

light sensor data Visualisation

What does the Application do?

The application takes in data from the Engduino-Board 3 and plots it on a graph using an interactive software known as processing. The specific data that is recorded is the light level of the surrounding area. It is measured in lux (ls) and is plotted against real time. The application has been restricted to 12 seconds and will reset the data plotted after the time limit has surpassed. This is known as real-time processing. The way data is transferred is via a serial link. The board is connected to a port and software such as processing occupies the data that is being collected and transmitted from the board. Only one application at a time can use the port.

How to setup and run the application?

Below are the following instructions on how to setup and run the application:

Download Engduino

1. Download Engduino by choosing the correct installation files based on your machines specification. <http://www.engduino.org/html/Download.html>
2. Run the Engduino. As the Engduino is made from Arduino (The first release), don't panic if it doesn't say Engduino.

Correct Configuration

3. Insert the Engduino-Board 3 into a free USB port.
4. In the Toolbar go to Tools > Boards, and then select Engduino-Board 3.
5. In the Toolbar go to Tools > Ports, and select the port you have inserted the board in. You may have to change this as you might select the wrong port.

Uploading code to the Board

6. Unzip the folder FazaanHassan.zip.
7. Go to Engduino > Arduino > ENGDUINO CODE > Light > Light.ino, Open this up.
8. Click the upload button which is an arrow facing right to transfer the code and start collecting light data from the board.
9. (OPTIONAL) If you were to click on the serial monitor displayed as a magnifying glass in the right corner of the application, it will show the data being displayed on another window.

Download Processing

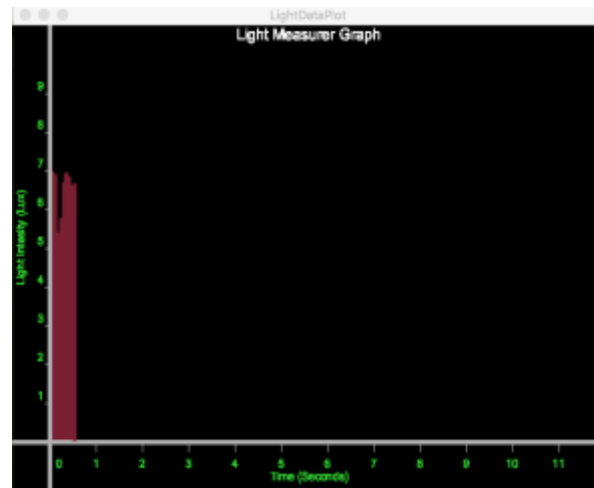
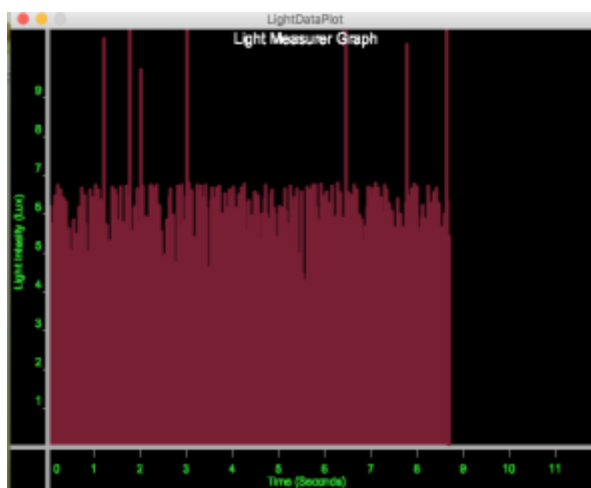
10. Download Processing by choosing the correct installation files based on your machines specification. <https://processing.org/download/?processing>

Displaying the Graph

11. Go to the folder FazaanHassan again.
12. Go to Engduino > Processing > PROCESSING CODE > LightDataPlot > LightDataPlot.pde
13. Once the file has been opened go to LINE 16 and change what is inside the speech marks to the name of your port. THIS IS CRUCIAL.
14. Finally click Run button displayed at the top. YOU CANNOT have the serial monitor in Engduino and the graph window in processing up at the same time.

Display:**Processing window.**

After you have clicked 'Run' a window like this appears.

**References:**

Arduino – How to setup and collect data

Processing – How to get a serial connection with Arduino, How to plot the data

OpenSCAD Notes:

The Engduino-Stand is made on OpenSCAD. It shows a socket for the Engduino's USB to be placed in. Steps are created where the Socket is located at the top. A handle is also made, attached to the base allowing the user to move the stand.

