PyMata Installation Guide

Version 1.0
May 8, 2014

Table of Contents

This document contains the step by step installation procedure for PyMata version 1.57 or greater.

NOTE: You may need administrative privileges to install the software. On Linux, use the "sudo" command, and on windows use an administrative login.
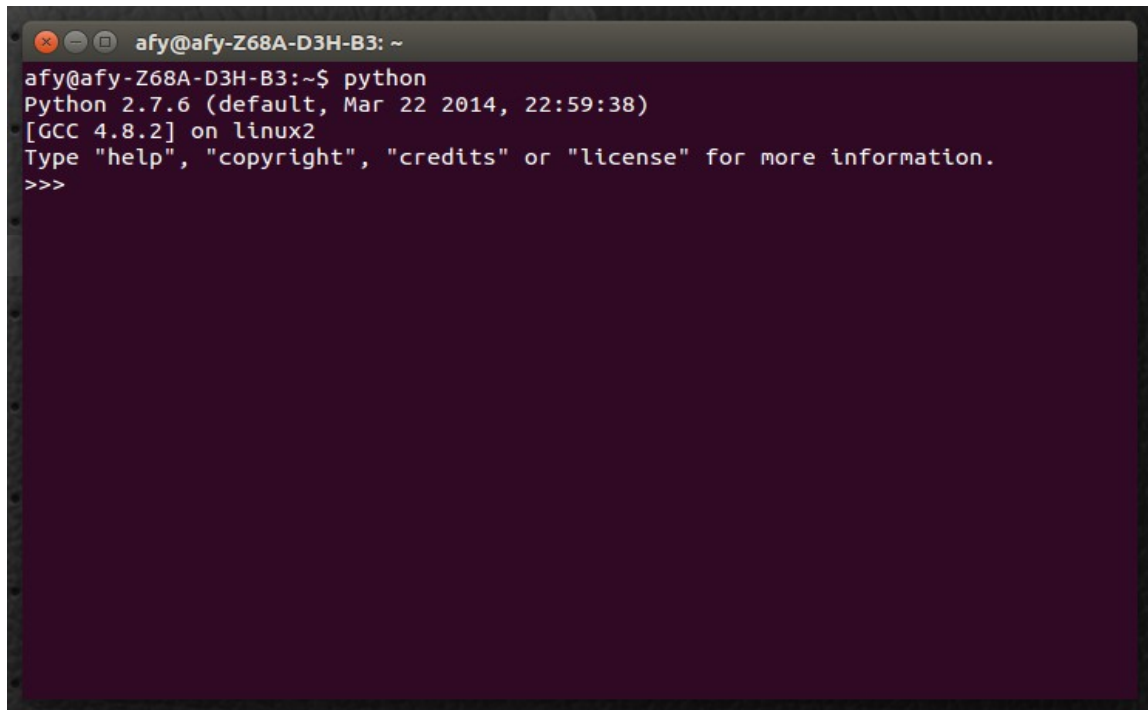
1. Download and Install Python 2.7x

```
afy@afy-Z68A-D3H-B3: ~
afy@afy-Z68A-D3H-B3:~$ python
Python 2.7.6 (default, Mar 22 2014, 22:59:38)
[GCC 4.8.2] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Before installing Python, check to see if you already have Python installed on your system. Open a Command Window and type

`python`

If you see a standard python header for Python 2.7.6 or greater, similar to the one above (NOT Version 3, since programs written in Python 2 are usually not compatible with Python Version 3), you may skip to the next step.

If you need to install Python, go to Python.org, and from the Download tab, select your operating system to download and install.

After it is installed, verify that you can open Python in a Command Window as shown at the beginning of this step.

2. Download and Install pySerial

PyMata communicates with an Arduino through a serial communications link. The pySerial library provides the necessary communications support.

To install pySerial:

- Go to the pySerial web page and click on the "Download Page with releases" link. Download the version appropriate for your operating system and make sure to select the version for Python version 2.x. Installation instructions may be found on the installation page.

5

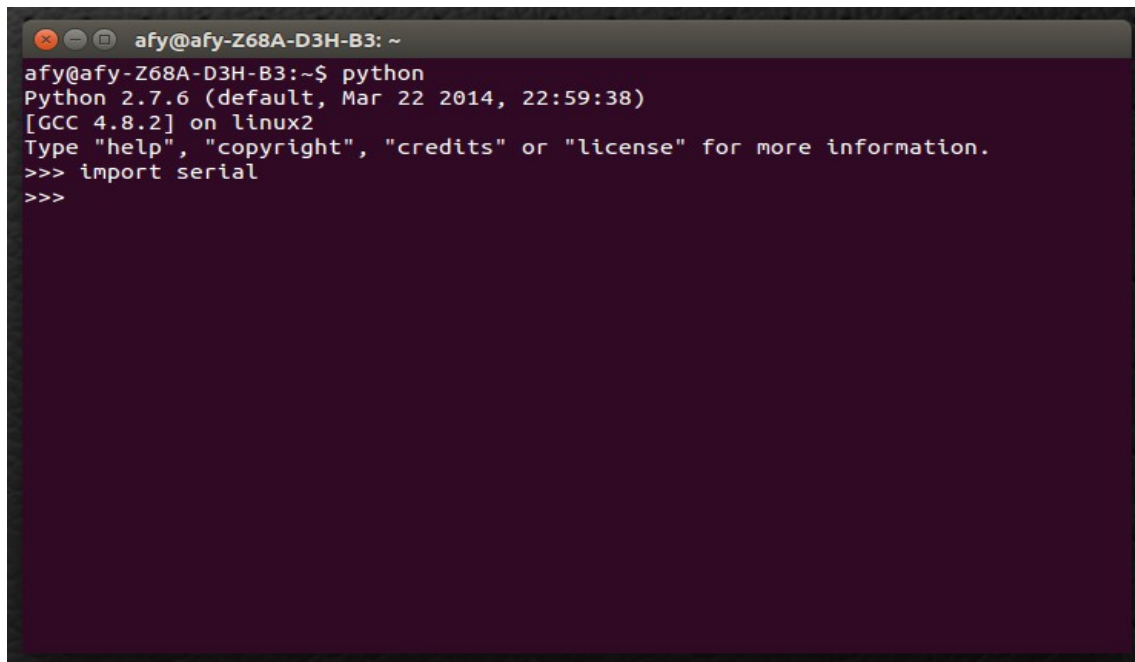To verify that the install was successful, open a command window, type:

`python`

Then in the Python console type:

`import serial`

at the >>> prompt.

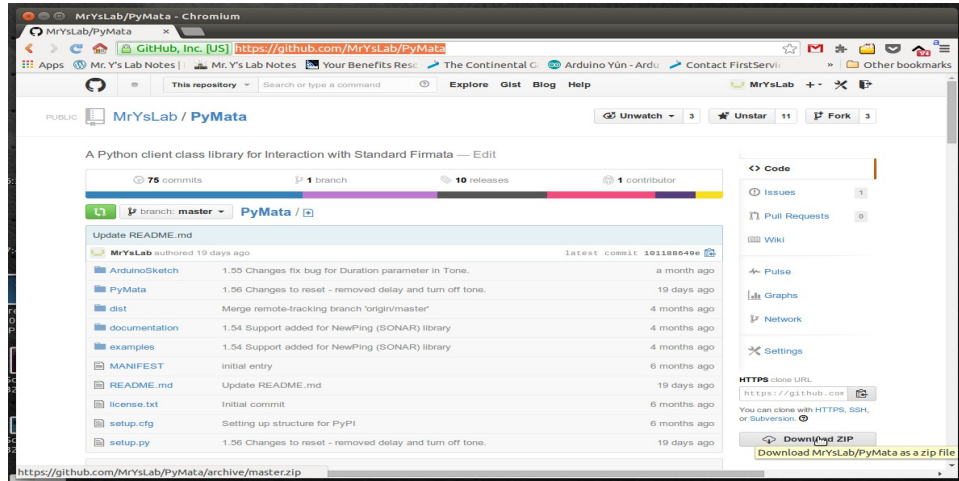If there are no errors shown in the console, the library was installed correctly.

3. Download and Install PyMata

To download PyMata, go to the PyMata github link and select the Download Zip link in the lower right hand corner of the page as shown below.

After downloading, move the PyMata-master.zip file to a convenient directory and extract it (unzip). After extracting, open a command window and go to the directory where you unzipped the files, and list the files in the directory. The directory should something like this:


To install, type:

```
python setup.py install
```

If the installation is successful, you should see something like the following:

```
😣 ⊖ ⊡   afy@afy-Z68A-D3H-B3: ~/PyMata-master
afy@afy-Z68A-D3H-B3:~/PyMata-master$ ls
ArduinoSketch  dist           examples    MANIFEST  README.md  setup.py
build          documentation  license.txt PyMata    setup.cfg
afy@afy-Z68A-D3H-B3:~/PyMata-master$ sudo python setup.py install
running install
running build
running build_py
running install_lib
running install_egg_info
Removing /usr/local/lib/python2.7/dist-packages/PyMata-1.56.egg-info
Writing /usr/local/lib/python2.7/dist-packages/PyMata-1.56.egg-info
afy@afy-Z68A-D3H-B3:~/PyMata-master$ ▯
```

4. Download and Install the Arduino IDE

- Go to the Arduino download page and download the latest IDE. At the time of this writing, the latest version is 1.5.6-r2.

- Install the software for your computer platform. You can refer to the "Getting Started" page for help with installation. **NOTE: That to run the Arduino IDE, a Java run-time environment is required. If you need to install Java, go to the Java download page.**

- Plug the USB cable into the Arduino and into your computer, then start the Arduino IDE. Go to the Tools menu and select Board. Click on the board type you are using. In the illustration below, Arduino Lenoardo is selected.

8
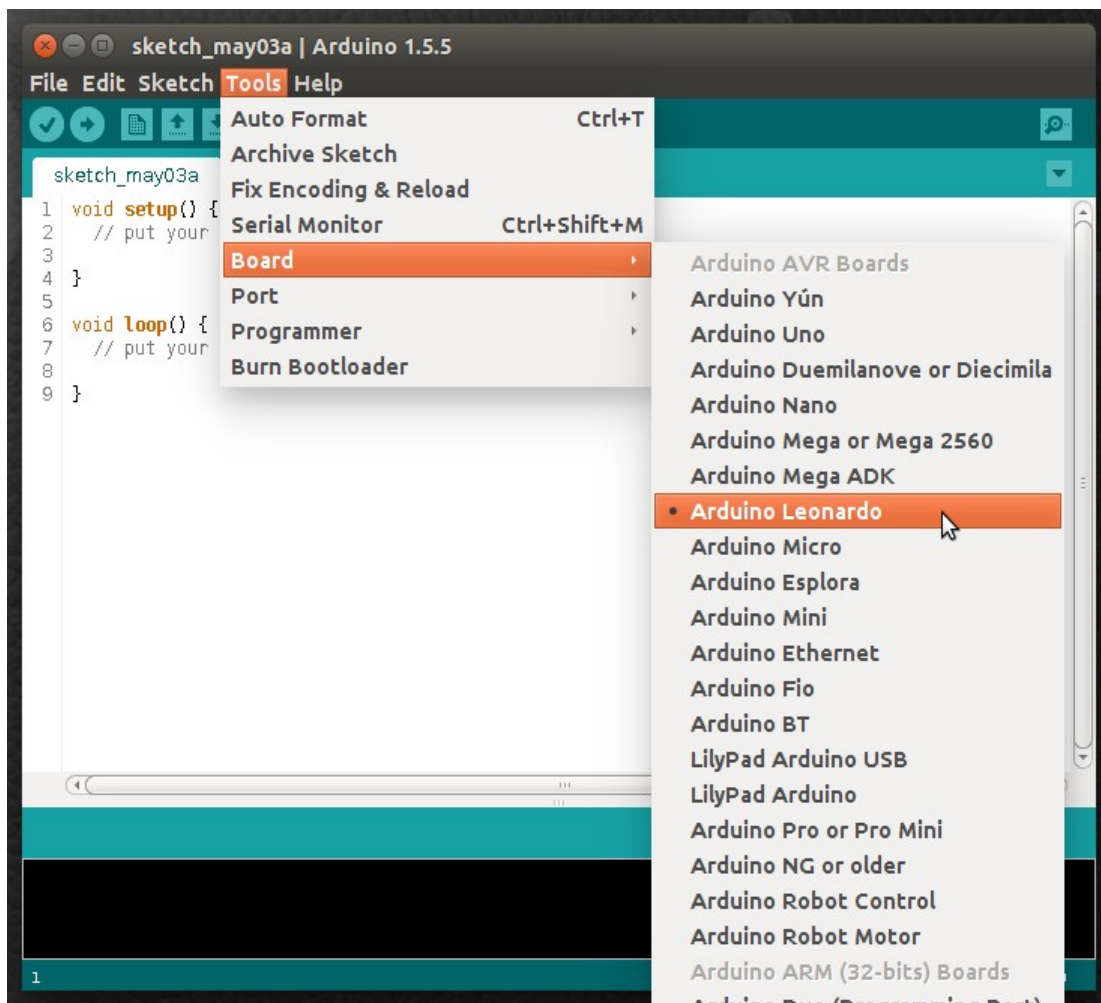
- Next on the Tools menu, select Port and write down the communications port that matches the port for your computer.
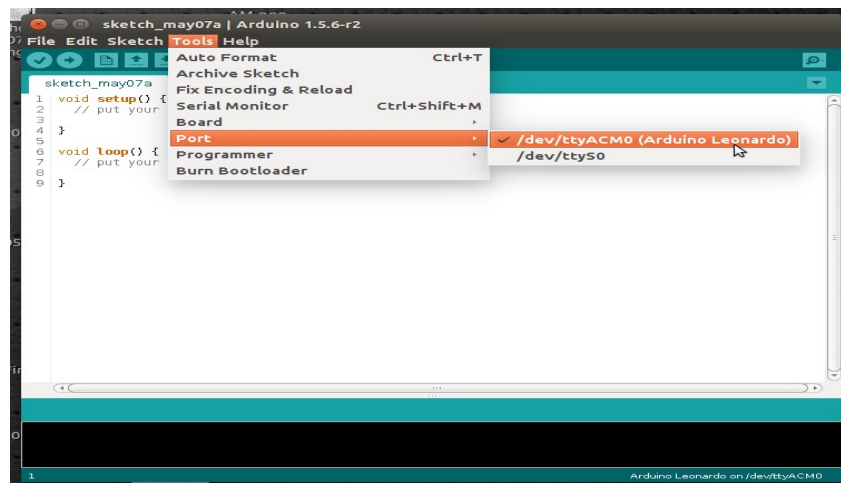
- Finally, from the File menu, select Examples/Firmata/StandardFirmata, and compile and upload StandardFirmata to the Arduino.
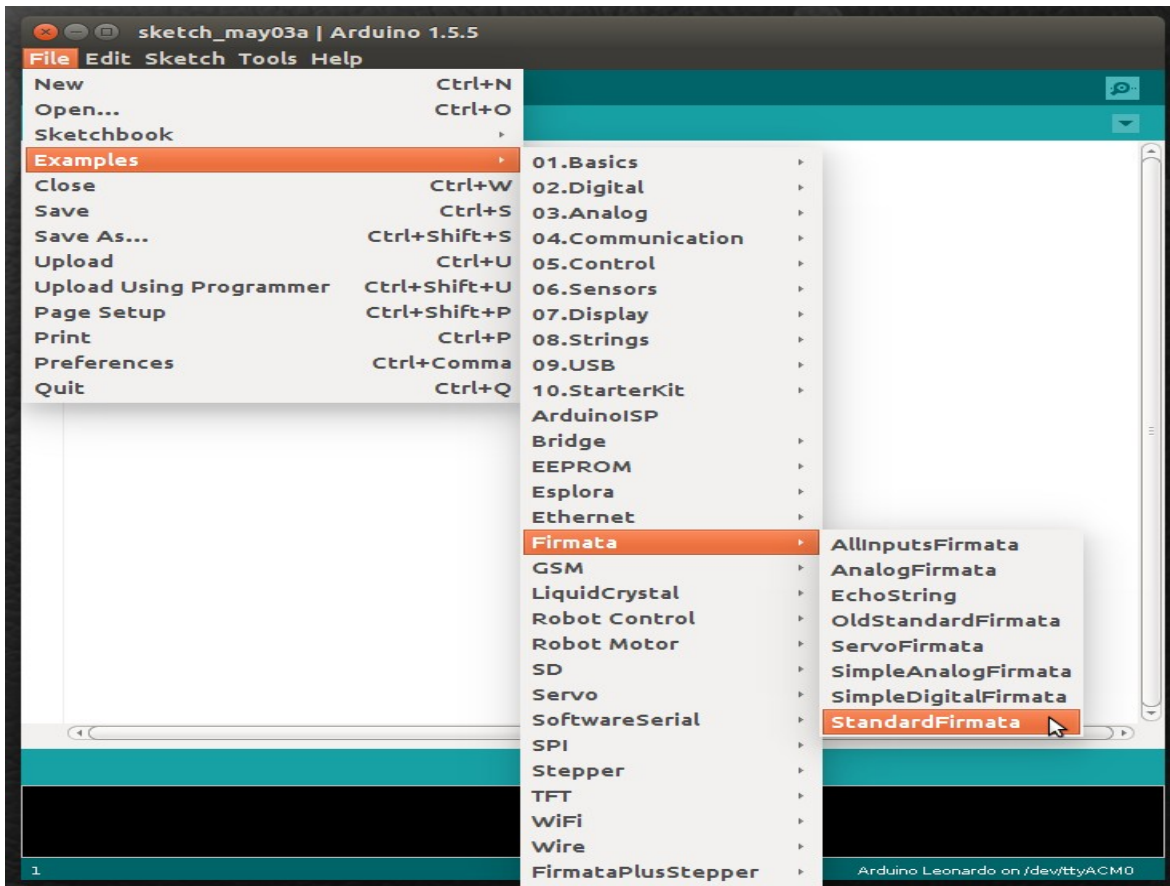
5. Test the Installed Software with a PyMata Blink Script

To test that all the software was installed correctly, we need to run a PyMata script that blinks the LED connected to pin 13 of the Arduino.

Open a command window and CD to the directory where PyMata-master was extracted (see Download and Install PyMata). CD to the examples directory.

Type

```
python pymata_blink.py
```

at the command prompt and the LED should blink. You should also see something similar to this on the command window:

11

6. Install FirmataPlus and Its Associated Libraries Into the Arduino IDE (OPTIONAL STEP)

This is an optional step to install FirmataPlus. FirmataPlus adds the following functionality to StandardFiramata:

- Support for the Tone library to control a Piezo device.

- Support for the NewPing library to monitor multiple ultrasonic distance sensors.

- Support for the Stepper motor library.

- Limited rotary encoder support.

- A Firmata debugging print function.

To install FirmataPlus and all its associated libraries to the Arduino user library directory, first locate your Sketchbook directory by opening the Arduino IDE, and selecting File/Preferences.
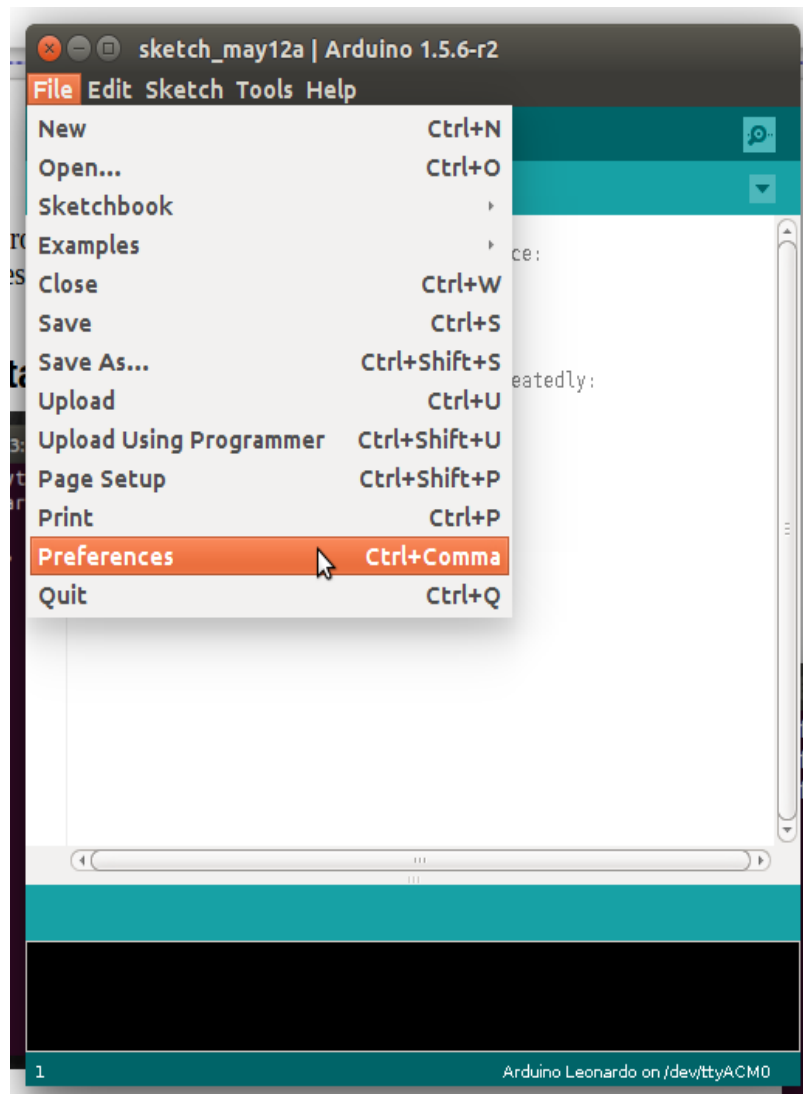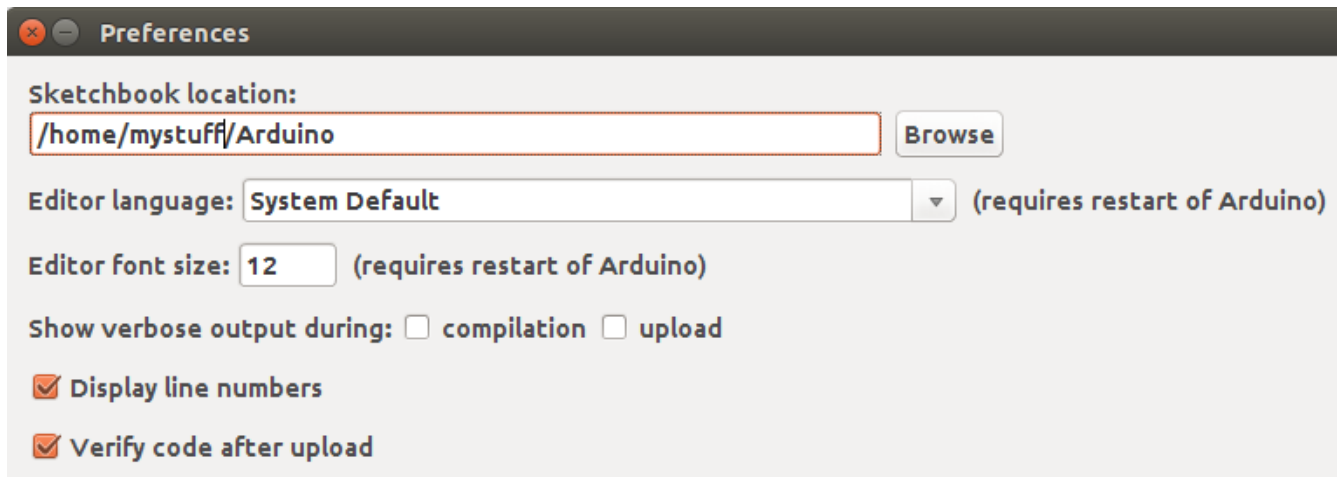
Note the Sketchbook location in the dialog box.

The sketchbook directory contains a directory called *libraries.* We need to populate this directory with FirmataPlus and all of its supporting files and libraries. To do so, unzip the file called *libraries.zip,* located in the Pymata-master/ArduinoSketch directory, into the Sketchbook libraries directory.
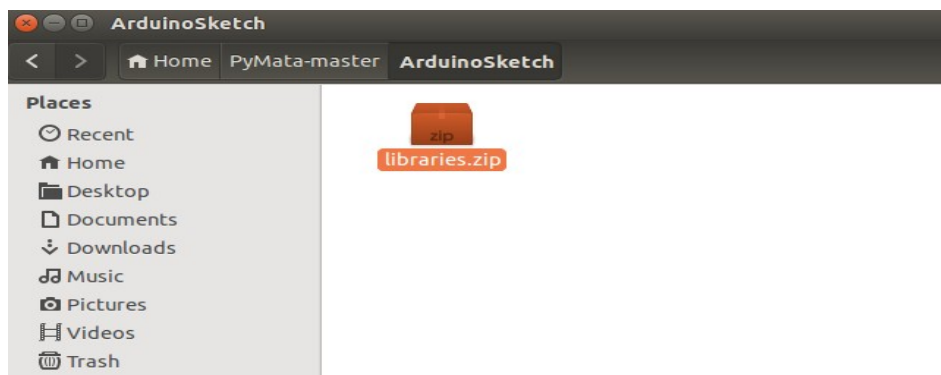
After extracting libraries.zip, your sketchbook libraries directory should contain the following directories as shown in the picture below.

Open the Arduino IDE and select File/Examples/FirmataPlus/FirmataPlus and compile and upload the sketch to the Arduino.

Retest, using pymata_blink.py script as described in step 5.