



# Hackathon Amsterdam: IoT Applied

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Coding with Craftsmen



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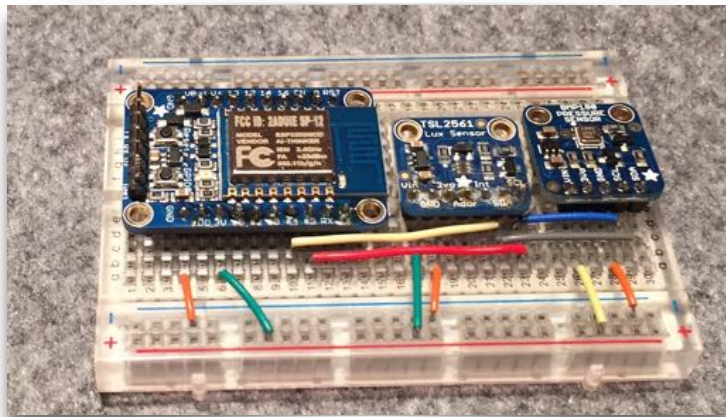
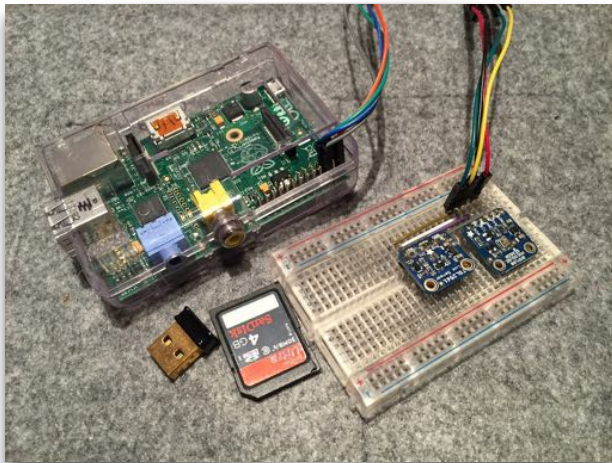
[www.codecentric.de](http://www.codecentric.de)  
[blog.codecentric.de](http://blog.codecentric.de)  
[www.jensd.de](http://www.jensd.de)  
[www.mqttfx.org](http://www.mqttfx.org)

 @jerady



# ESP8266

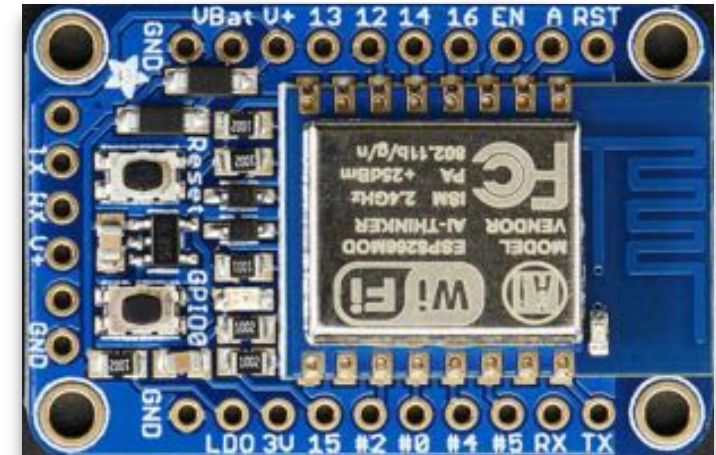
<http://www.jensd.de/wordpress/?p=2110>



	RasPi	ESP8266
Board	40 €	10 €
SD-Card	4 €	–
WLAN-Stick	8 €	–
Total	52 €	10 €
Power	3W	1W

## Adafruit HUZZAH ESP8266 breakout highlights

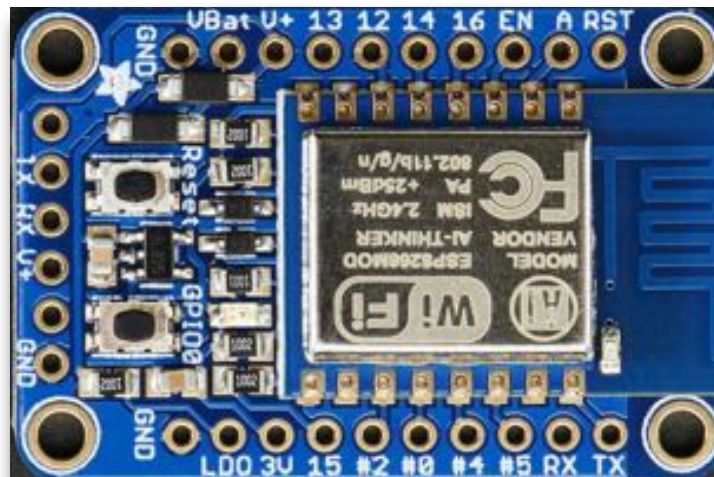
- 80-MHz-Mikrocontroller
- Wi-Fi Direct (P2P), soft-AP
- Integrated TCP/IP protocol stack with DNS Support
- Wake up and transmit packets in < 2ms
- 4MB Flash-Chip
- Onboard-Antenna
- Status LEDs
- Reset button
- User button that can also put the chip into bootloading mode,





## Adafruit HUZZAH ESP8266 breakout I/O

- 1 x Analog input (1.8V max)
- 9 x GPIO (3.3V logic), which can also be used for I2C or SPI
- 2 x UART pins
- 2 x 3-12V power inputs, reset, enable, LDO-disable, 3.3V output



# Adafruit Feather HUZZAH ESP8266

NodeMCU v2



## Sensors (I<sup>2</sup>C)

- **BME 280 / BMP 180**

- Temperature / Pressure / Altitude

<https://www.adafruit.com/products/1603>

- **TSL2561**

- Luminosity / Lux / Light

<https://www.adafruit.com/products/439>

- **SI1145**

- UV-Index

<https://www.adafruit.com/products/1777>

- **HTU21D**

- Temperature / Humidity

<https://www.adafruit.com/products/1899>



# Arduino IDE

<https://www.arduino.cc/en/Main/Software>

## Download the Arduino Software



### ARDUINO 1.6.6

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

**Mac OS X** 10.7 Lion or newer

**Linux** 32 bits

**Linux** 64 bits

[Release Notes](#)

[Source Code](#)

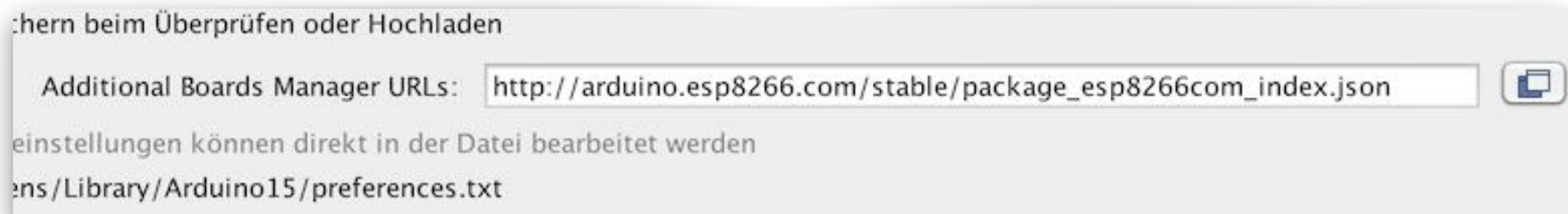
[Checksums](#)


## Install Libraries

The Libraries almost all there, can be easily installed via the Arduino IDE Library Manager.

Except for the esp8266 support the an additional Board Manager URL has to be set in the settings:

[http://arduino.esp8266.com/stable/package\\_esp8266com\\_index.json](http://arduino.esp8266.com/stable/package_esp8266com_index.json)

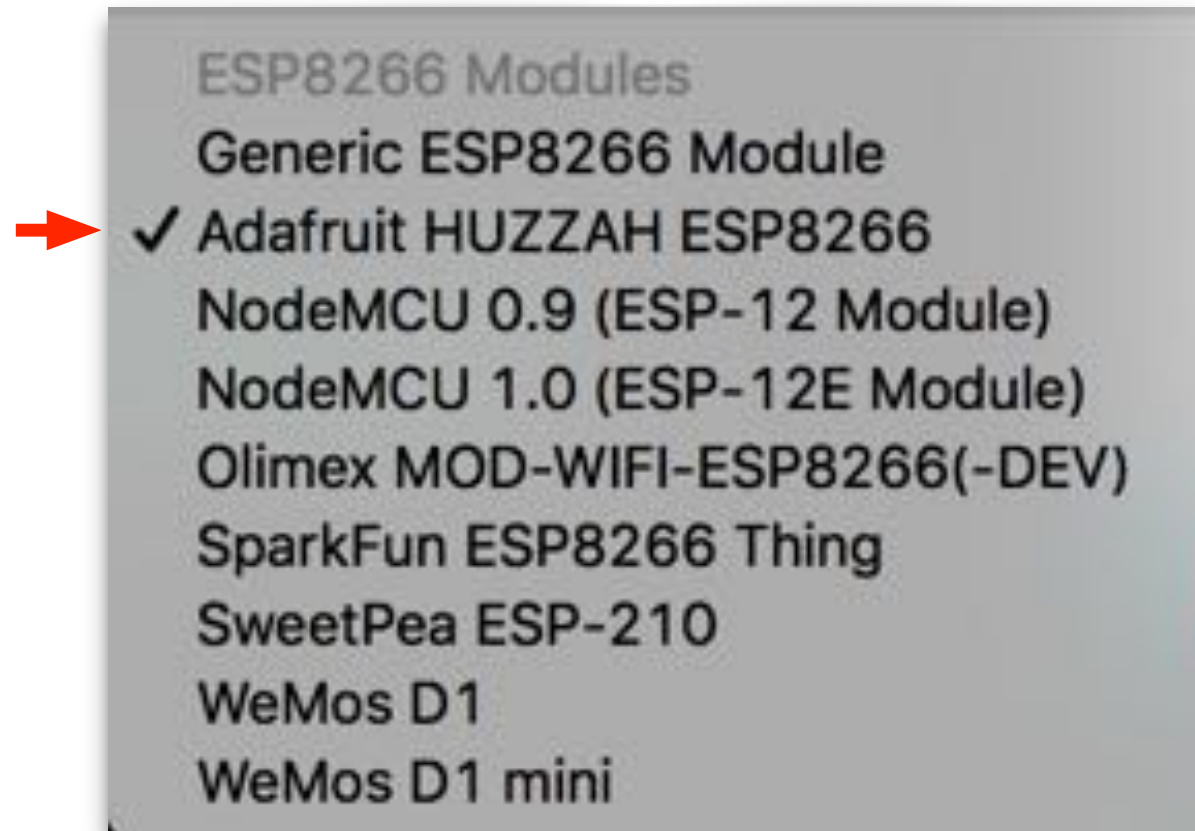


**HINT:** It turns out that you have to press  and close the dialog with „OK“ to activate the package (or restart Arduino IDE)

# Boards Manager: Install ESP8266 Drivers

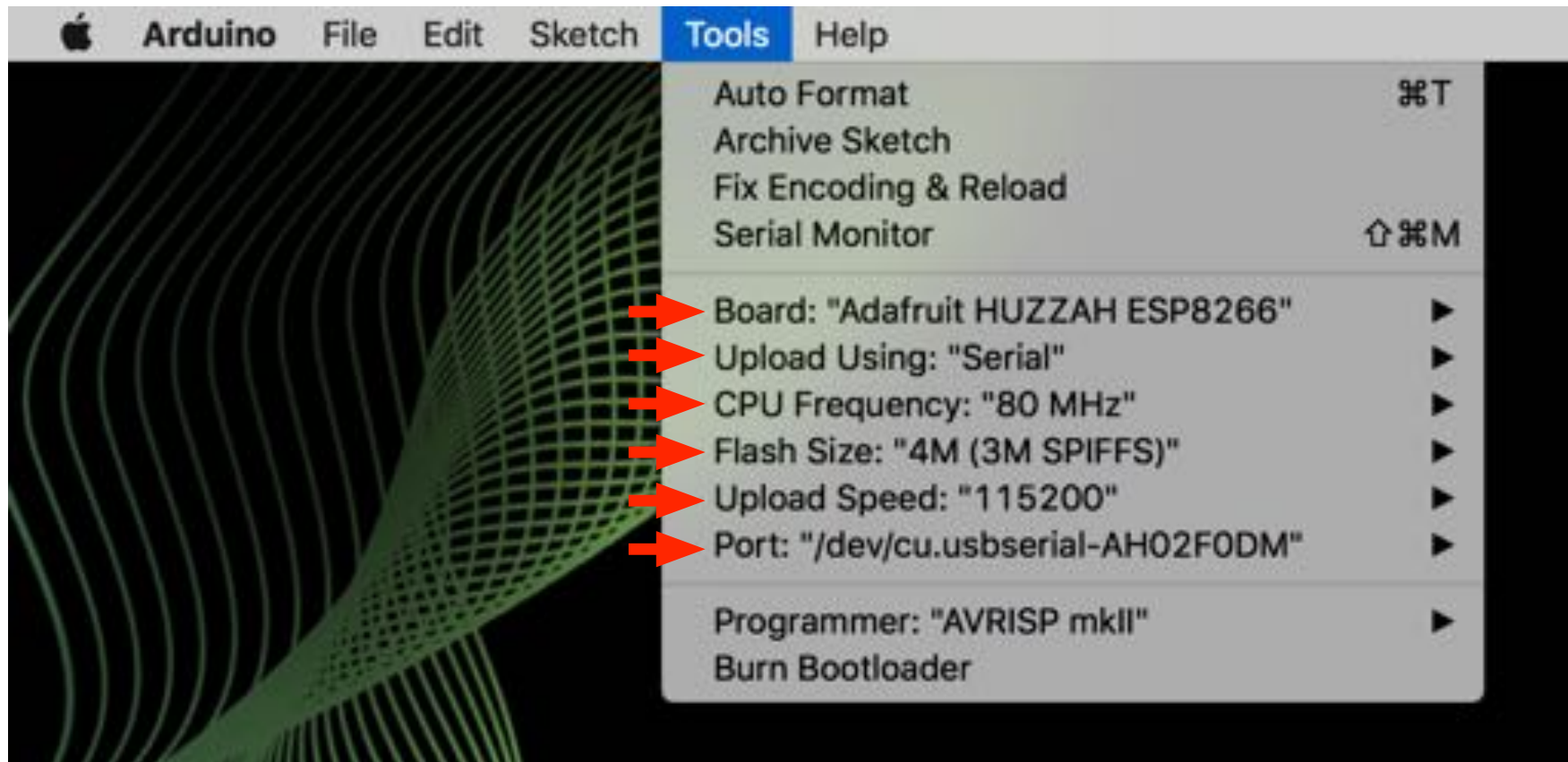


## Choose Adafruit HUZZAH ESP8266

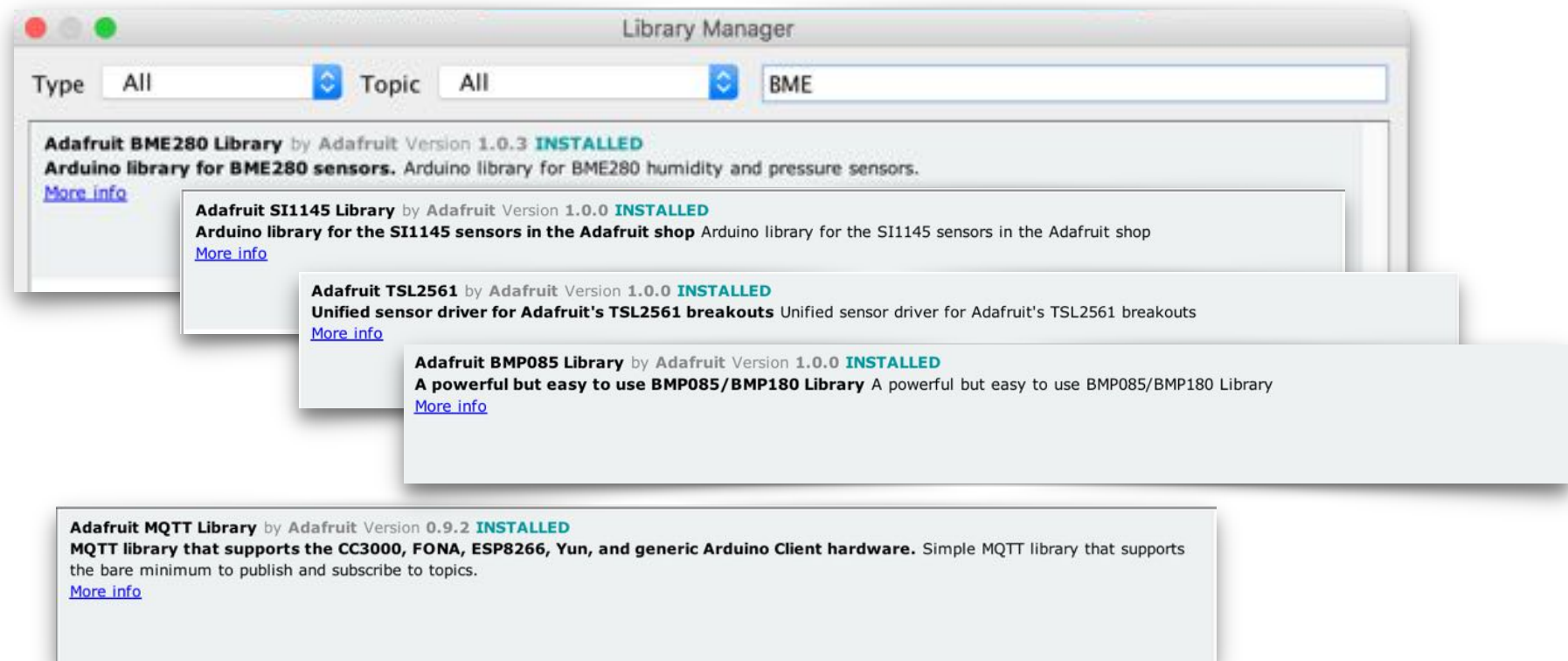




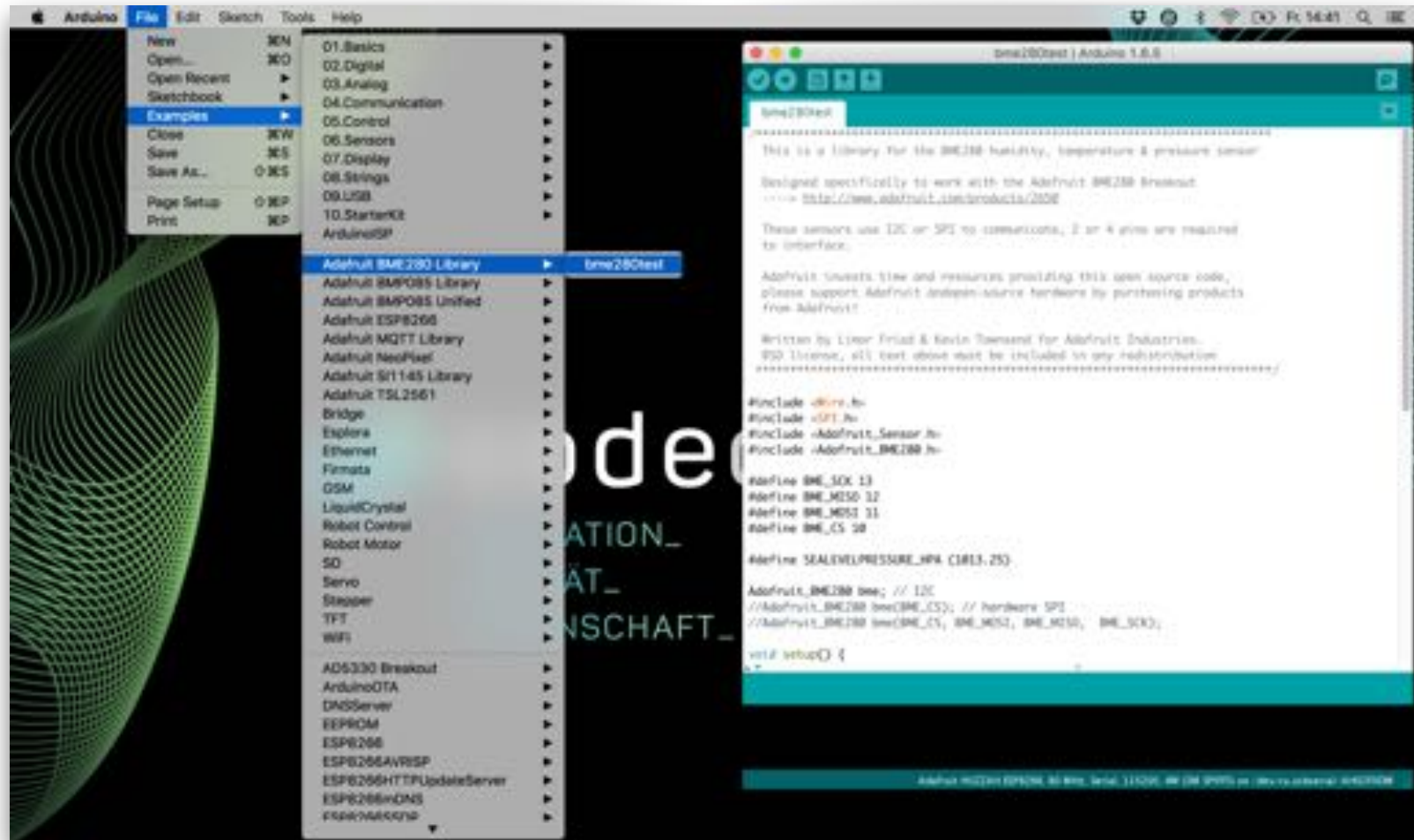
# Setup Adafruit HUZZAH ESP8266



# Library Manager: Install (necessary) Sensors Drivers + Adafruit MQTT Library



## Note the bunch of example code!



## Enable the flash mode

press + hold "Reset" button  
 then  
 press + hold "GPIO" button  
 then  
 release "Reset" button  
 then  
 release "GPIO" button



-> the red LED turns on (with lower brightness)



[www.jensd.de](http://www.jensd.de)

