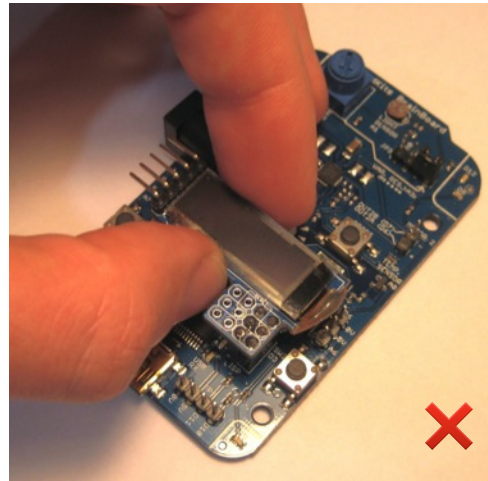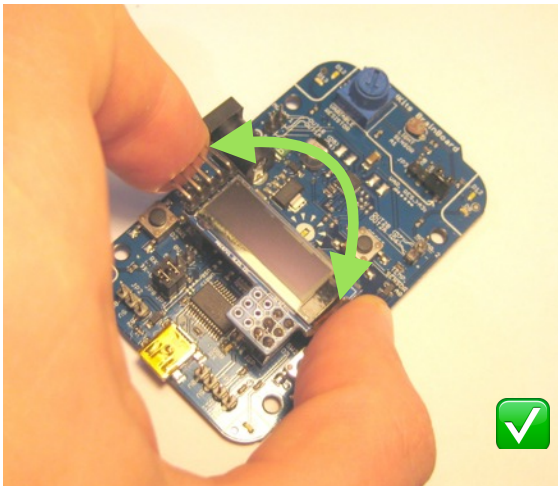
BrainBoard Expansion Modules

BrainBoard supports a variety of simple, affordable expansion modules that are easy to use. For the full range see www.mindkits.co.nz/store/brainboard-by-mindkits-invent
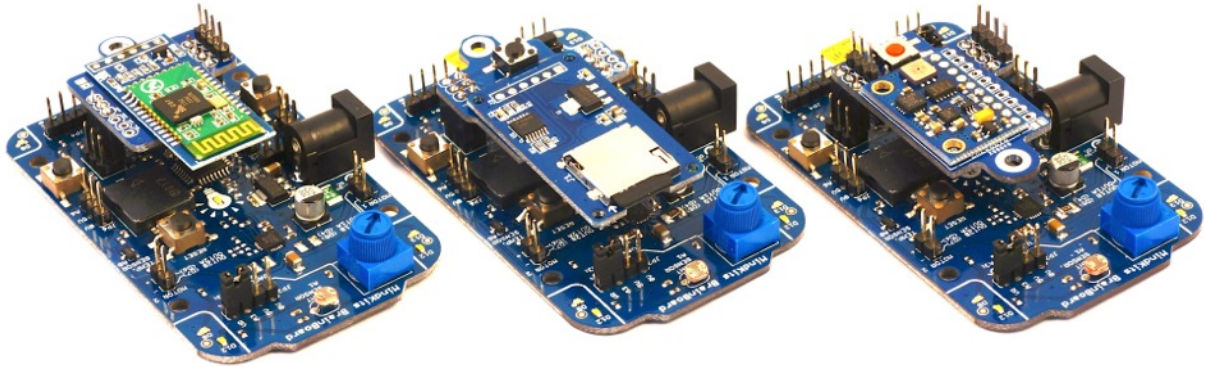
Bluetooth	Micro-SD card reader	10-DOF inertial measurement unit

Getting Help

If something doesn't make sense, doesn't work as expected, or you have any comments or suggestions then get in touch with us and we'll sort you out.

Contact support@mindkitsinvent.com

twitter @MindKits

Facebook www.facebook.com/MindKits