


## Chapter 1: Getting Started with the ESP8266




**ARDUINO 1.8.2**

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software.

This software can be used with any Arduino board. Refer to the [Getting Started](#) page for installation instructions.

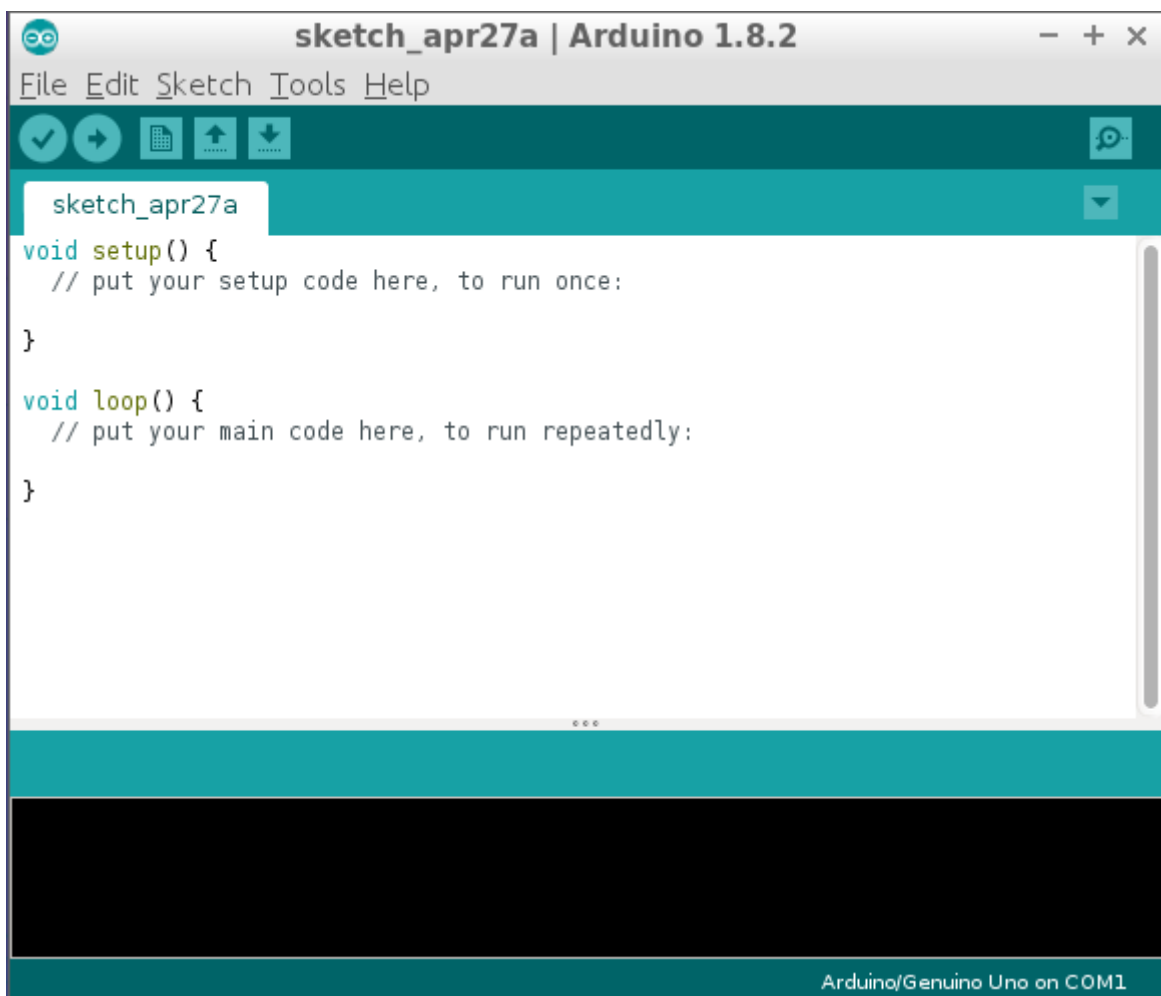
**Windows** Installer  
**Windows** ZIP file for non admin install

**Windows app** 

**Mac OS X** 10.7 Lion or newer

**Linux** 32 bits  
**Linux** 64 bits  
**Linux** ARM

[Release Notes](#)  
[Source Code](#)  
[Checksums \(sha512\)](#)



```
sketch_apr27a | Arduino 1.8.2
File Edit Sketch Tools Help
[Icons: Checkmark, Arrow, Grid, Upload, Download, Debug]
sketch_apr27a
void setup() {
  // put your setup code here, to run once:
}

void loop() {
  // put your main code here, to run repeatedly:
}

...
Arduino/Genuino Uno on COM1
```



## Preferences



Settings Network

Sketchbook location:

/home/catalin/Arduino

Browse

Editor language:

System Default

(requires restart of Arduino)

Editor font size:

12

Interface scale:

Automatic

100



%

(requires restart of Arduino)

Show verbose output during:

compilation

upload

Compiler warnings:

None

Display line numbers

Enable Code Folding

Verify code after upload

Use external editor

Aggressively cache compiled core

Check for updates on startup

Update sketch files to new extension on save (.pde -> .ino)

Save when verifying or uploading

Additional Boards Manager URLs:



More preferences can be edited directly in the file

/home/catalin/.arduino15/preferences.txt

(edit only when Arduino is not running)

OK

Cancel



## Preferences



Settings

Network

Sketchbook location:

Editor language:  (requires restart of Arduino)

Editor font size:

Interface scale:  Automatic  % (requires restart of Arduino)

Show verbose output during:  compilation  upload

Compiler warnings:

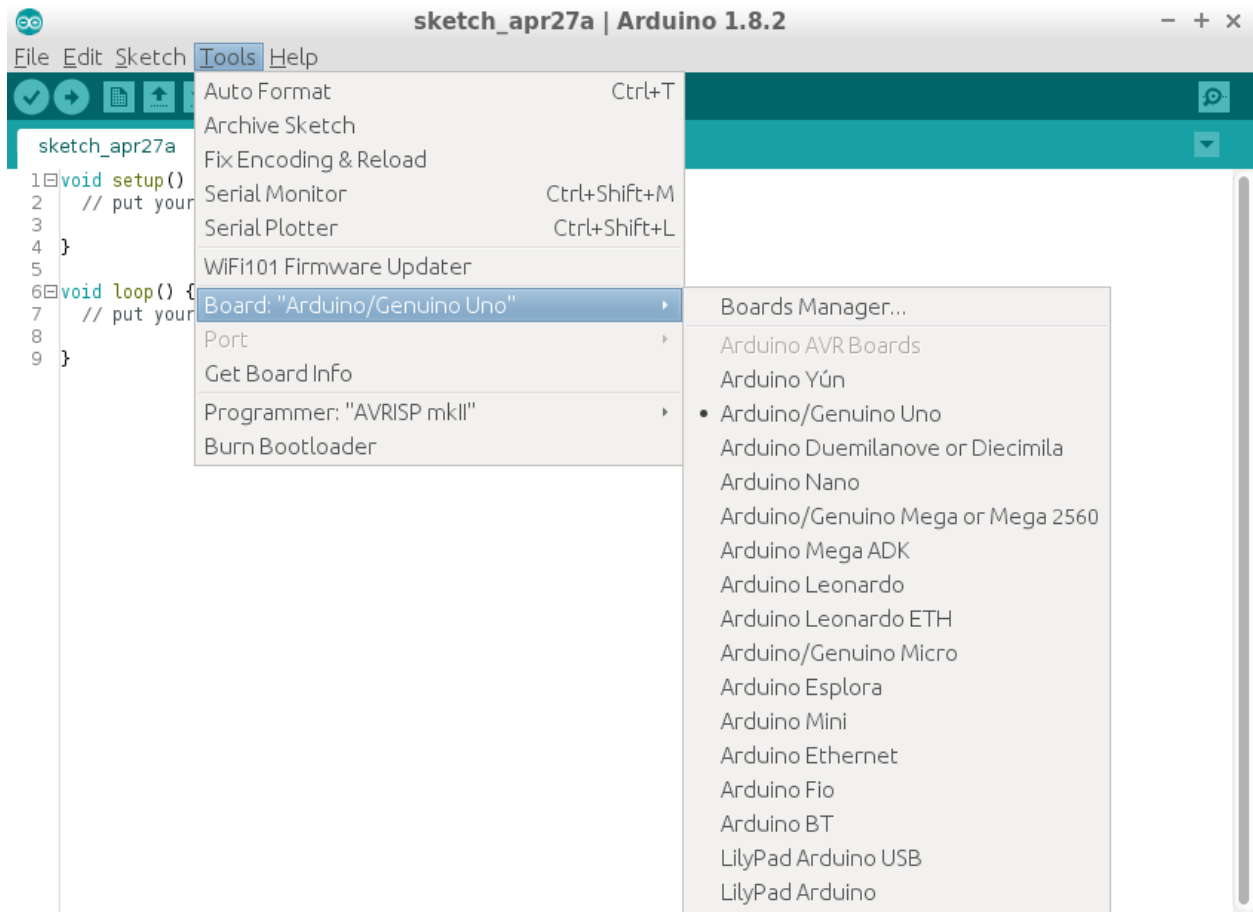
- Display line numbers
- Enable Code Folding
- Verify code after upload
- Use external editor
- Aggressively cache compiled core
- Check for updates on startup
- Update sketch files to new extension on save (.pde -> .ino)
- Save when verifying or uploading

Additional Boards Manager URLs:

More preferences can be edited directly in the file

`/home/catalin/.arduino15/preferences.txt`

(edit only when Arduino is not running)





sketch\_apr27a

```
1 void setup() {  
2   // put your setup code here, to run once:  
3
```

### Boards Manager

Type:

EMoRo 2560. Board based on ATmega 2560 MCU.  
[Online help](#)  
[More info](#)

---

**AMEL-Tech Boards** by **replaced by Arrow Boards**  
Boards included in this package:  
SmartEverything Fox.  
[Online help](#)  
[More info](#)

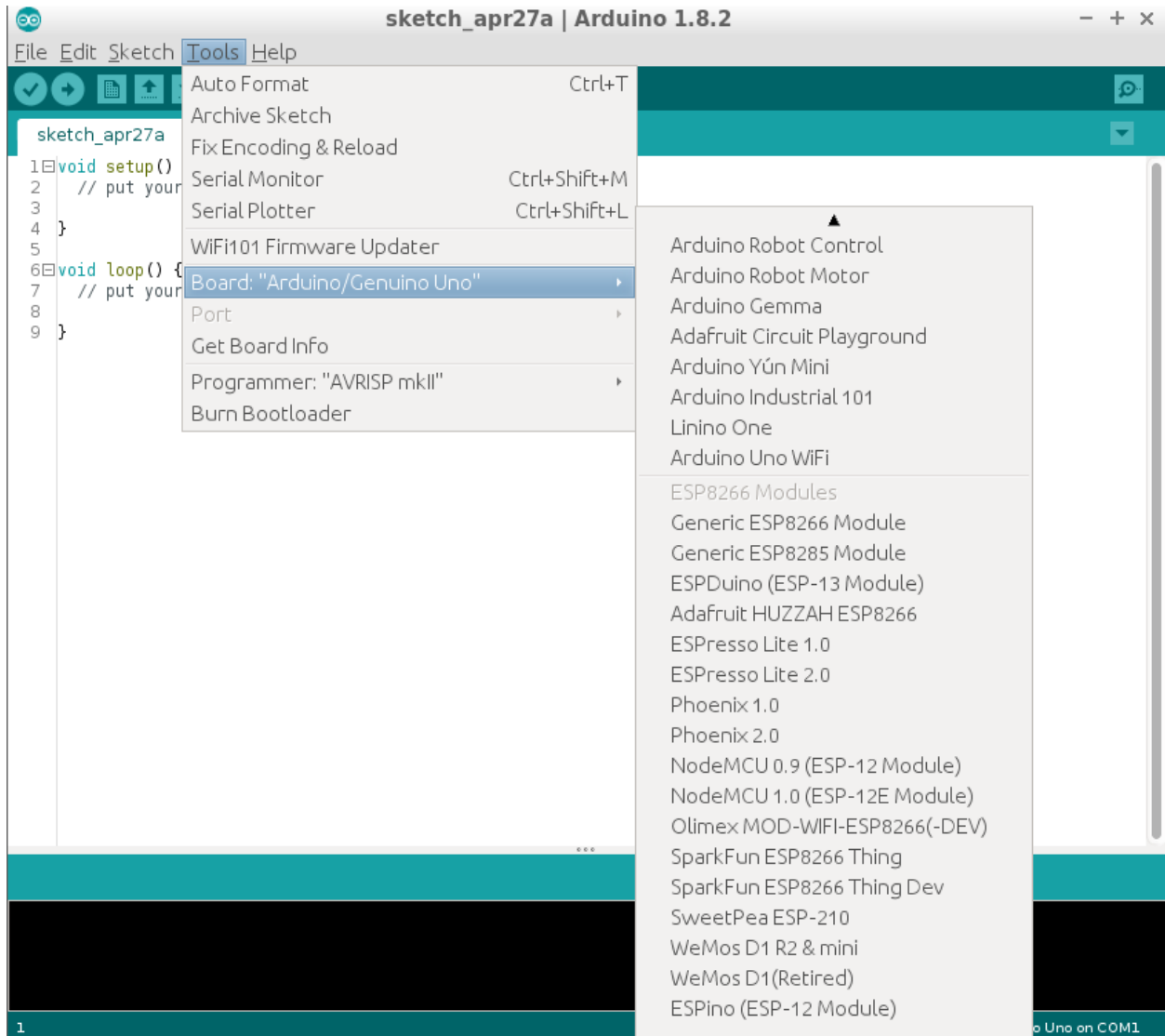
---

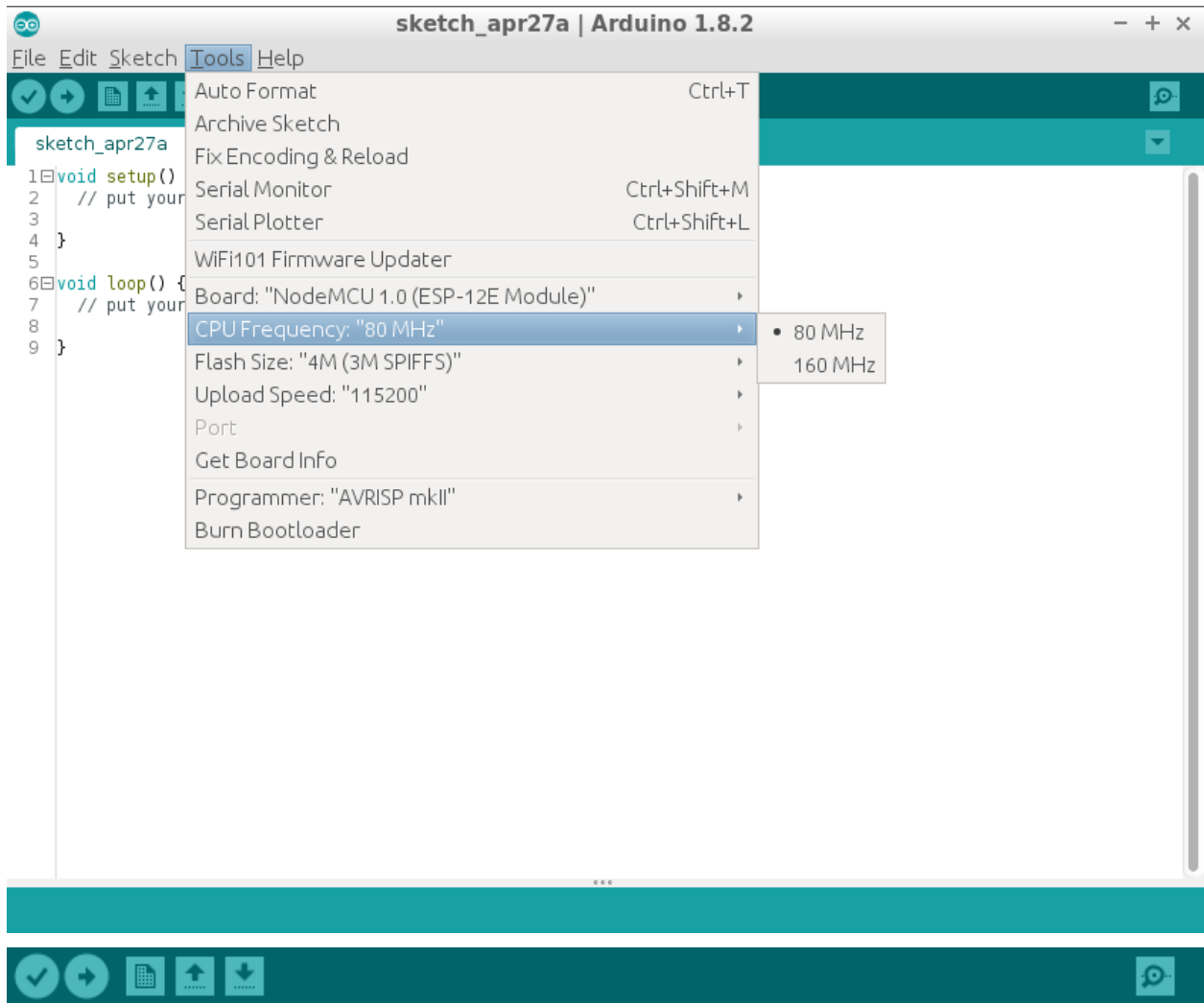
**esp8266** by **ESP8266 Community**  
Boards included in this package:  
Generic ESP8266 Module, Olimex MOD-WIFI-ESP8266(-DEV), NodeMCU 0.9 (ESP-12 Module), NodeMCU 1.0 (ESP-12E Module), Adafruit HUZZAH ESP8266 (ESP-12), ESPresso Lite 1.0, ESPresso Lite 2.0, Phoenix 1.0, Phoenix 2.0, SparkFun Thing, SweetPea ESP-210, WeMos D1, WeMos D1 mini, ESPino (ESP-12 Module), ESPino (WROOM-02 Module), WifiInfo, ESPduino.  
[Online help](#)  
[More info](#)

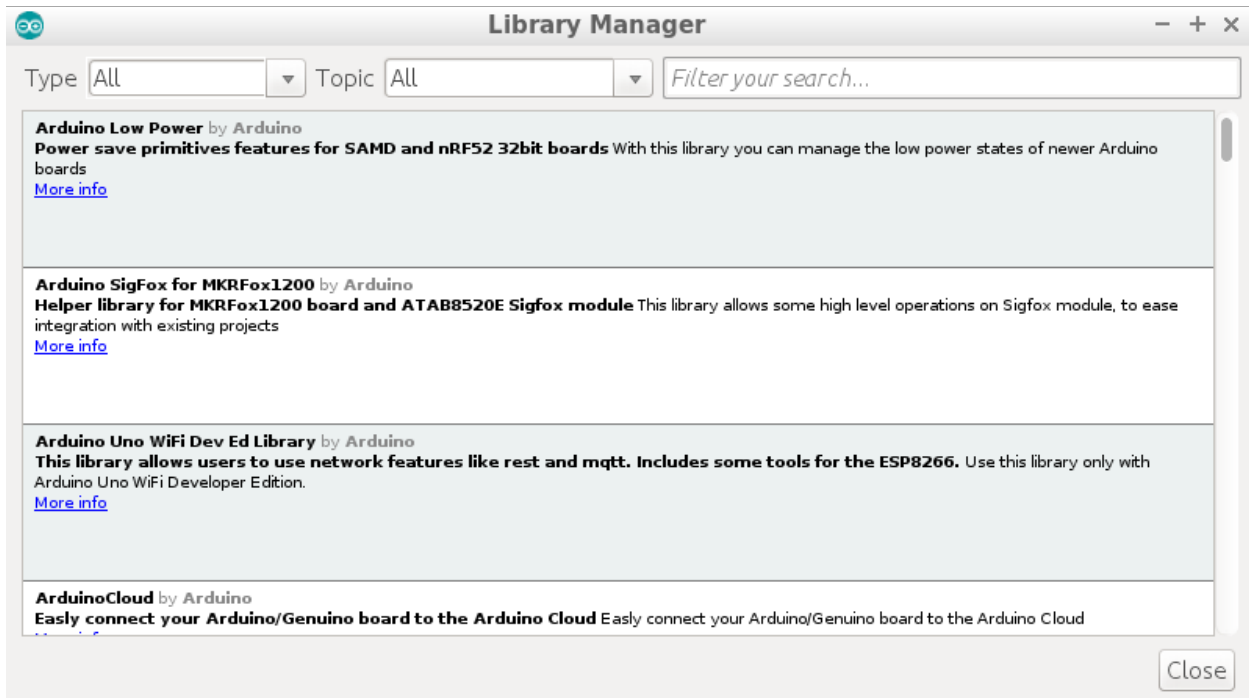
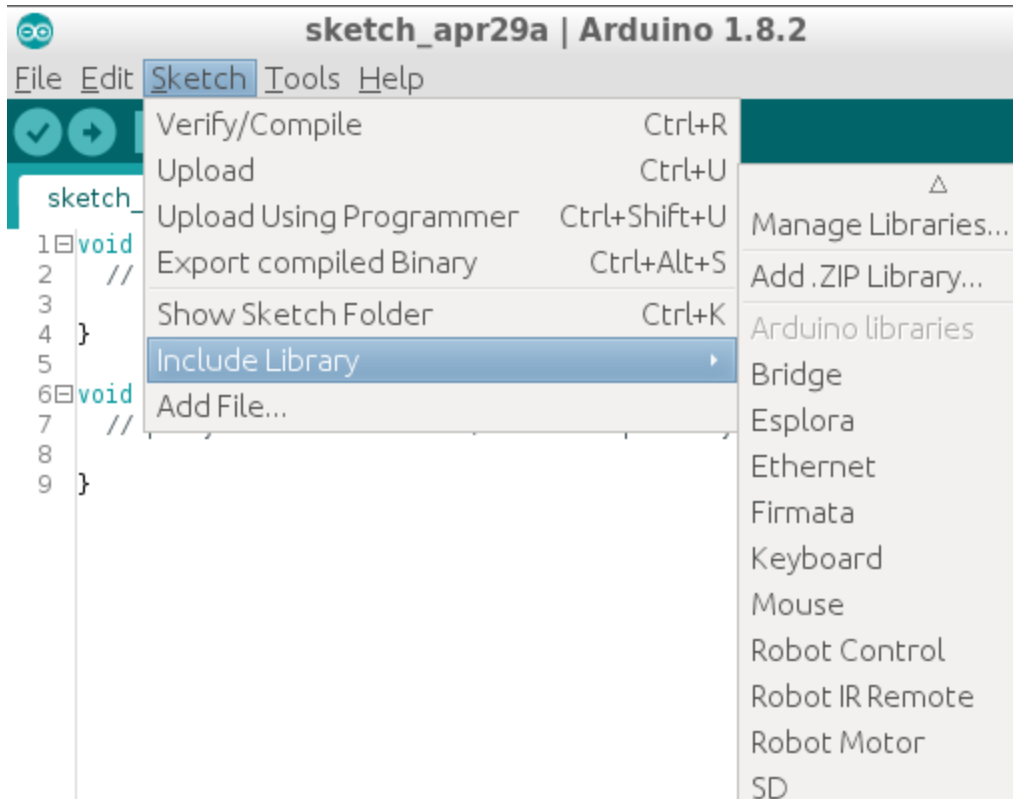
2.3.0



**esp8266** by **ESP8266 Community** version **2.3.0 INSTALLED**  
Boards included in this package:  
Generic ESP8266 Module, Olimex MOD-WIFI-ESP8266(-DEV), NodeMCU 0.9 (ESP-12 Module), NodeMCU 1.0 (ESP-12E Module), Adafruit HUZZAH ESP8266 (ESP-12), ESPresso Lite 1.0, ESPresso Lite 2.0, Phoenix 1.0, Phoenix 2.0, SparkFun Thing, SweetPea ESP-210, WeMos D1, WeMos D1 mini, ESPino (ESP-12 Module), ESPino (WROOM-02 Module), WifiInfo, ESPduino.  
[Online help](#)  
[More info](#)









Library Manager

Type All Topic All ArduinoJson

ArduinoJson by Benoit Blanchon Version 5.8.4 **INSTALLED**  
An efficient and elegant JSON library for Arduino. Like this project? Please star it on GitHub!  
[More info](#)

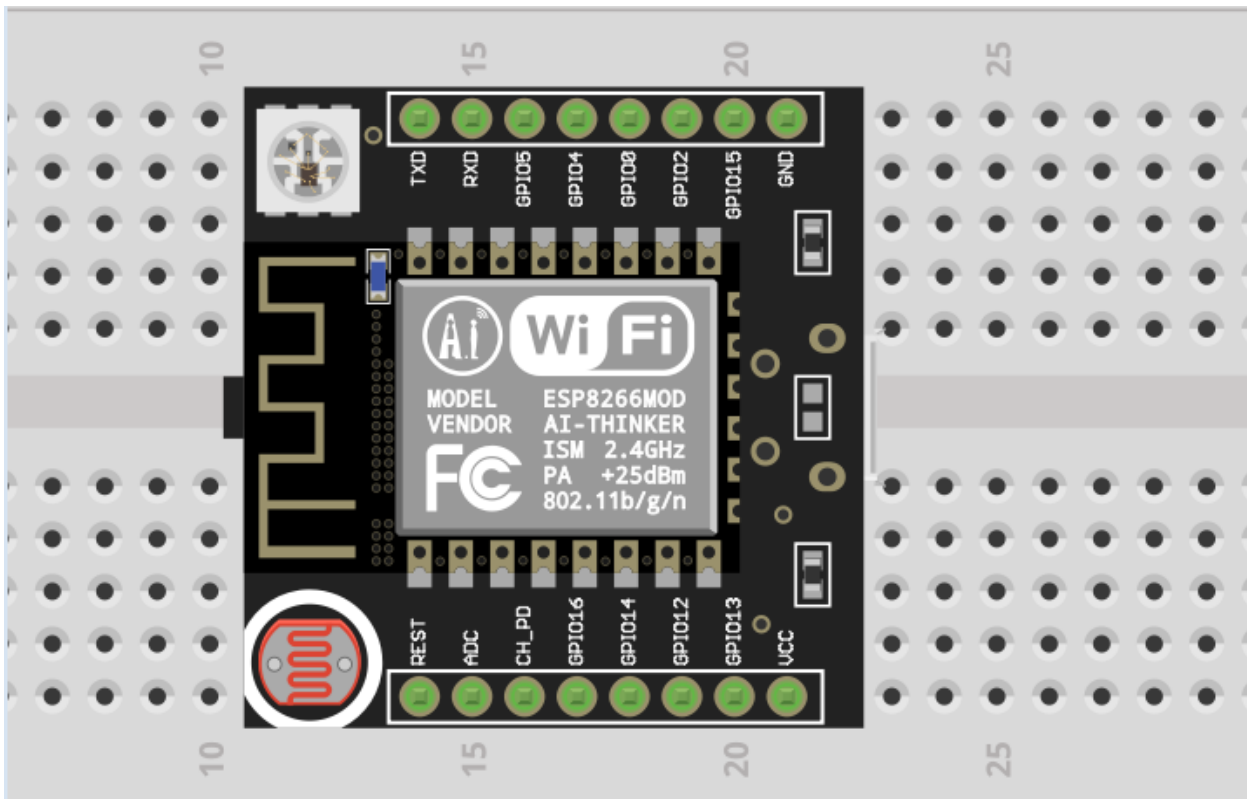
Version 5.9.0 Install Update

sketch\_apr29a | Arduino 1.8.2

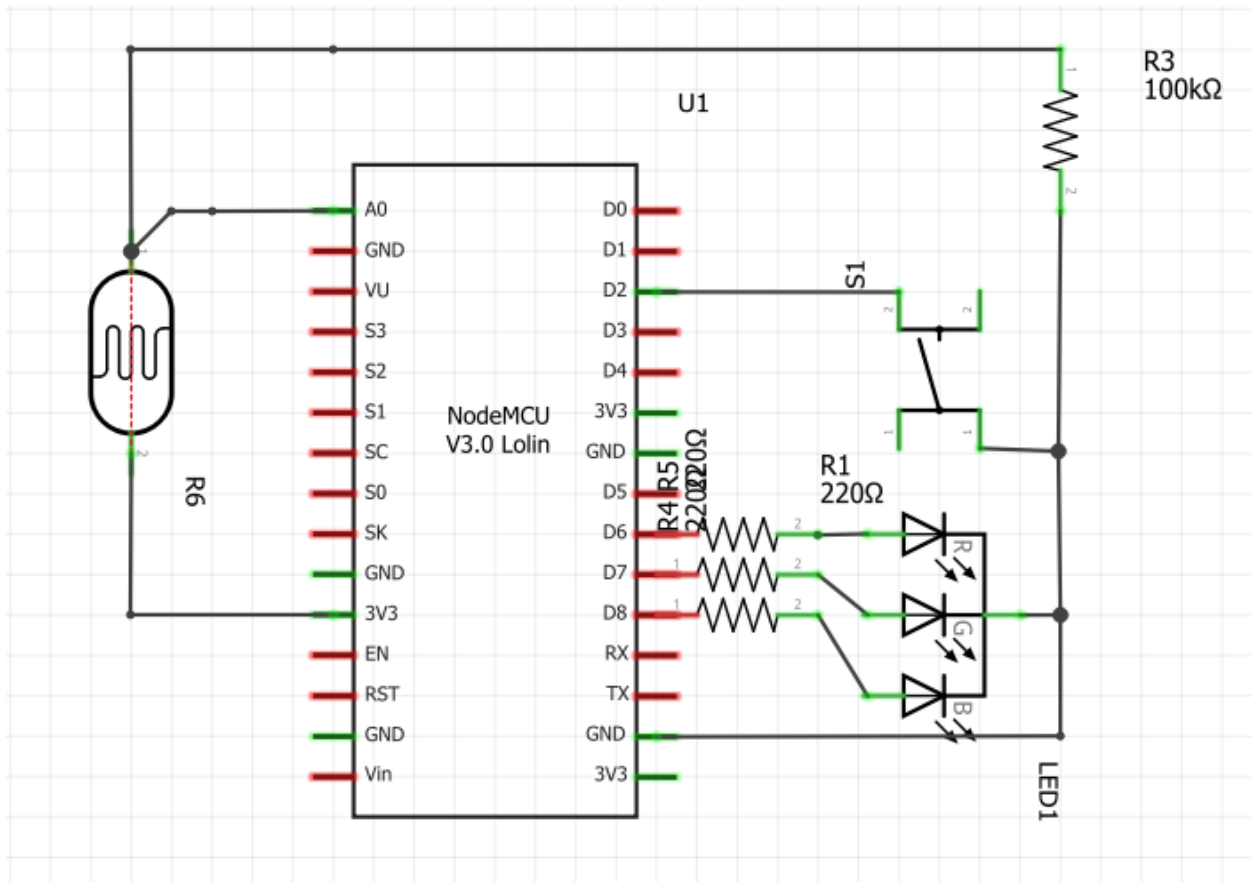
File Edit Sketch Tools Help

sketch\_apr29a \$

```
1 #include <ESP8266HTTPClient.h>
2
3 void setup() {
4   // put your setup code here, to run once:
5
6 }
7
8 void loop() {
9   // put your main code here, to run repeatedly:
10
11 }
```







```

/dev/ttyUSB0
v09f0c112
~ld
?

Connecting to WiFi ██████████
.....
WiFi connected
IP address:
192.168.1.142
  
```

How much will you use our service?

	Monthly Pricing	Calls Per Day	Calls Per Minute
<input checked="" type="radio"/> Developer	\$0	500	10
<input type="radio"/> Drizzle	\$20	5000	100
<input type="radio"/> Shower	\$200	100,000	1000
<input type="radio"/> Downpour	Get in touch for more than 100,000 calls per day.		

Your Selected Plan: Stratus Developer Purchase Key >>

## GET YOUR API KEY

[Analytics](#) [Key Settings](#) [Featured Applications](#) [Documentation](#) [Forums](#)

Select a Key to Customize

### Edit API Key

Key ID	<input type="text" value=""/>
Project Name	<input type="text" value=""/>
Company Website	<input type="text" value="n/a"/>

### Regenerate API Key

Has your key been compromised? You can generate a new key.

### Consequences

- You will need to change your apps to use the new key.
- Your statistics will be reset.
- This action cannot be undone.

I understand the consequences.

Regenerate Key >>

api.wunderground.com/api/ADD\_APY\_KEY\_HERE/conditions/q/NL/Eindhoven.json

```
{
  "response": {
    "version": "0.1",
    "termsofService": "http://www.wunderground.com/weather/api/d/terms.html",
    "features": {
      "conditions": 1
    }
  },
  "current_observation": {
    "image": {
      "url": "http://icons.wxug.com/graphics/wu2/logo_130x80.png",
      "title": "Weather Underground",
      "link": "http://www.wunderground.com"
    },
    "display_location": {
      "full": "Eindhoven, Netherlands",
      "city": "Eindhoven",
      "state": "NB",
      "state_name": "Netherlands",
      "country": "NL",
      "country_iso3166": "NL",
      "zip": "00000",
      "magic": "1",
      "wmo": "06370",
      "latitude": "51.43999863",
      "longitude": "5.48000002",
      "elevation": "20.1"
    },
    "observation_location": {
      "full": "Eindhoven, Villapark, NB",
      "city": "Eindhoven, Villapark",
      "state": "NB",
      "country": "NL",
      "country_iso3166": "NL",

```



/dev/ttyUSB0



Send

192.168.1.142

[HTTP] GET... code: 200

```
{
  "response": {
    "version": "0.1",
    "termsOfService": "http://www.wunderground.com/weather/api/d/terms.html",
    "features": {
      "conditions": 1
    }
  },
  "current_observation": {
    "image": {
      "url": "http://icons.wxug.com/graphics/wu2/logo_130x80.png",
      "title": "Weather Underground",
      "link": "http://www.wunderground.com"
    },
    "display_location": {
      "full": "Eindhoven, Netherlands",
      "city": "Eindhoven",
      "state": "NB",
      "state_name": "Netherlands",
      "country": "NL",
      "country_iso3166": "NL",
      "zip": "00000",
      "magic": "1",
      "wmo": "06370",
      "latitude": "51.43999863",
      "longitude": "5.48000002",
      "elevation": "20.1"
    },
    "observation_location": {
      "full": "Eindhoven, Villapark, NB",
      "city": "Eindhoven, Villapark",
      "state": "NB",
      "country": "NL",
      "country_iso3166": "NL",
      "latitude": "51.436169",
      "longitude": "5.487474",
```

Autoscroll

No line ending

115200 baud

**Library Manager** - + x

Type: All Topic: All ESP8266 weather Station

**ESP8266 Weather Station** by Daniel Eichhorn  
**ESP8266 based internet connected Weather Station** ESP8266 based internet connected Weather Station  
[More info](#)

Version 1... Install

**ESPiLight** by Puiu  
**pilight 433.92 MHz protocols library for Arduino** With this port of pilight 433.92 MHz protocols, you can transmit, receive and parse all 434 MHz protocols (e.g., rc switches or weather stations) supported by pilight. This should help to implement IoT bridges between the 434MHz-RF band and internet protocols. It is developed and tested on ESP8266.  
[More info](#)

**Library Manager** - + x

Type: All Topic: All Json Streaming Parser

**Json Streaming Parser** by Daniel Eichhorn  
**A very memory efficient library to parse (large) JSON objects on small devices** A very memory efficient library to parse (large) JSON objects on small devices  
[More info](#)

Version 1... Install

**/dev/ttyUSB0** - + x

Send

```
v09f0c112
~ld
?

Connecting to WiFi ██████████
.....
WiFi connected
IP address:
192.168.1.142
```

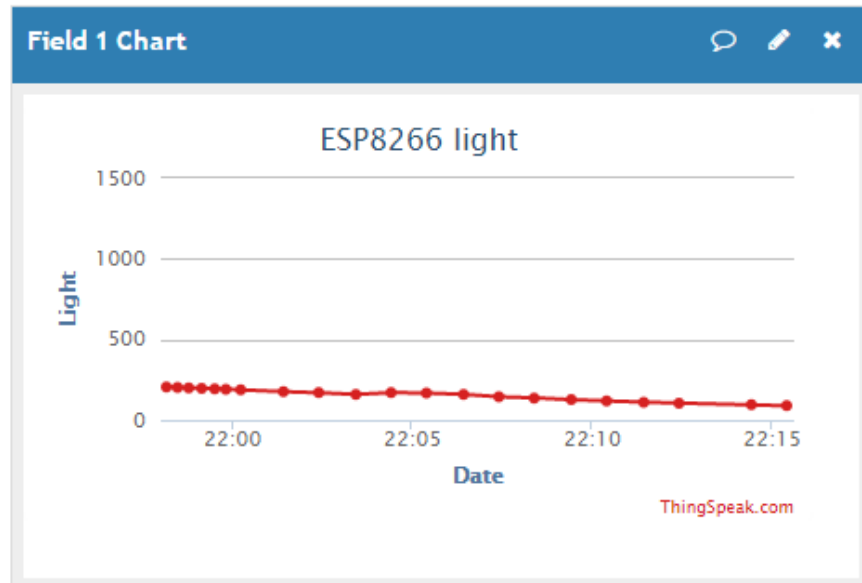
# Channel Stats

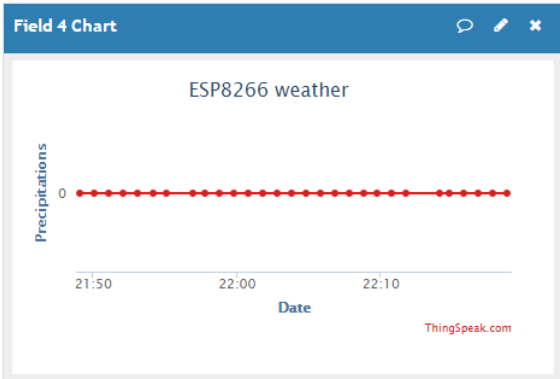
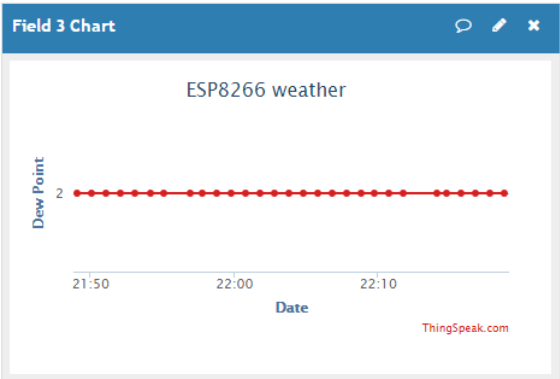
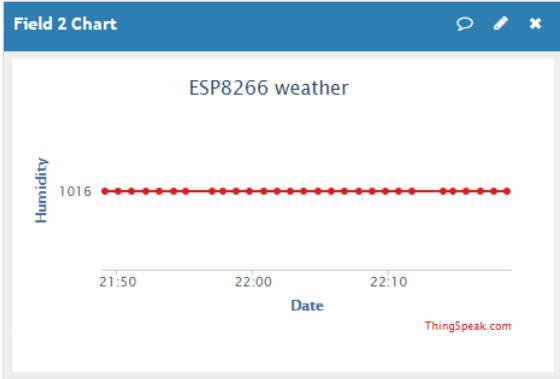
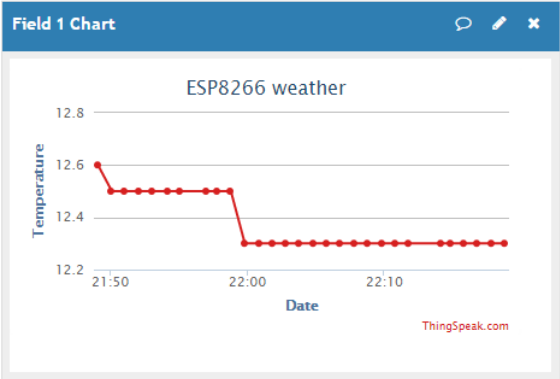
Created: [2 years ago](#)

Updated: [less than a minute ago](#)

Last entry: [less than a minute ago](#)

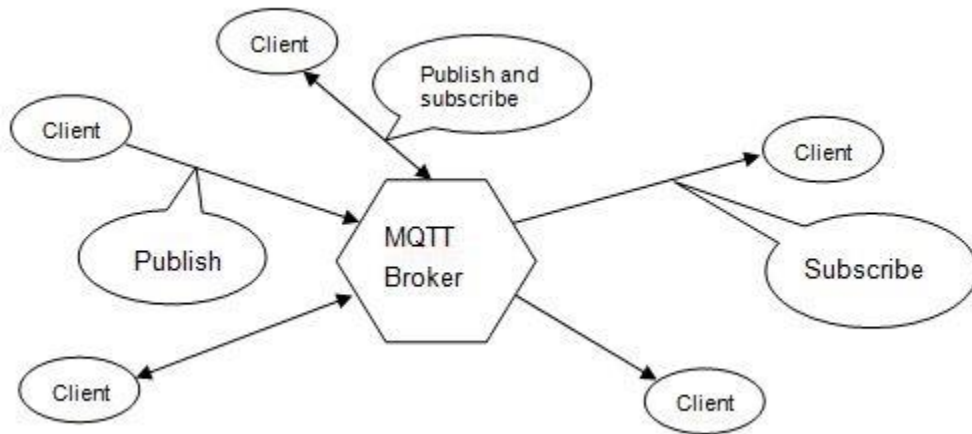
Entries: 10709







## Chapter 2: Building and Configuring Your Own MQTT Server



### **\$\$SYS/broker/clients/total**

7

The total number of active and inactive clients currently connected and registered on the broker.

### **\$\$SYS/broker/clients/inactive**

4

Deprecated: The total number of persistent clients (with clean session disabled) that are registered at the broker but are currently disconnected.

### **\$\$SYS/broker/clients/disconnected**

4

The total number of persistent clients (with clean session disabled) that are registered at the broker but are currently disconnected.

### **\$\$SYS/broker/clients/active**

3

Deprecated: The number of currently connected clients.

### **\$\$SYS/broker/clients/connected**

3

The number of currently connected clients.

### **\$\$SYS/broker/clients/maximum**

The maximum number of active clients that have been connected to the broker. This is only calculated when the \$\$SYS topic tree is updated, so short lived client connections may not be counted.

### **\$\$SYS/broker/clients/expired**

0

The number of disconnected persistent clients that have been expired and removed through the persistent\_client\_expiration option.

### **\$\$SYS/broker/messages/stored**

1904

The number of messages currently held in the message store. This includes retained messages and messages queued for durable clients.

### **\$\$SYS/broker/messages/received**

1208818

The total number of PUBLISH messages received since the broker started.

### **\$\$SYS/broker/messages/sent**

654351

The total number of PUBLISH messages sent since the broker started.

### **\$\$SYS/broker/subscriptions/count**

10

The total number of subscriptions active on the broker.

```
catalin@plex:~/PROJECTS$ sudo apt install mosquito
[sudo] password for catalin:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.4.0-31 linux-headers-4.4.0-31-generic linux-headers-4.4.0-72 linux-headers-4.4.0-72-generic linux-image-4.4.0-31-generic
  linux-image-4.4.0-72-generic linux-image-extra-4.4.0-31-generic linux-image-extra-4.4.0-72-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libev4 libwebsockets7
The following NEW packages will be installed:
  libev4 libwebsockets7 mosquito
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 195 kB of archives.
After this operation, 540 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://de.archive.ubuntu.com/ubuntu xenial/universe amd64 libev4 amd64 1:4.22-1 [26.3 kB]
Get:2 http://de.archive.ubuntu.com/ubuntu xenial/universe amd64 libwebsockets7 amd64 1.7.1-1 [61.0 kB]
Get:3 http://de.archive.ubuntu.com/ubuntu xenial/universe amd64 mosquito amd64 1.4.8-1build1 [108 kB]
Fetched 195 kB in 0s (262 kB/s)
Selecting previously unselected package libev4.
(Reading database ... 232626 files and directories currently installed.)
Preparing to unpack .../libev4_1%3a4.22-1_amd64.deb ...
Unpacking libev4 (1:4.22-1) ...
Selecting previously unselected package libwebsockets7:amd64.
Preparing to unpack .../libwebsockets7_1.7.1-1_amd64.deb ...
Unpacking libwebsockets7:amd64 (1.7.1-1) ...
Selecting previously unselected package mosquito.
Preparing to unpack .../mosquito_1.4.8-1build1_amd64.deb ...
Unpacking mosquito (1.4.8-1build1) ...
Processing triggers for libc-bin (2.23-0ubuntu7) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for ureadahead (0.100.0-19) ...
Processing triggers for systemd (229-4ubuntu17) ...
Setting up libev4 (1:4.22-1) ...
Setting up libwebsockets7:amd64 (1.7.1-1) ...
Setting up mosquito (1.4.8-1build1) ...
Processing triggers for libc-bin (2.23-0ubuntu7) ...
Processing triggers for systemd (229-4ubuntu17) ...
Processing triggers for ureadahead (0.100.0-19) ...
```

```
catalin@plex:~/PROJECTS$ ps aux | grep mosquito
mosquit+ 30970  0.0  0.1  42128  4736 ?        S    11:37   0:00 /usr/sbin/mosquitto -c /etc/mosquitto/mosquitto.conf
```

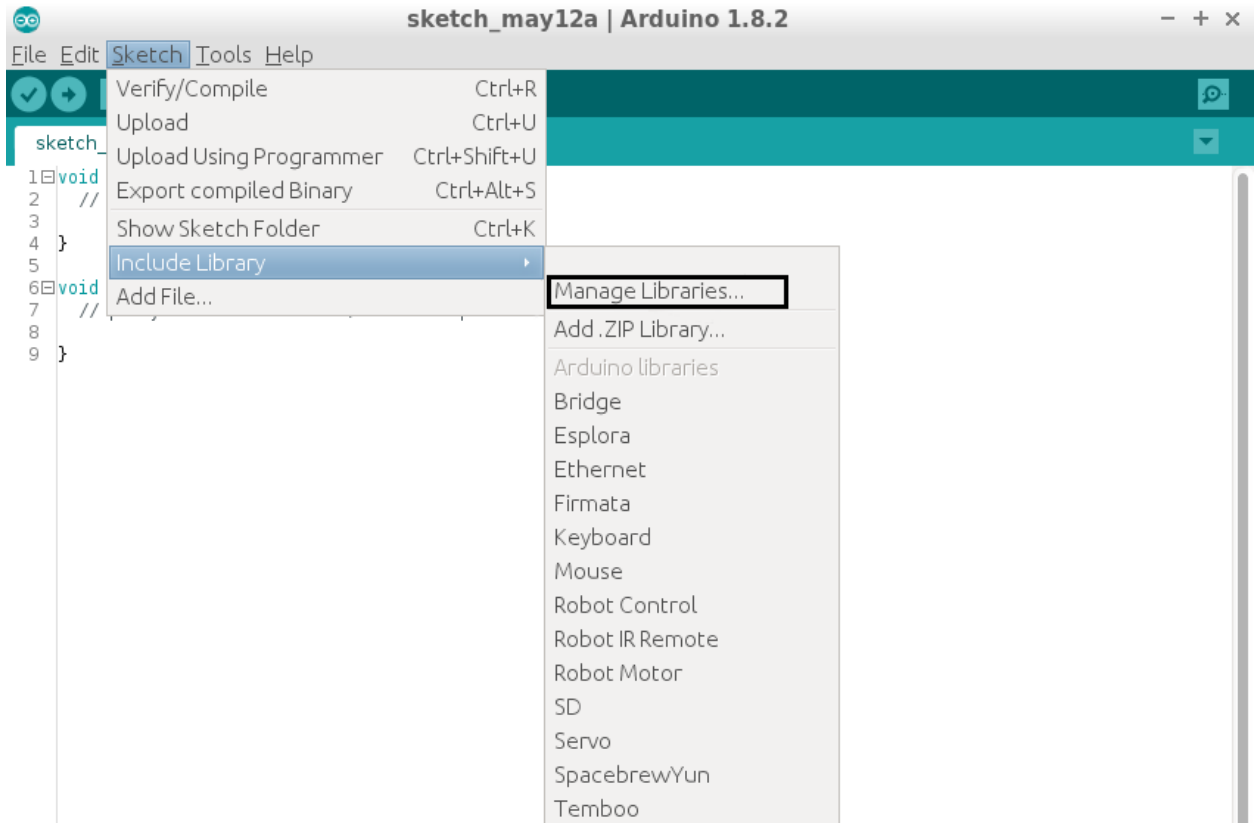
```
catalin@plex:~/PROJECTS$ sudo apt install mosquito-clients
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.4.0-31 linux-headers-4.4.0-31-generic linux-headers-4.4.0-72 linux-headers-4.4.0-72-generic linux-image-4.4.0-31-generic
  linux-image-4.4.0-72-generic linux-image-extra-4.4.0-31-generic linux-image-extra-4.4.0-72-generic
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libc-ares2 libmosquitto1
The following NEW packages will be installed:
  libc-ares2 libmosquitto1 mosquito-clients
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 96.2 kB of archives.
After this operation, 330 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://de.archive.ubuntu.com/ubuntu xenial-updates/main amd64 libc-ares2 amd64 1.10.0-3ubuntu0.1 [34.1 kB]
Get:2 http://de.archive.ubuntu.com/ubuntu xenial/universe amd64 libmosquitto1 amd64 1.4.8-1build1 [31.1 kB]
Get:3 http://de.archive.ubuntu.com/ubuntu xenial/universe amd64 mosquito-clients amd64 1.4.8-1build1 [31.0 kB]
Fetched 96.2 kB in 0s (226 kB/s)
Selecting previously unselected package libc-ares2:amd64.
(Reading database ... 232666 files and directories currently installed.)
Preparing to unpack .../libc-ares2_1.10.0-3ubuntu0.1_amd64.deb ...
Unpacking libc-ares2:amd64 (1.10.0-3ubuntu0.1) ...
Selecting previously unselected package libmosquitto1:amd64.
Preparing to unpack .../libmosquitto1_1.4.8-1build1_amd64.deb ...
Unpacking libmosquitto1:amd64 (1.4.8-1build1) ...
Selecting previously unselected package mosquito-clients.
Preparing to unpack .../mosquito-clients_1.4.8-1build1_amd64.deb ...
Unpacking mosquito-clients (1.4.8-1build1) ...
Processing triggers for libc-bin (2.23-0ubuntu7) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libc-ares2:amd64 (1.10.0-3ubuntu0.1) ...
Setting up libmosquitto1:amd64 (1.4.8-1build1) ...
Setting up mosquito-clients (1.4.8-1build1) ...
Processing triggers for libc-bin (2.23-0ubuntu7) ...
```

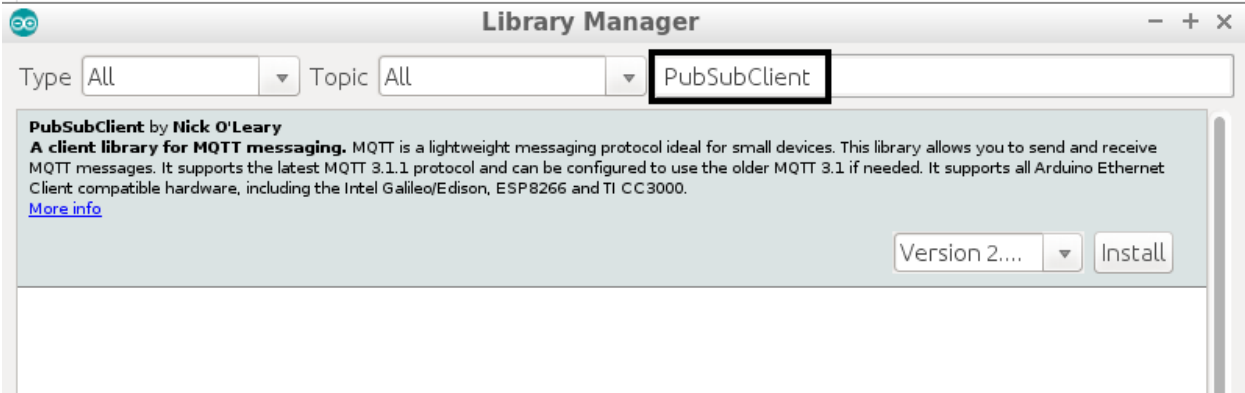
```
catalin@plex:~/PROJECTS$ mosquito_sub -t livingroom/temperature
```

```
catalin@plex:~/PROJECTS$ mosquito_sub -t livingroom/temperature
{t:27.4}
{t:27.4}
{t:27.4}
{t:27.4}
```

```
catalin@plex:~/PROJECTS$ mosquitto_sub -t livingroom/#
{t:27.4}
{h:68}
```

```
catalin@plex:~$ mosquitto_sub -t myhouse/+/temperature
{t:25.6}
{t:27.1}
{t:25.6}
{t:27.1}
```





```
catalin@plex:~$ mosquitto_sub -h 192.168.1.116 -t fromEsp8266
Hello world, I am ESP8266!
Hello world #1
Hello world #2
Hello world #3
Hello world #4
Hello world #5
Hello world #6
█
```

```
catalin@plex:~$ mosquitto_sub -h 192.168.1.116 -t outdoor/light/status
OFF
OFF
OFF
OFF
OFF
OFF
OFF
ON
ON
ON
ON
OFF
OFF
OFF
OFF
WiFi connected
IP address:
192.168.1.142
Attempting MQTT connection...connected
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
Message arrived [outdoor/light] 1
Publish message: ON
Publish message: ON
Publish message: ON
Publish message: ON
Message arrived [outdoor/light] 0
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
Message arrived [outdoor/light] 1
Publish message: ON
Publish message: ON
Publish message: ON
Publish message: ON
Message arrived [outdoor/light] 0
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
Publish message: OFF
```

```
catalin@plex:~/etc/mosquitto$ more passwd
joe:$6$1KViyEERoF0VwJ8n$N0qL+vAJkHkwRXX9Y16fB2XoHJ0Jm23wa64DnmBVf+M/3F0YLvWK5Bb1WaMwZ1ClEQkco+J0IE6dGL4dLDRWuQ==
```

```
# Place your local configuration in /etc/mosquitto/conf.d/
#
# A full description of the configuration file is at
# /usr/share/doc/mosquitto/examples/mosquitto.conf.example

pid_file /var/run/mosquitto.pid

persistence true
persistence_location /var/lib/mosquitto/

log_dest file /var/log/mosquitto/mosquitto.log

allow_anonymous false
password_file /etc/mosquitto/passwd

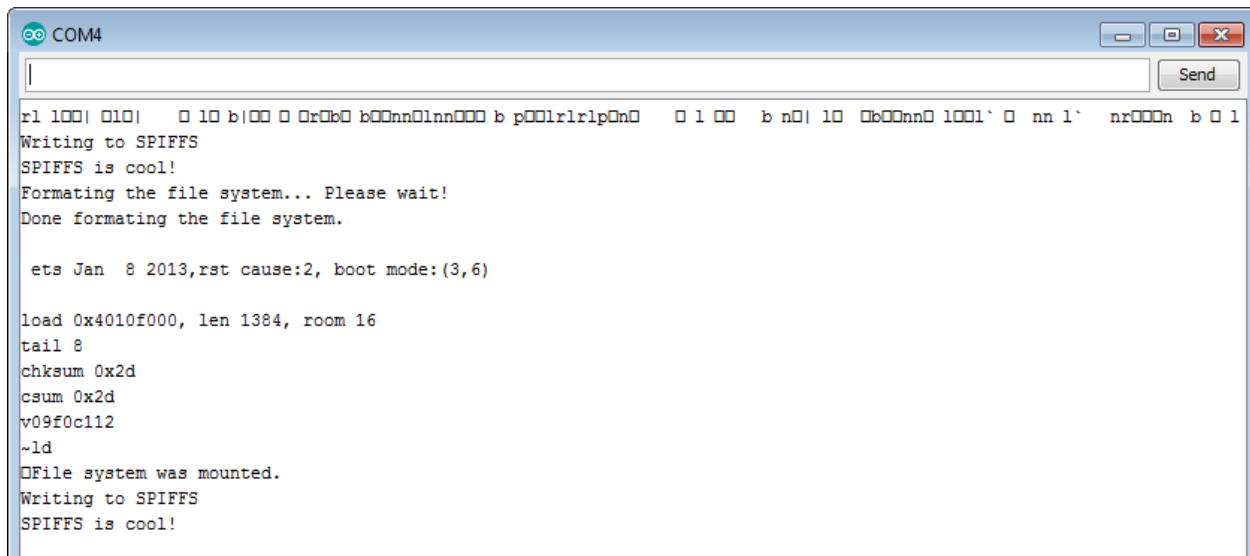
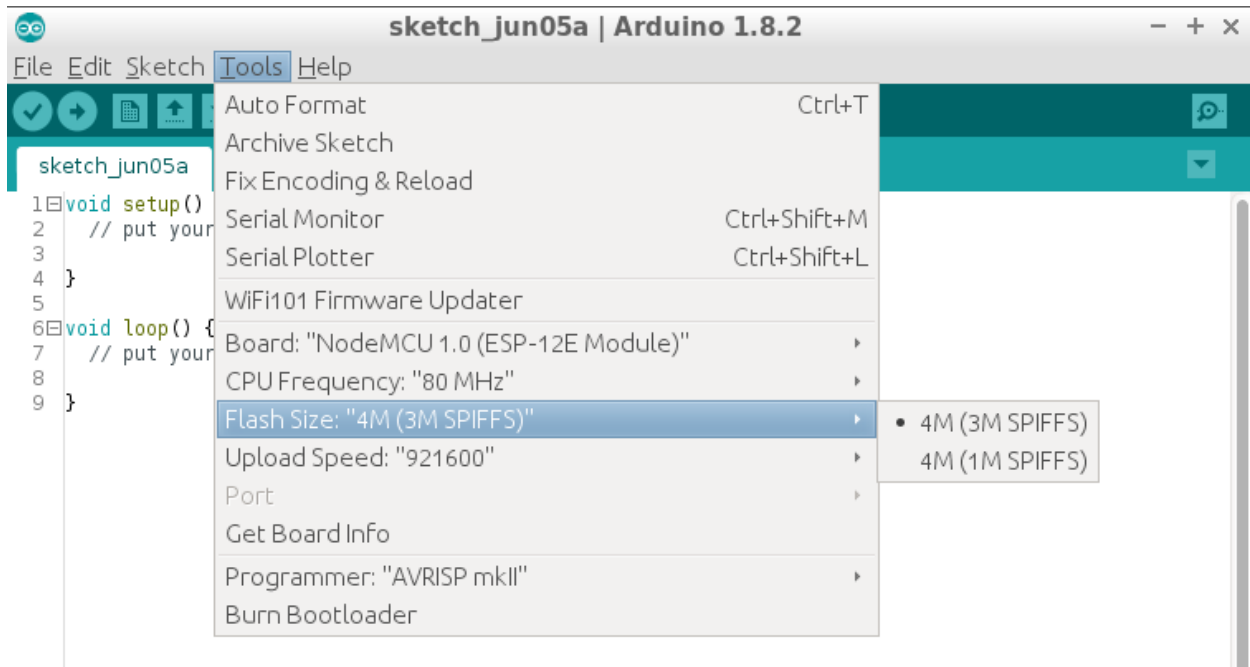
include_dir /etc/mosquitto/conf.d
```

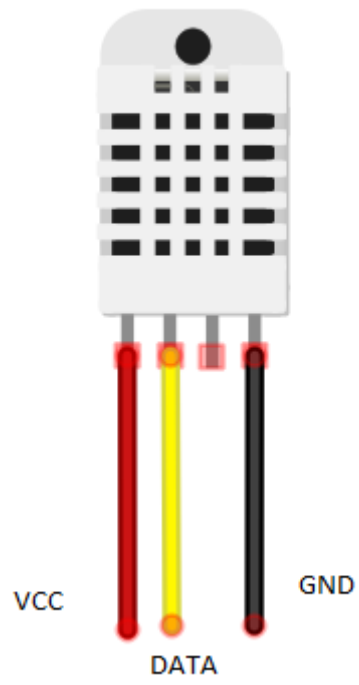
```
catalin@plex:/etc/mosquitto$ mosquitto_sub -t living/temperature
Connection Refused: not authorised.
Connection Refused: not authorised.
Connection Refused: not authorised.
Connection Refused: not authorised.
Connection Refused: not authorised.
```

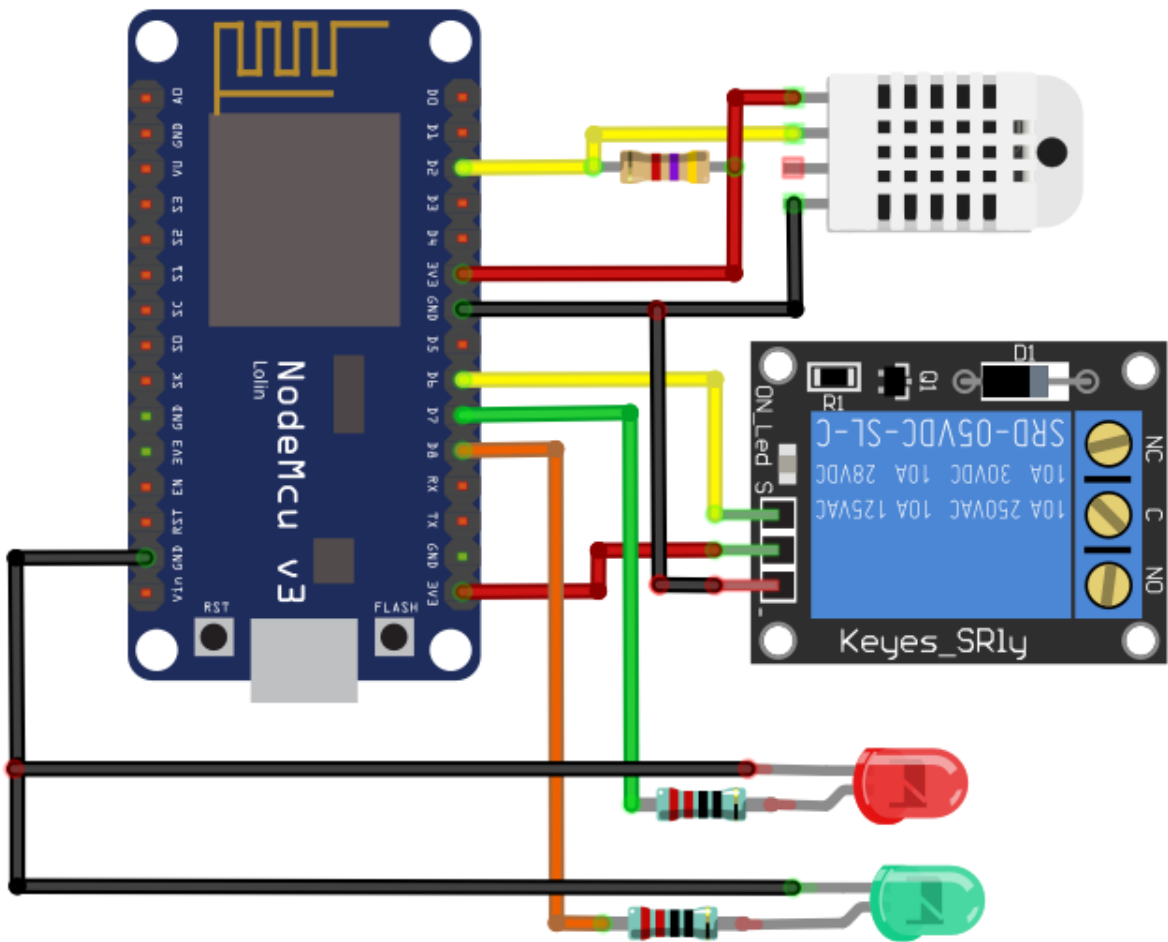
```
catalin@plex:/etc/mosquitto$ mosquitto_sub -t living/temperature -u joe -P joe1234
{t:24.7}
{t:24.7}
{t:24.7}
{t:24.7}
{t:24.7}
```

```
catalin@plex:/etc/mosquitto$ mosquitto_sub -t outdoor/light/status -u joe -P joe1234
OFF
OFF
OFF
ON
ON
ON
ON
OFF
OFF
OFF
```

## Chapter 3: Building a Home Thermostat with the ESP8266







```

27.30
27.30
27.30
27.30
27.30
27.30
27.60
27.60
27.60
27.60
27.50
27.50
27.50
27.50
27.50
27.50

```





46. [REDACTED]

1888



Dashboard

180 notifications



Subscribe

4 subscriptions



Publish



Stored Messages

9 stored messages



Settings







21:15



# Dashboard

17 Received Messages



27.50  
thermostat/get

27.50  
thermostat/get

27.50  
thermostat/get

27.50  
thermostat/get

27.40  
thermostat/get

27.40  
thermostat/get

27.40  
thermostat/get

27.40  
thermostat/get

27.30  
thermostat/get

27.40  
thermostat/get

27.30  
thermostat/get

27.30  
thermostat/get

27.30





21:15



Publish



thermostat/set

22.3

Count

1

Publish



## **Chapter 4: Control Appliances from the ESP8266**

Library Manager ✕

Type All Topic All

**WiFiManager** by **tzapu** Version **0.12.0** **INSTALLED**  
**ESP8266 WiFi Connection manager with fallback web configuration portal** Library for configuring ESP8266 modules WiFi credentials at runtime.  
[More info](#)

Select version Install

Close



12:24

Sign in to network



http://192.168.4.1/

# ESP\_AP

## WiFiManager

Configure WiFi

Configure WiFi (No Scan)

Info

Reset





12:24

## Sign in to network



http://192.168.4.1/wifi?

[Clicknet-2F88](#)



26%

[WLAN\\_19](#)



4%

SSID

password

save

[Scan](#)







12:24

## Sign in to network



http://192.168.4.1/0wifi?

save

[Scan](#)





12:24

## Sign in to network



<http://192.168.4.1/i?>

Chip ID

13775540

Flash Chip ID

1458400

IDE Flash Size

4194304 bytes

Real Flash Size

4194304 bytes

Soft AP IP

192.168.4.1

Soft AP MAC

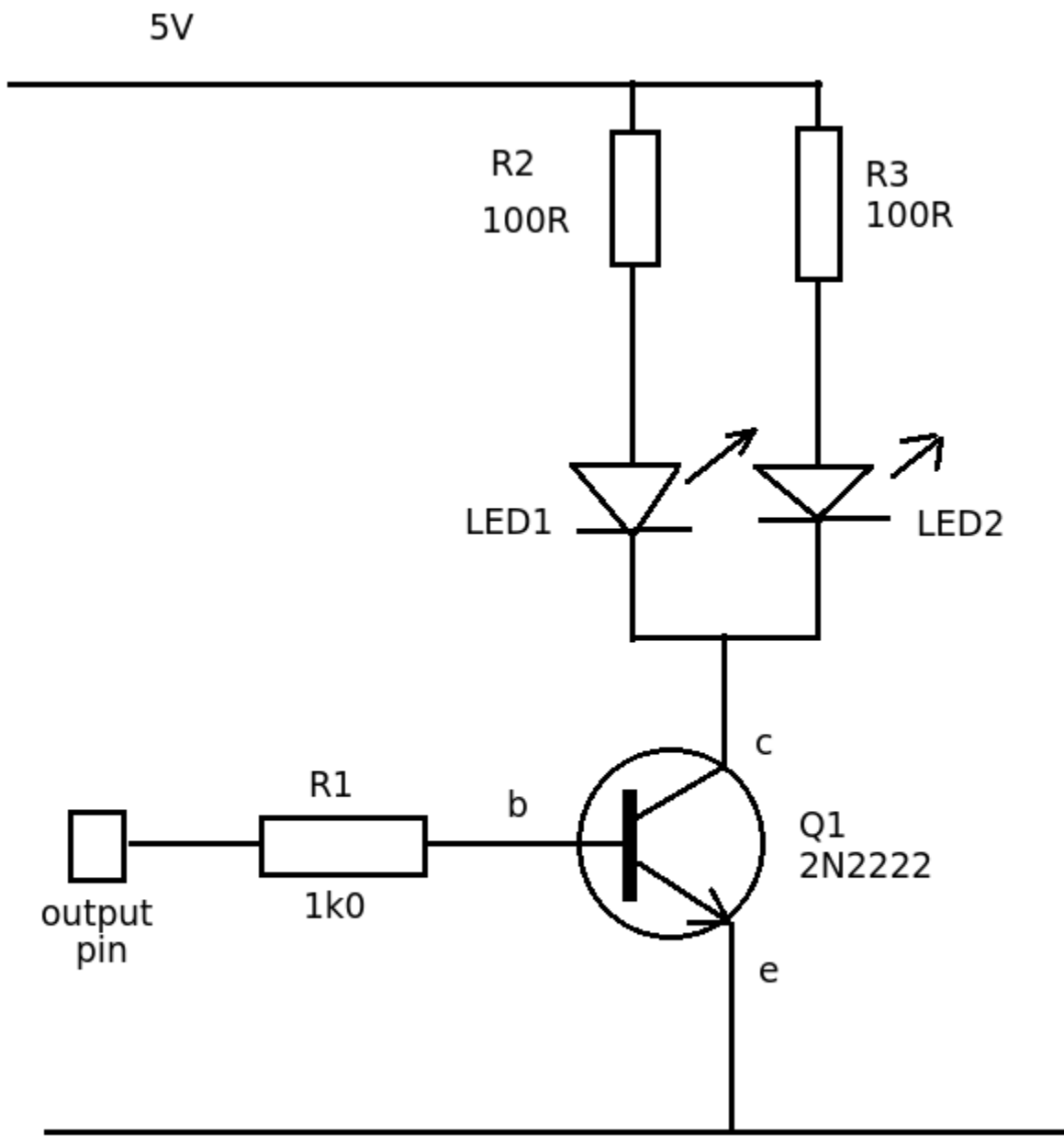
1A:FE:34:D2:32:B4

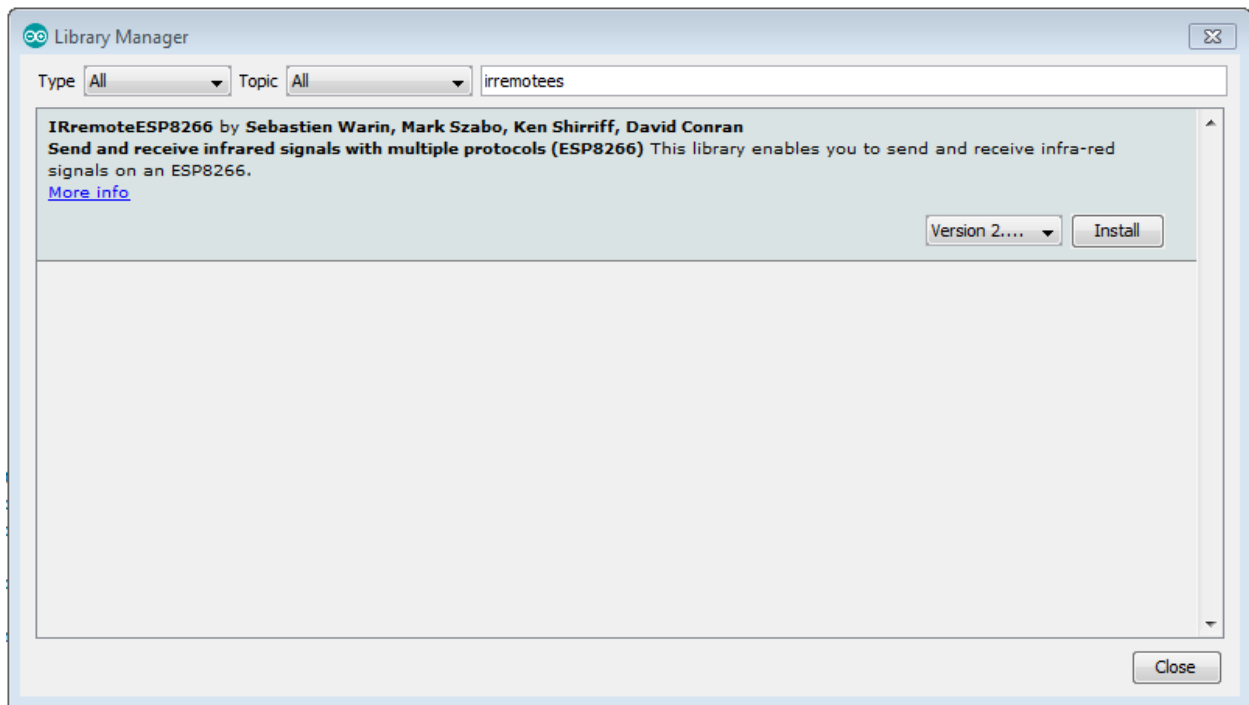
Station MAC

18:FE:34:D2:32:B4

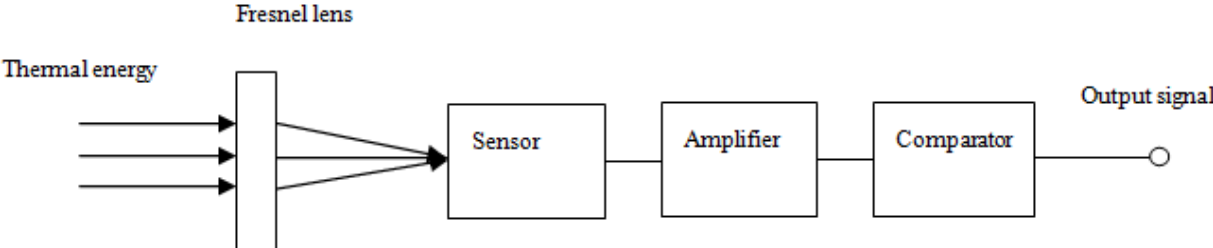


```
COM3
*WM: Handle root
*WM: Request redirected to captive portal
*WM: Handle root
*WM: Request redirected to captive portal
*WM: Handle root
*WM: Request redirected to captive portal
*WM: Handle root
*WM: Handle root
*WM: Handle root
*WM: Handle root
*WM: Scan done
*WM: Clicknet-2F88
*WM: -85
*WM: WLAN_19
*WM: -87
*WM: WLAN_62
*WM: -93
*WM: Sent config page
*WM: WiFi save
*WM: Sent wifi save page
*WM: Connecting to new AP
*WM: Connecting as wifi client...
*WM: Connection result:
*WM: 3
Connected to Wifi.
My IP: 192.168.1.8
```

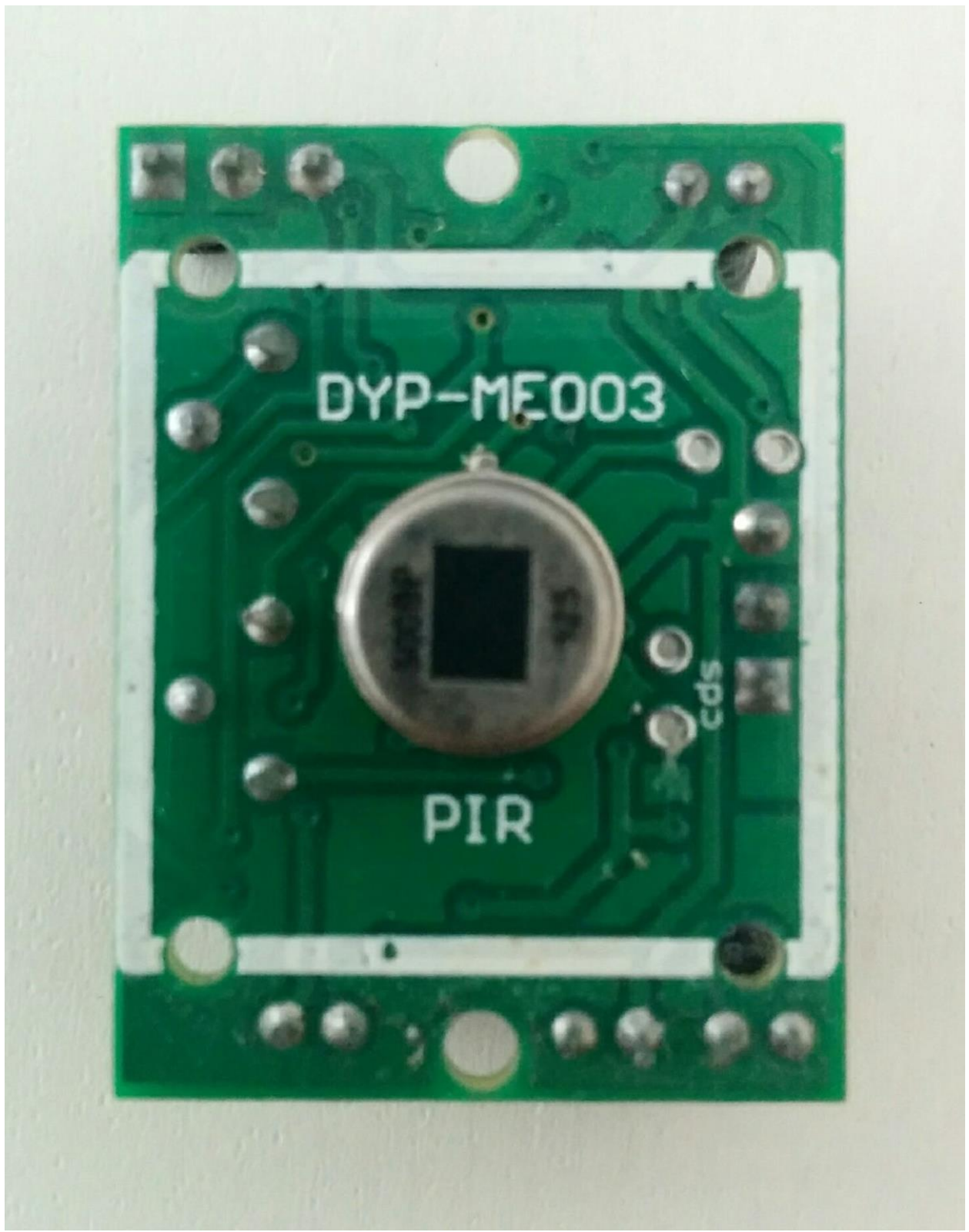




# Chapter 5: Using ESP8266 to Build a Security System





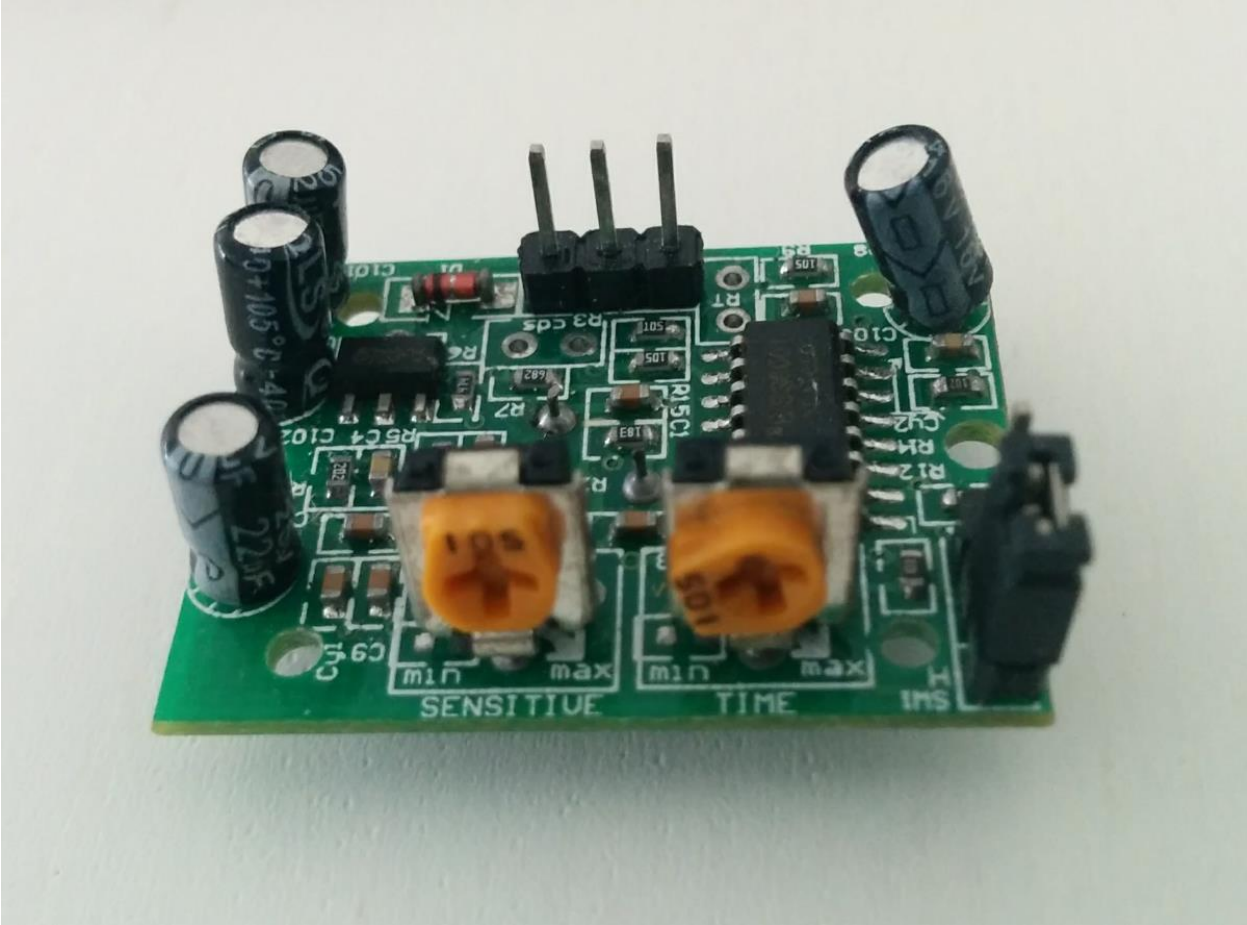


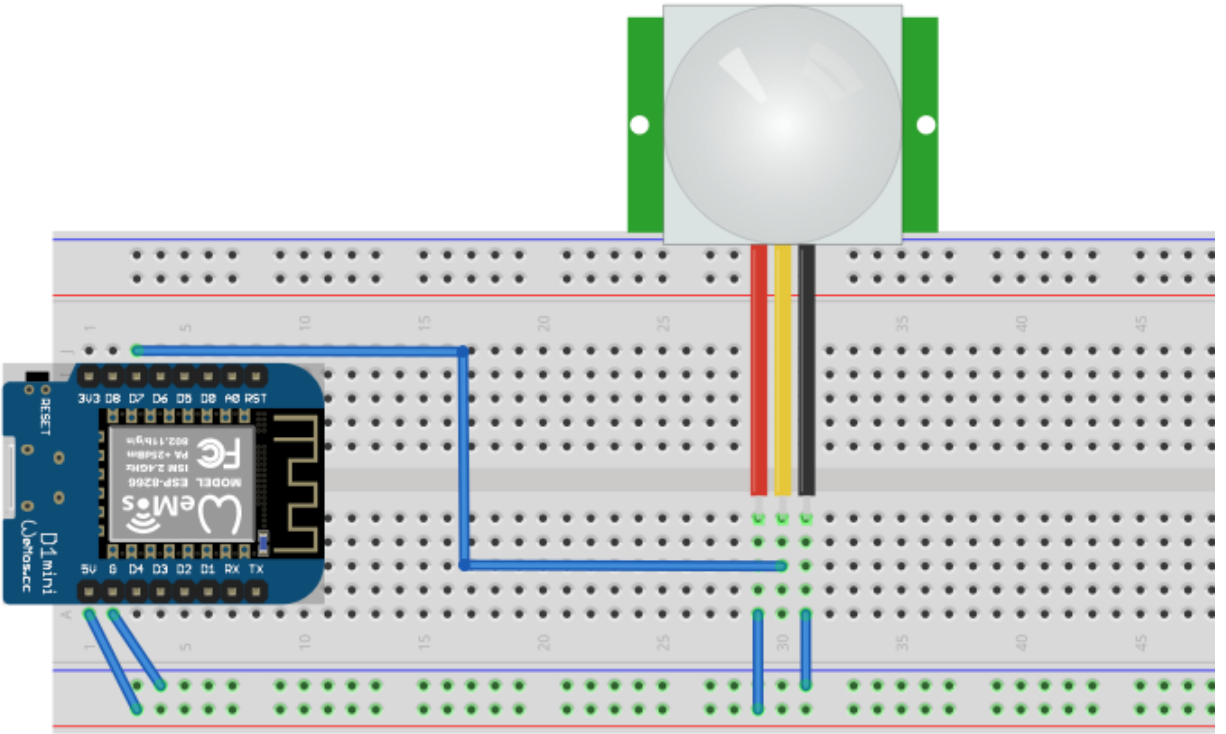
DYP-ME003

PIR

Cds











blynkkk / blynk-library

Watch 130 Star 956 Fork 277

Code Issues 14 Pull requests 1 Projects 0 Wiki Insights

Blynk library for embedded hardware. Works with Arduino, ESP8266, Raspberry Pi, Intel Edison/Galileo, LinkIt ONE, Particle Core/Photon, Energia, ARM mbed, etc. <http://www.blynk.cc/>

arduino esp8266 esp32 blynk particle-photon embedded hardware mbed raspberry-pi bluetooth bluetooth-low-energy serialport ethernet-shield wifi-shield gsm

1,510 commits 1 branch 23 releases 13 contributors MIT

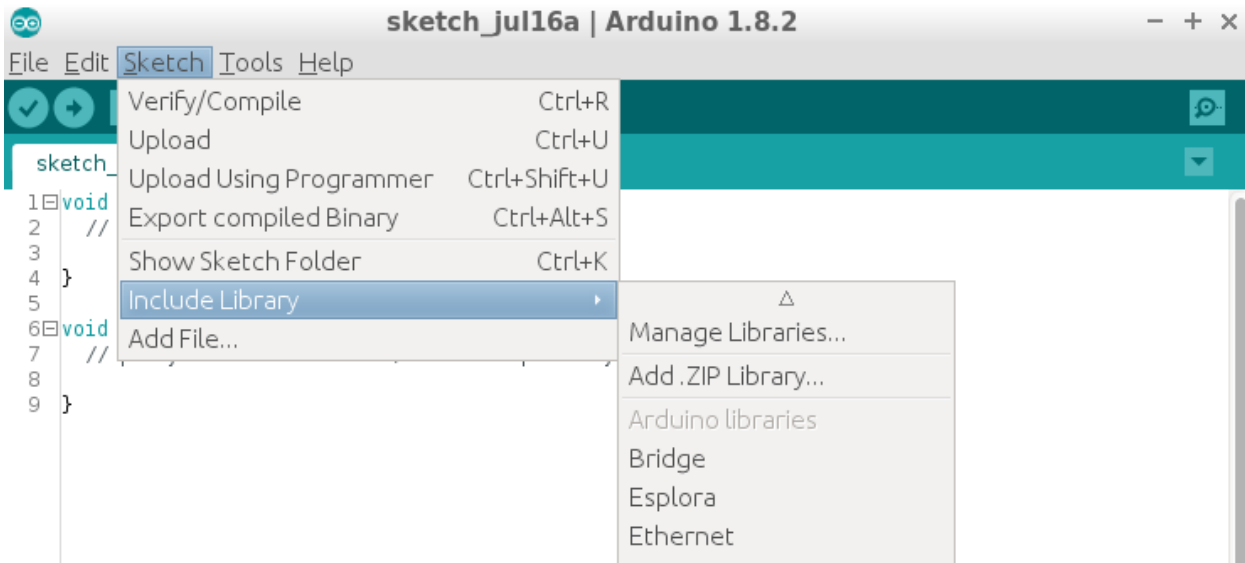
Branch: master New pull request

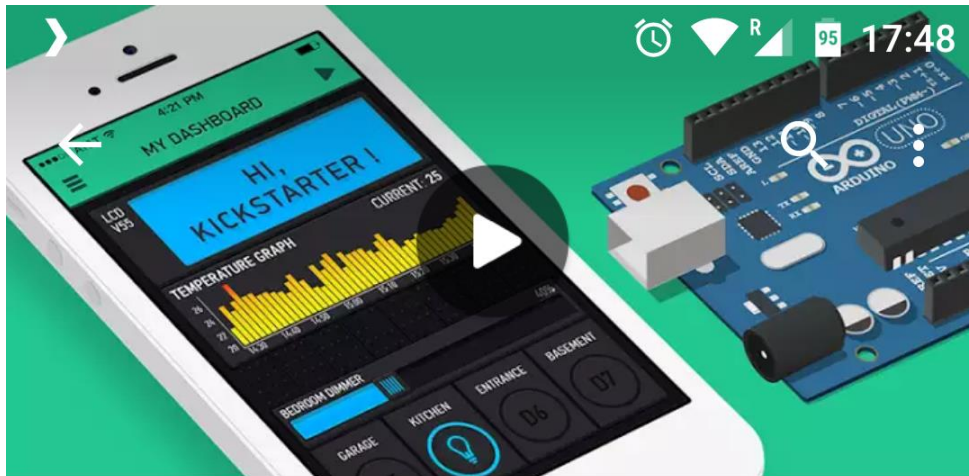
Find file Clone or download

vshymansky Fix Raspi Linux build

.github	update template [ci skip]	
examples	Update link to ESP8266 article	
extras	Fix #286	
linux	Fix Raspi Linux build	12 days ago
scripts	Support spaces in bat script path	6 months ago
src	Fix #340	16 days ago

Clone with HTTPS  
Use Git or checkout with SVN using the web URL.  
<https://github.com/blynkkk/blynk-library>  
Download ZIP





# Blynk - Arduino, ESP8266, RPi

Blynk Inc.

**3** PEGI 3

UNINSTALL

OPEN

In-app purchases

## You might also like

MORE



Ad

Remote Desktop

4.4 ★



Virtuino

4.9 ★



Arduin-  
oDroid -

4.1 ★



Ardu  
Tutor

4.7 ★





11:03



Blynk



New Project



My Apps



Community





# ← Create New Project

pir security|

CHOOSE DEVICE

ESP8266 ↓

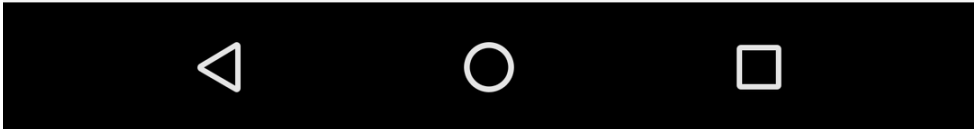
THEME

DARK



LIGHT

Create

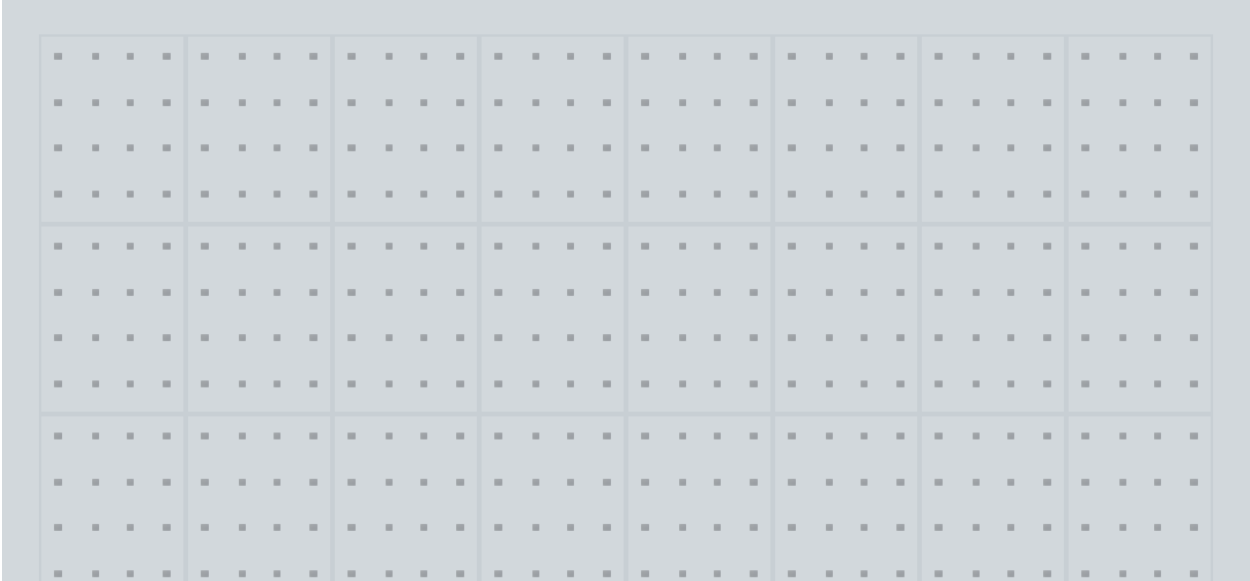




11:05



pir security







# pir security



LED



LED

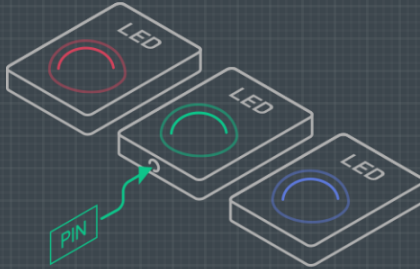


BUTTON





# LED Settings



LED



INPUT

V1



Delete

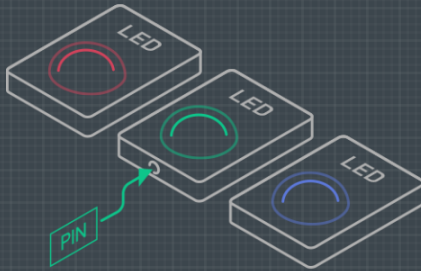




🕒 📶 R 🔋 91 18:24



# LED Settings



LED



INPUT

V2



Delete

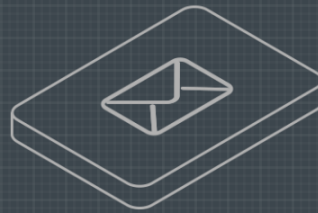




🕒 📶 R 🔋 91 18:24



# Email Settings



TO

youremail@gmail.com



Delete

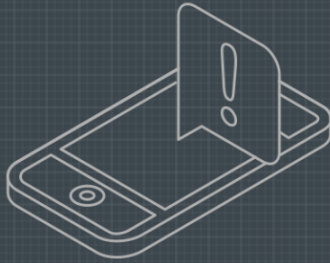




18:25



# Notification Settings



## NOTIFY WHEN HARDWARE GOES OFFLINE

OFF



ON

## SOUND

DEFAULT RINGTONE (TETHYS)



## PRIORITY

NORMAL



HIGH







LED



LED



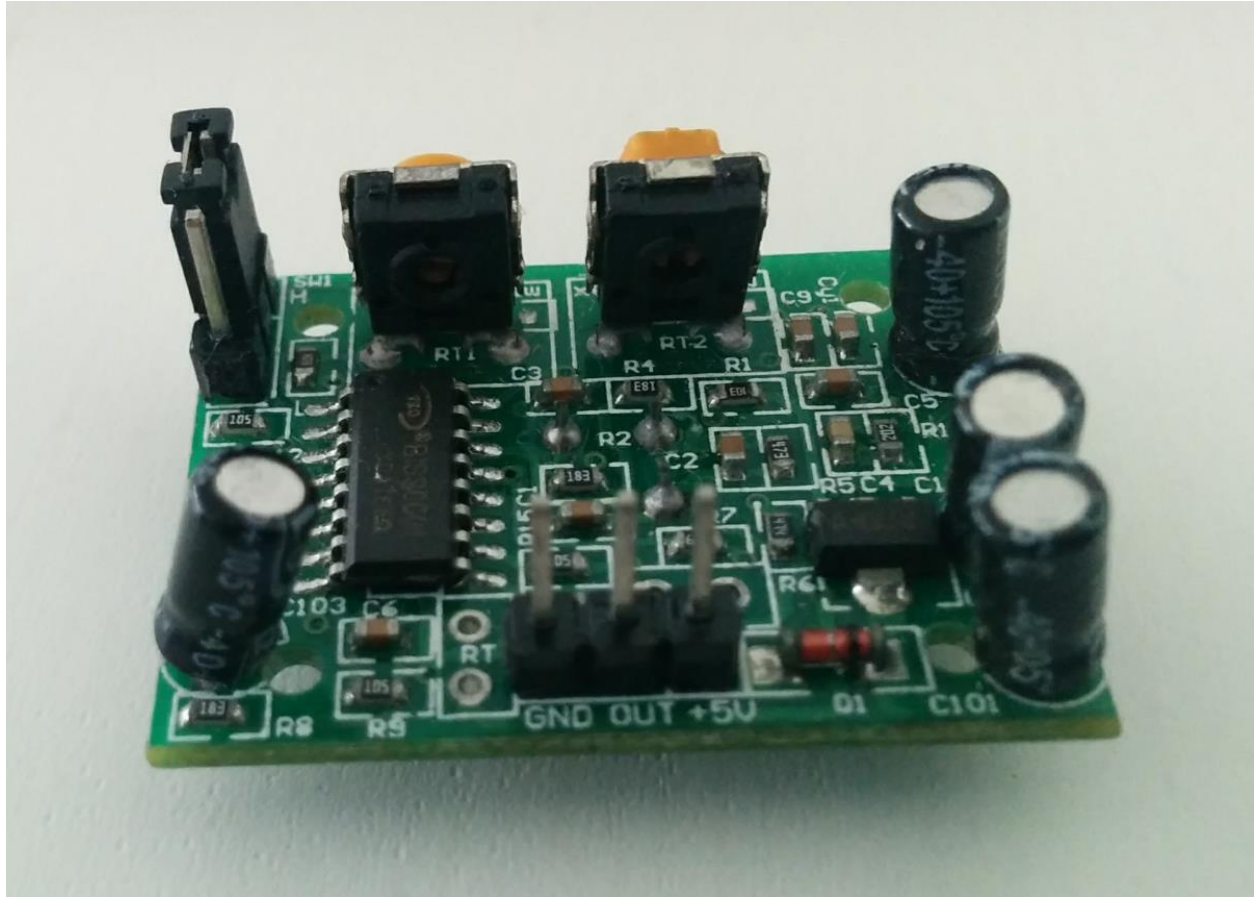
BU

## New Notification

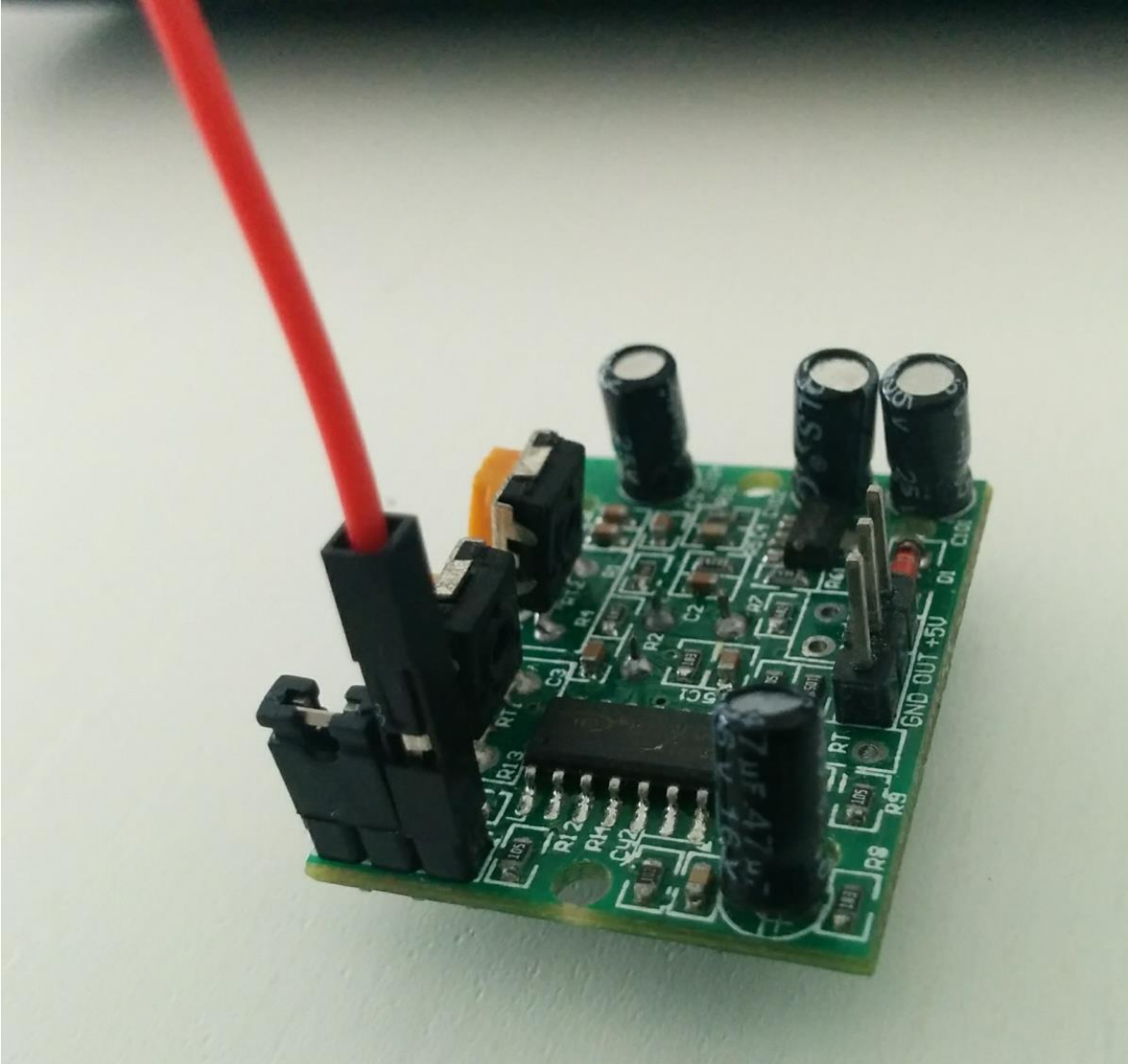
Security alert! Someone is in the house!

OK











DYP-ME003

PIR

cda

## Chapter 6: Securing Your Data

```
catalin@lubuntuBIG:~$ openssl version
OpenSSL 1.0.2g 1 Mar 2016
catalin@lubuntuBIG:~$
catalin@lubuntuBIG:~$
catalin@lubuntuBIG:~$
```

```
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$ sudo openssl req -x509 -newkey rsa:1024 -keyout ca.crt -out cert.crt -days 9999
Generating a 1024 bit RSA private key
.....+++++
.....+++++
writing new private key to 'ca.crt'
Enter PEM pass phrase:
Verifying - Enter PEM pass phrase:
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:RO
State or Province Name (full name) [Some-State]:Bucharest
Locality Name (eg, city) []:Bucharest
Organization Name (eg, company) [Internet Widgits Pty Ltd]:HalogenSoftware
Organizational Unit Name (eg, section) []:IoT Dep
Common Name (e.g. server FQDN or YOUR name) []:iotcentral.eu
Email Address []:email@server.com
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$
```

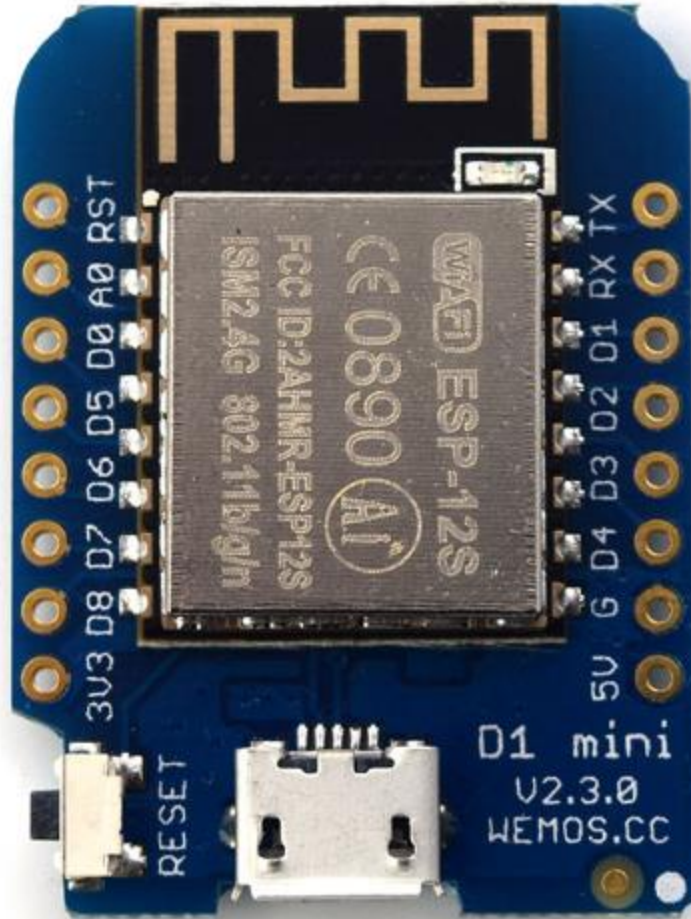
```
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$ ll
total 16
drwxr-xr-x 2 root root 4096 okt  7 17:40 ./
drwxr-xr-x 5 root root 4096 okt  7 17:29 ../
-rw-r--r-- 1 root root 1041 okt  7 17:30 ca.crt
-rw-r--r-- 1 root root 1107 okt  7 17:30 cert.crt
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$
```

```
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$ sudo openssl rsa -in ca.crt -out newca.pem
Enter pass phrase for ca.crt:
writing RSA key
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$
```

```
catalin@lubuntuBIG:/etc/mosquitto/certs$ ll
total 20
drwxr-xr-x 2 root root 4096 okt  7 17:43 ./
drwxr-xr-x 5 root root 4096 okt  7 17:29 ../
-rw-r--r-- 1 root root 1041 okt  7 17:30 ca.crt
-rw-r--r-- 1 root root 1107 okt  7 17:30 cert.crt
-rw-r--r-- 1 root root  887 okt  7 17:43 newca.pem
catalin@lubuntuBIG:/etc/mosquitto/certs$
catalin@lubuntuBIG:/etc/mosquitto/certs$
```

```
catalin@lubuntuBIG:/etc/mosquitto$  
catalin@lubuntuBIG:/etc/mosquitto$  
catalin@lubuntuBIG:/etc/mosquitto$ more mosquitto.conf  
  
listener 1883  
protocol mqtt  
listener 9004  
protocol websockets  
allow_anonymous true  
  
# MQTT over TLS/SSL  
listener 8883  
cafile /etc/mosquitto/certs/cert.crt  
certfile /etc/mosquitto/certs/cert.crt  
keyfile /etc/mosquitto/certs/newca.pem  
tls_version tlsv1  
  
# WebSockets over TLS/SSL  
listener 9883  
protocol websockets  
cafile /etc/mosquitto/certs/cert.crt  
certfile /etc/mosquitto/certs/cert.crt  
keyfile /etc/mosquitto/certs/newca.pem  
  
pid_file /var/run/mosquitto.pid  
  
persistence true  
persistence_location /var/lib/mosquitto/  
  
log_dest file /var/log/mosquitto/mosquitto.log  
  
include_dir /etc/mosquitto/conf.d  
  
catalin@lubuntuBIG:/etc/mosquitto$  
catalin@lubuntuBIG:/etc/mosquitto$
```

```
1507382754: mosquitto version 1.4.8 terminating  
1507382756: mosquitto version 1.4.8 (build date Tue, 23 May 2017 22:14:40 +0100) starting  
1507382756: Config loaded from /etc/mosquitto/mosquitto.conf.  
1507382756: Opening ipv4 listen socket on port 1883.  
1507382756: Opening ipv6 listen socket on port 1883.  
1507382756: Opening websockets listen socket on port 9004.  
1507382756: Opening ipv4 listen socket on port 8883.  
1507382756: Opening ipv6 listen socket on port 8883.  
1507382756: Opening websockets listen socket on port 9883.
```



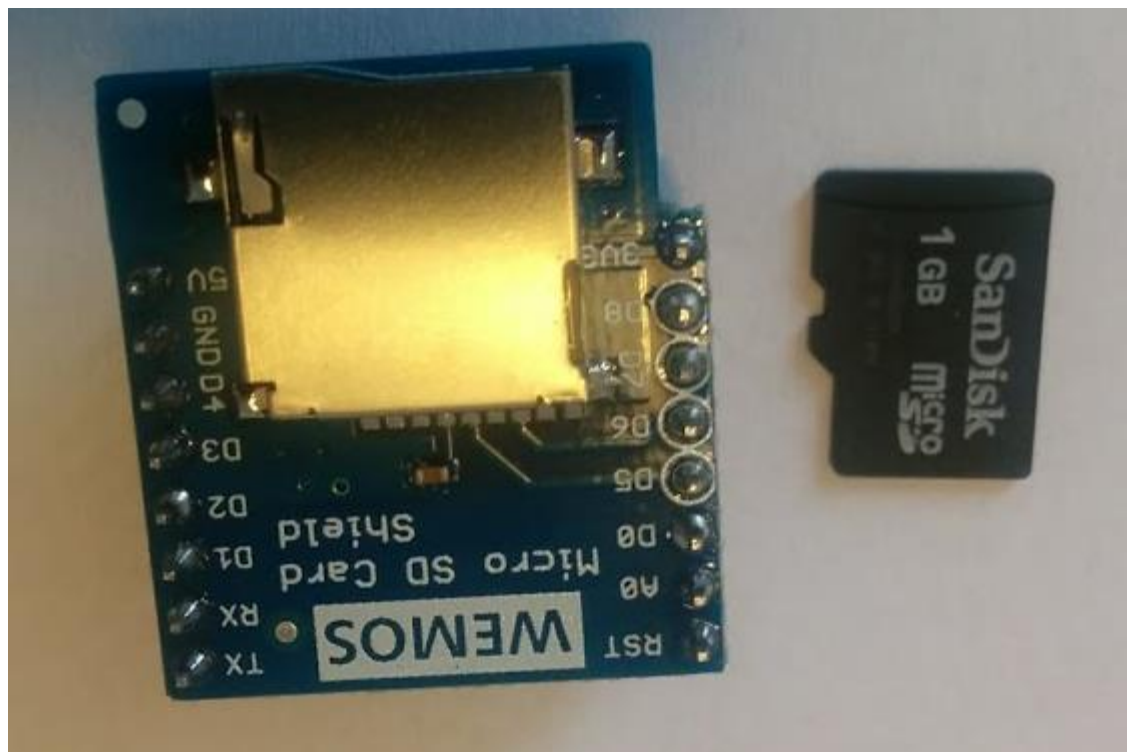
3V3 D8 D7 D6 D5 D0 A0 RST

RESET

D1 mini  
V2.3.0  
WEMOS.CC

5V G D4 D3 D2 D1 RX TX







Card type: SD2

Volume type is FAT16

Volume size (bytes): 987463680

Volume size (Kbytes): 964320

Volume size (Mbytes): 941

Files found on the card (name, date and size in bytes):

DATALOG.TXT 2000-01-01 01:00:00 4978

Initializing SD card...Wiring is correct and a card is present.

Card type: SDHC


Volume type is FAT32

Volume size (bytes): 2670723072

Volume size (Kbytes): 2608128

Volume size (Mbytes): 2547

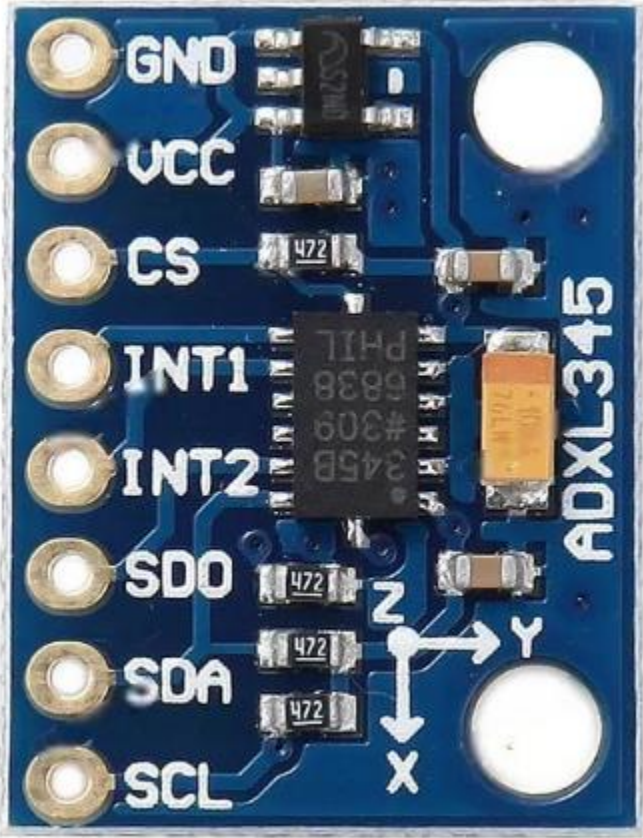
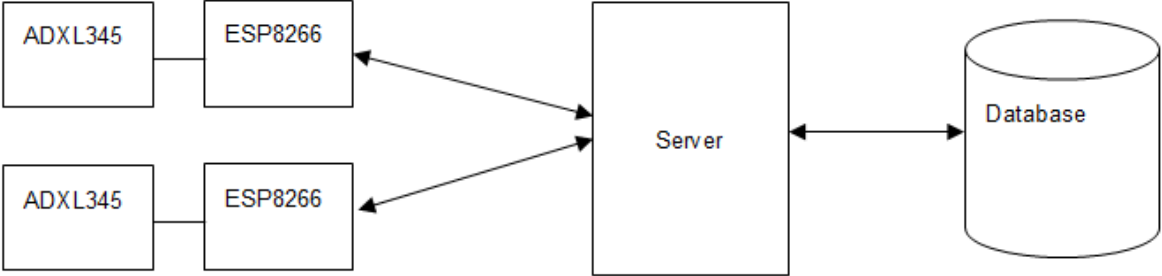
Files found on the card (name, date and size in bytes):

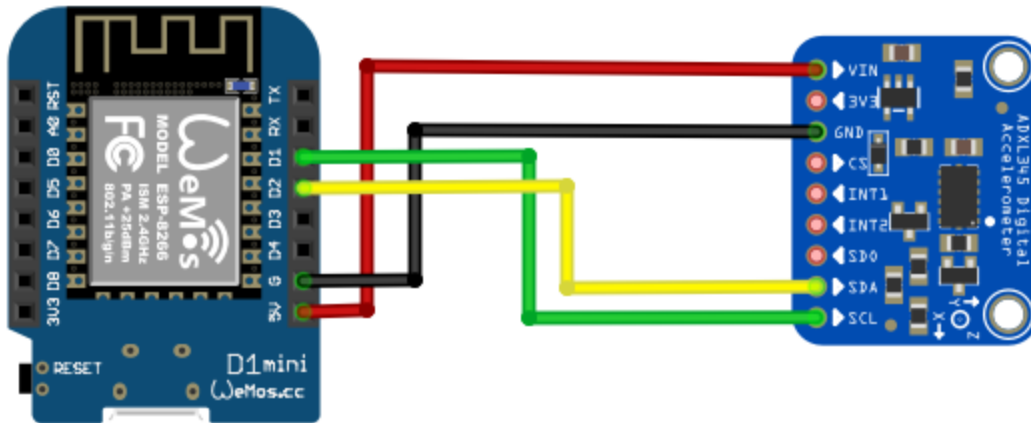
SD Card (F:)				
Burn New folder				
	Name	Date modified	Type	Size
	 DATALOG.TXT	1/1/2000 12:00 AM	Text Document	5 KB





# Chapter 7: Real-Time Communication





```
catalin@plex:~/PROJECTS/websockserver$  
catalin@plex:~/PROJECTS/websockserver$ node -v  
v6.11.4  
catalin@plex:~/PROJECTS/websockserver$ npm --version  
3.10.10  
catalin@plex:~/PROJECTS/websockserver$  
catalin@plex:~/PROJECTS/websockserver$
```

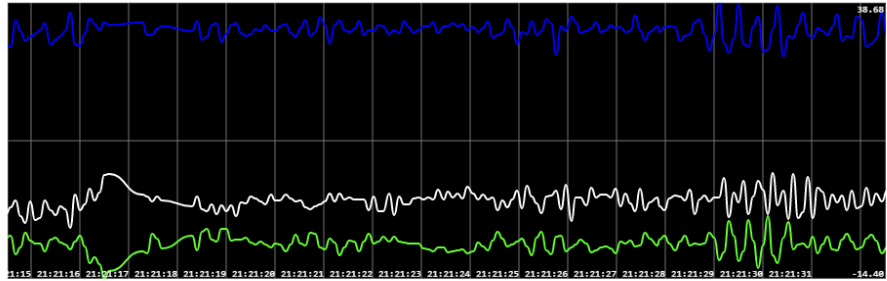
```
catalin@plex:~/PROJECTS/websockserver$  
catalin@plex:~/PROJECTS/websockserver$ npm install  
npm WARN deprecated crypto@0.0.3: This package is no longer supported. It's now a built-in Node module.  
you should switch to the one that's built-in.  
[.....] \ fetchMetadata: sill mapToRegistry uri https://registry.npmjs.org/utils-merge
```

```
//wsDataService  
  
angular.module('wsApp').factory('socket', function ($rootScope) {  
  var socket = io.connect('//192.168.1.24:1234');  
  
  return {  
    on: function (eventName, callback) {  
      socket.on(eventName, function () {  
        var args = arguments;  
        $rootScope.$apply(function () {  
          callback.apply(socket, args);  
        });  
      });  
    };  
  };  
},
```

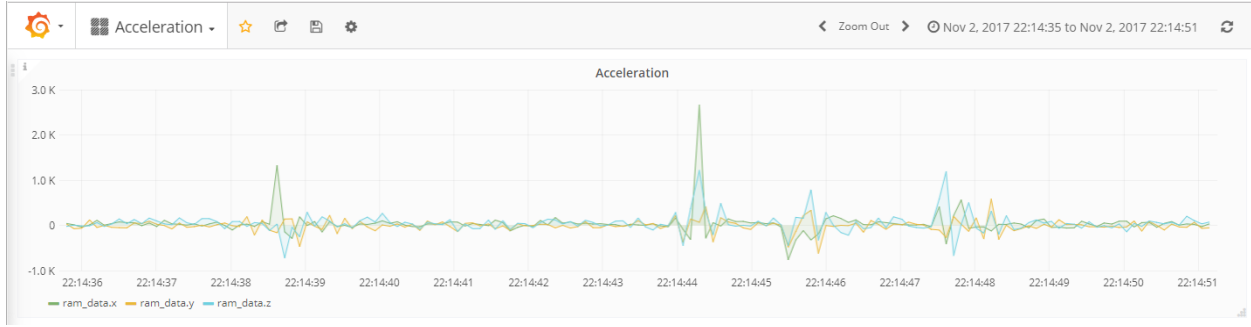
```
catalin@plex:~/PROJECTS/websockserver$ node server.js
The magic happens on port 1234
Connected socket id:HgmjiF_fAE3XE_3AAAAA
SOCK: connection - new WEB connection!!!!
SOCK: RX connection => Send acc_ram with data
=====
|ID| Web Socket ID |
=====
| 0| HgmjiF_fAE3XE_3AAAAA
=====
=====
|ID| ACC ID      | Socket ID      |
=====
Connected socket id:7-xIcezugppEdDXgAAAB
SOCK: connection - new ACC connection
{ acc_id: 'ACC_D357A3' }
=====
|ID| ACC ID      | Socket ID      |
=====
| 0| ACC_D357A3  | 7-xIcezugppEdDXgAAAB |
=====
{ acc_id: 'ACC_D357A3' }
=====
```

← → ↻ 🏠 192.168.1.24:1234/#/home

Acceleration Monitor

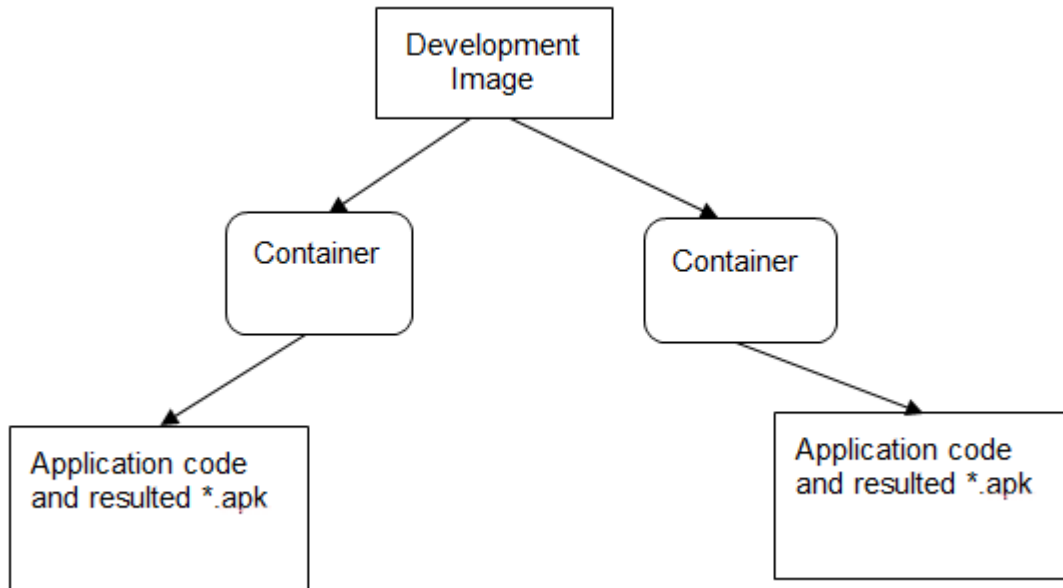


Reboot ESP8266 Reinit ESP8266

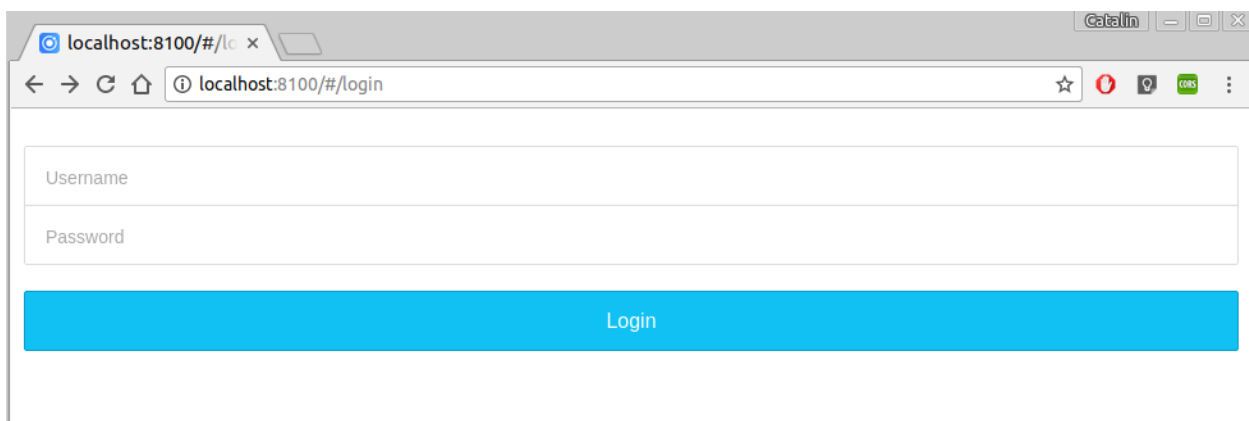


## Chapter 8: Adding a Mobile Application to Your Smart Home

```
catalin@plex:~$  
catalin@plex:~$  
catalin@plex:~$ docker images  
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE  
agileek/ionic-framework  latest         559594ff121f   11 hours ago   4.5GB  
catalin@plex:~$  
catalin@plex:~$
```



```
catalin@ubuntuBIG:~$  
catalin@ubuntuBIG:~$ docker ps  
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS                               NAMES  
5961e5e90592   agileek/ionic-framework  "ionic serve"          3 weeks ago   Up About an hour   0.0.0.0:8100->8100/tcp, 0.0.0.0:35729->35729/tcp   espbook  
0807ce62f41b   registry:2           "/entrypoint.sh /etc/"  5 weeks ago   Up About an hour   0.0.0.0:5000->5000/tcp                               registry  
catalin@ubuntuBIG:~$  
catalin@ubuntuBIG:~$
```



localhost:8100/#/lc x

localhost:8100/#/login

Nexus 5X 412 x 732 100% Online

12:29

Username

Password

Login

Elements Console Sources Network Performance Memory

top Filter Default levels

# ➡ Signup to IoTCentral.eu

Email

bcatalin@gmail.com

Password

....

Signup

**IoTCentral.eu will NOT share your personal data to anyone.**

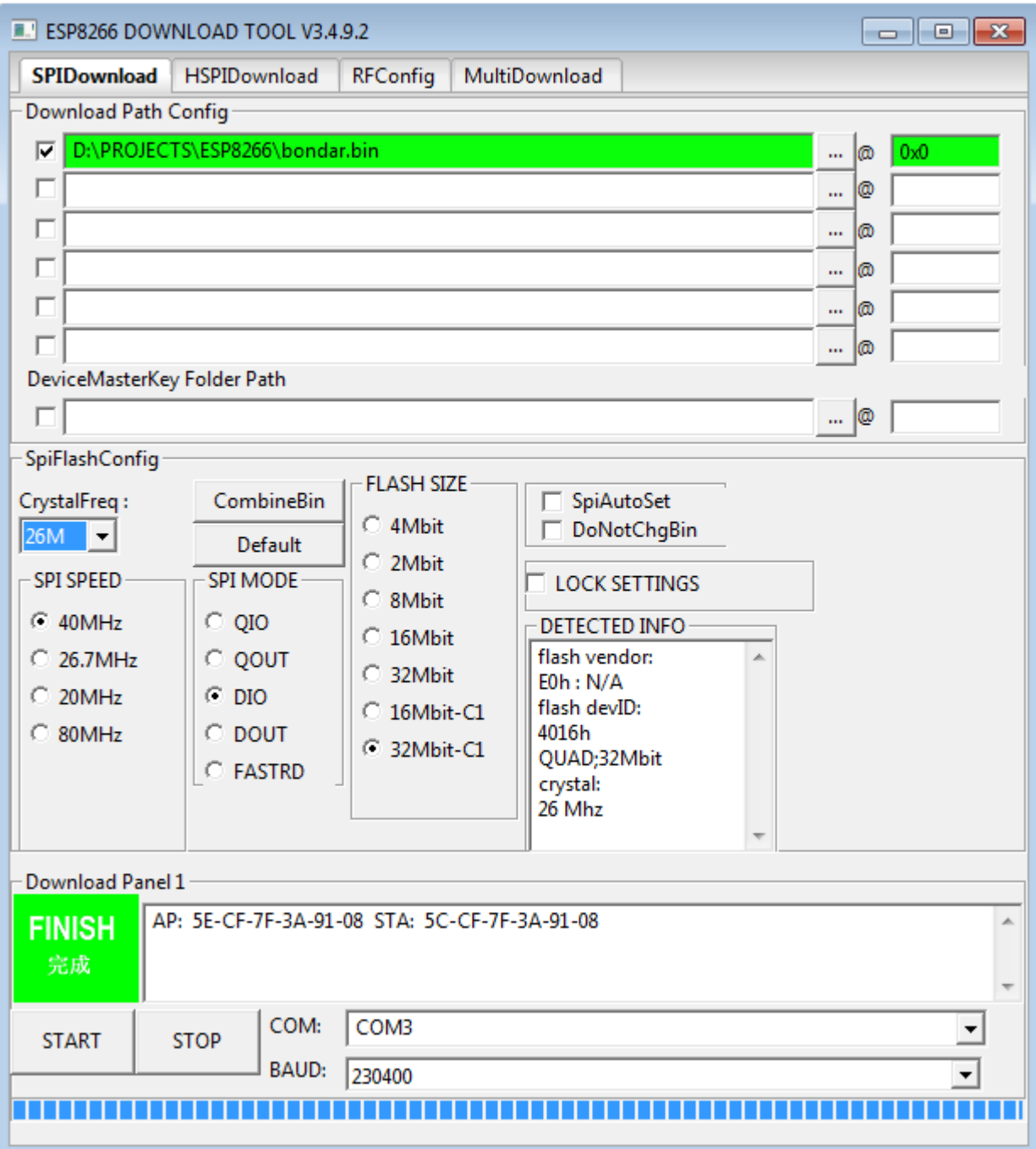
An email will be sent to you, so you may check also your Spam folder to confirm your account

---

Already have an account? [Login](#)

Or go [Home](#).







192.168.4.1

9



# New device config

## Wi-Fi

SSID: WLAN\_19

Password: \*\*\*\*\*

## Account details

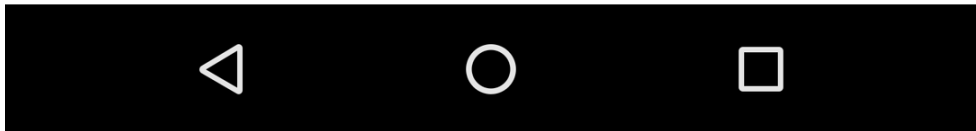
bcatalin@gmail.com

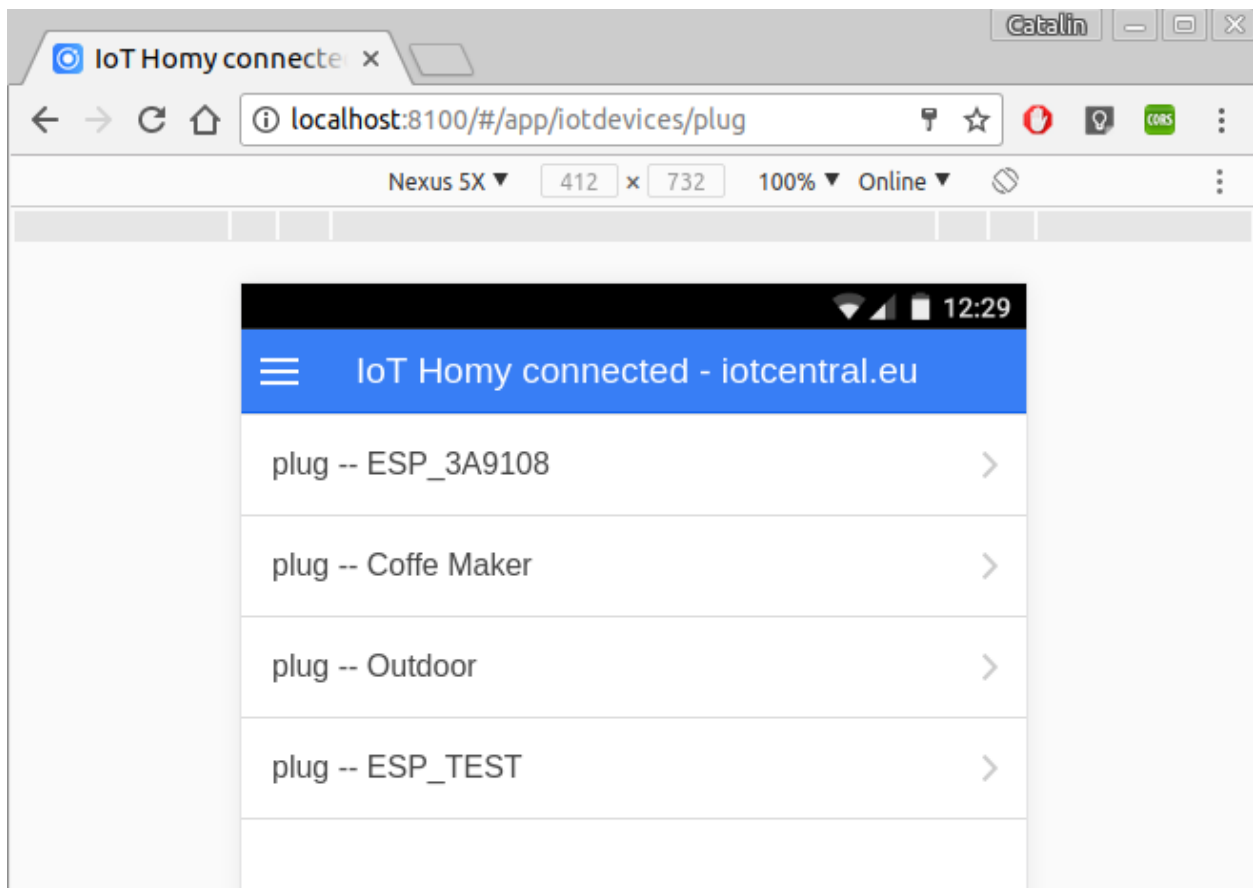
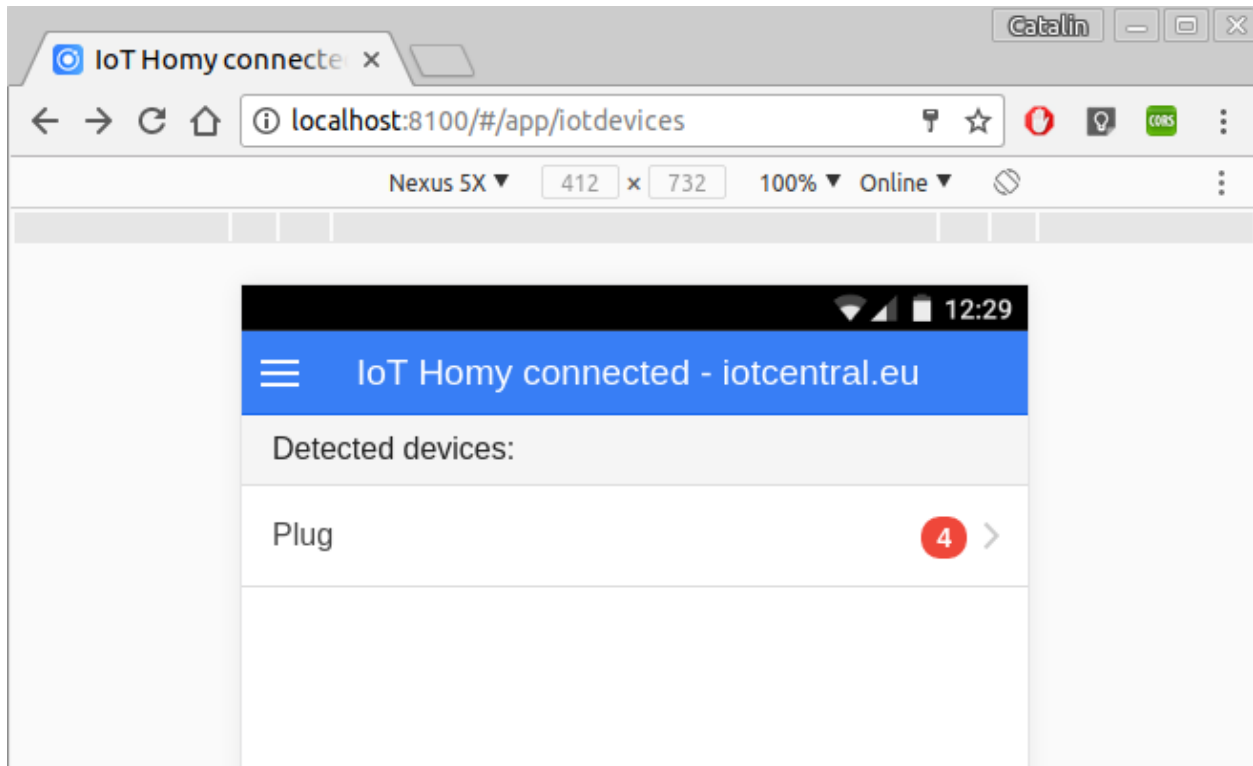
\*\*\*\*\*

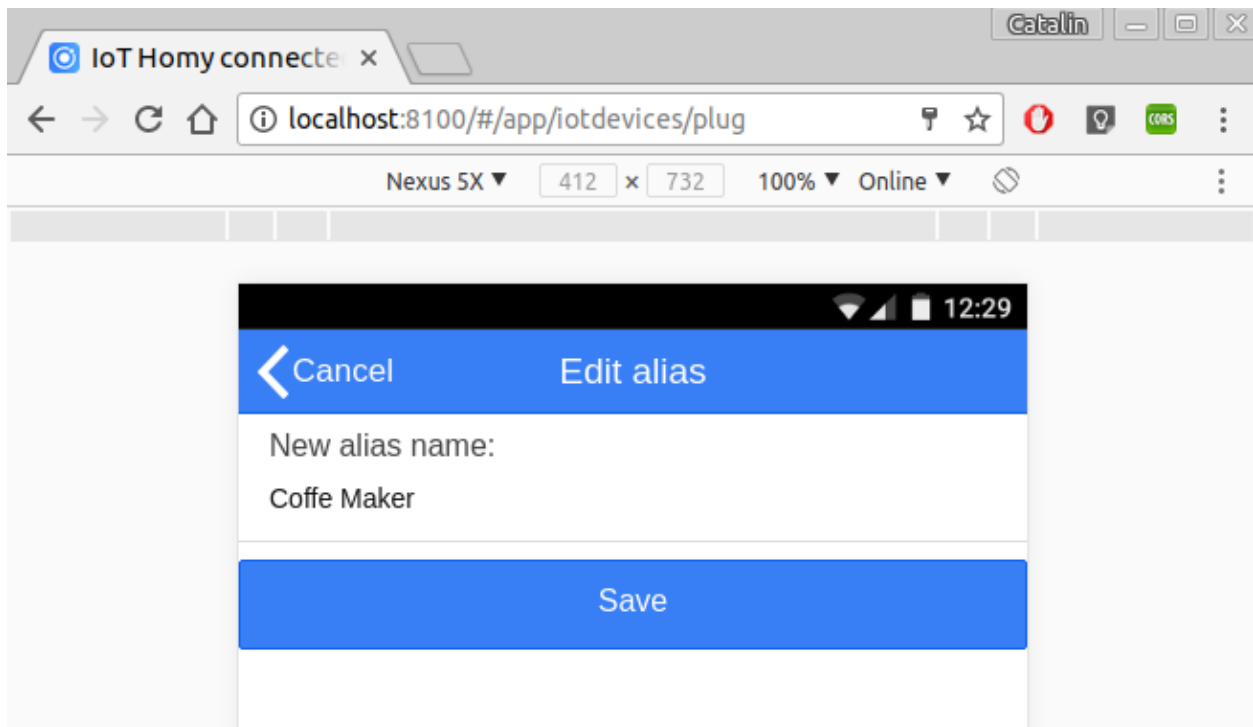
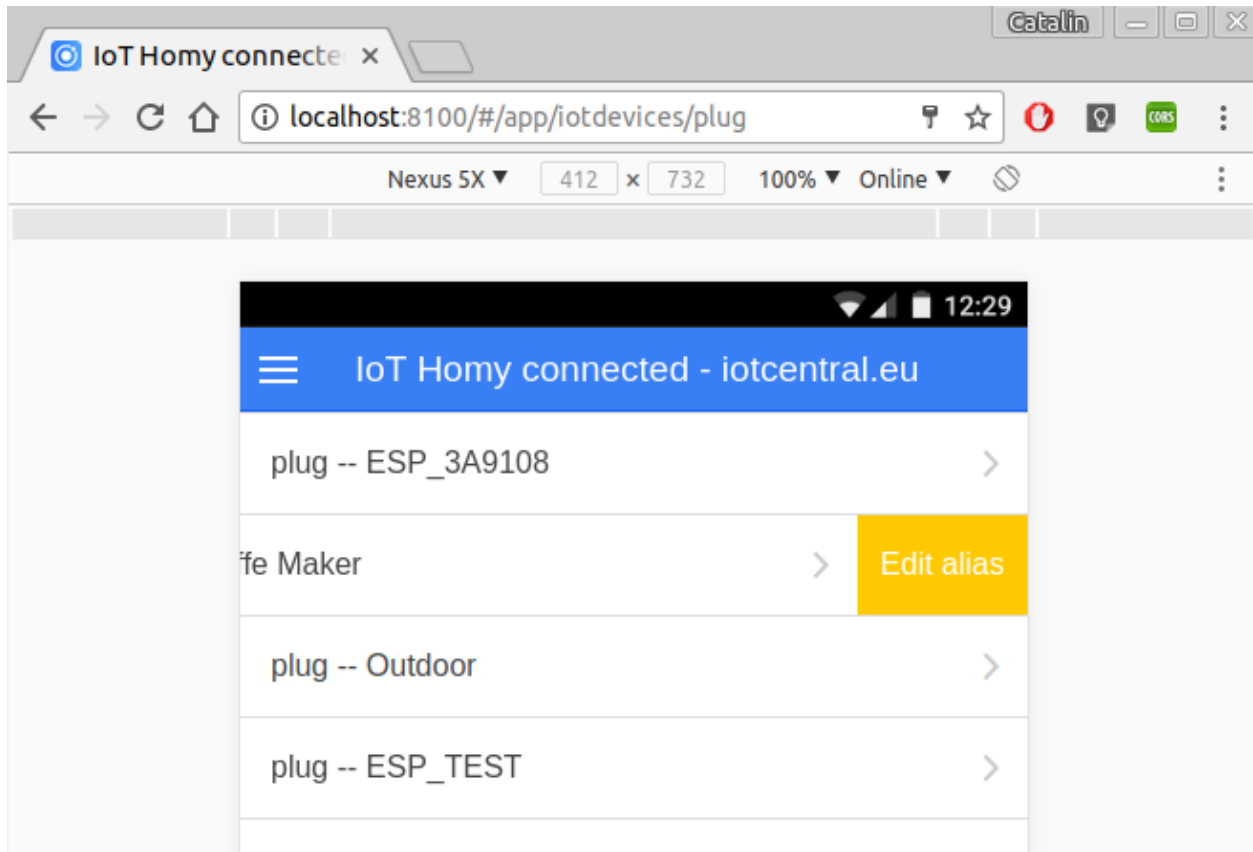
Coffee maker

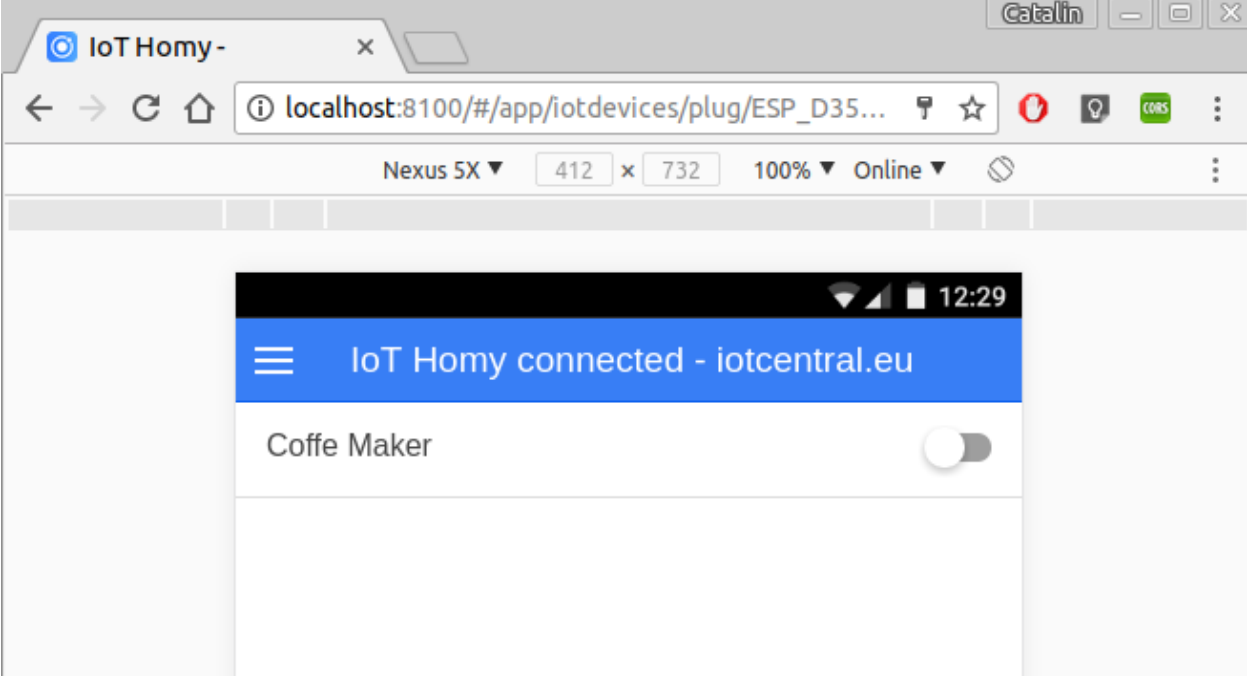
2

Save config









IoT Homy connected - iotcentral.eu

IP Address: 192.168.8.143

Network Type(B=1/G=2/N=3): 3

Device up time: 0 days 00:16:12 min

Version: 1039

SDK: 1.5.3(aec24ac9)

Alexa Name: Coffee maker