ESP8266 + DS1820 + data.sparkfun.com

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Vancouver Hackspace

Version: 1
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Slides and Example source code
https://github.com/funvill/ESP8266Workshop

Social media

Vancouver Hackspace
@VHS http://hackspace.ca

Steven Smethurst (Funvill) @Funvill
http://abluestar.com

What is included in the kit

ToDo: Insert photo of the kit

What is ESP8266?

- Made by Espressif Systems
- Integrated RISC processor
- 802.11bgn with Encryption
- GPIO, SPI, UART, OneWire

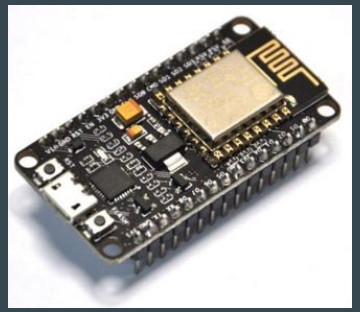
Costs ~$3

What can I make with an ESP8266?

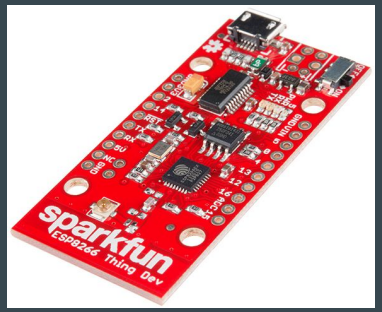
- IsVHSOpen.com
- IFTTT Internet button
- Nest like thermostat
- Remote camera trigger
- Robots
- and more...

Comes in many shapes & sizes

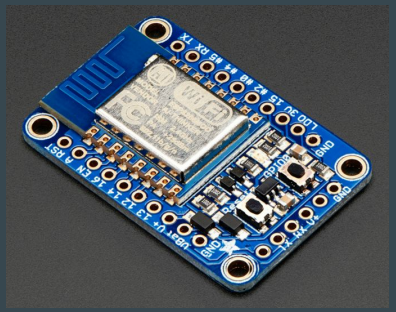
ESP-12



NodeMCU

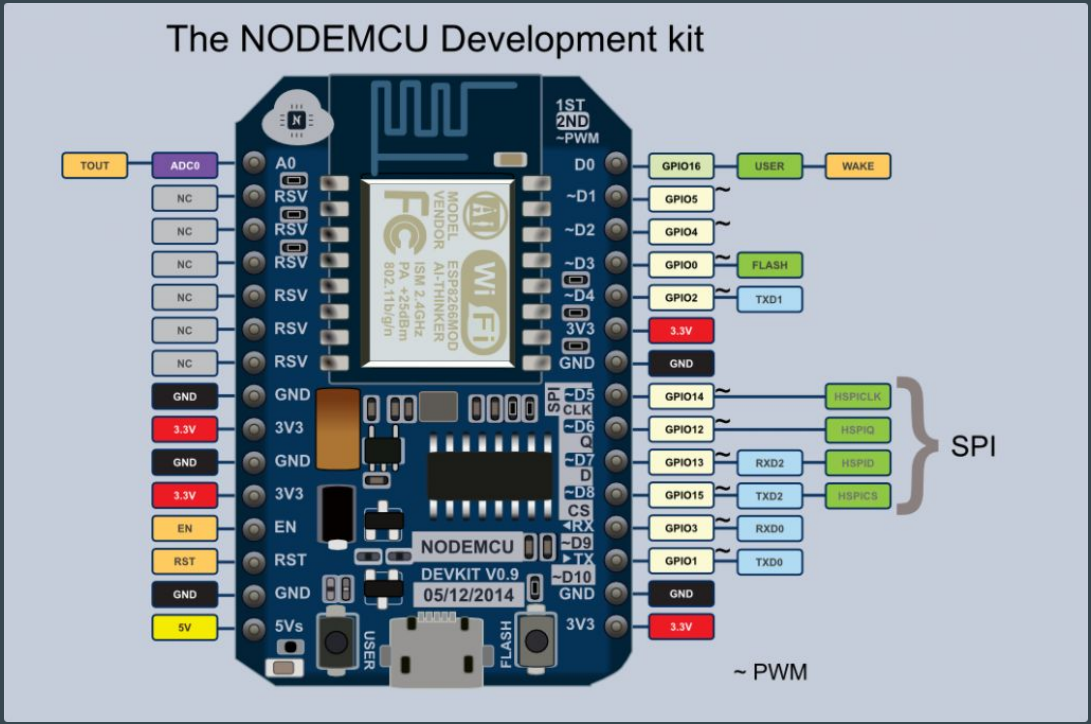


Sparkfun
ESP8266 Thing



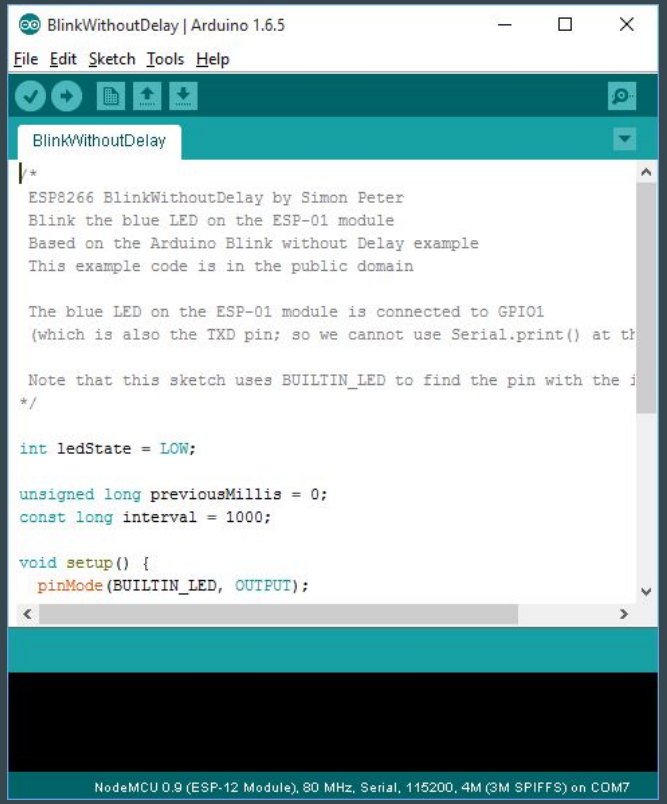
Adafruit HUZZAH

Anatomy of an NodeMCU, ESP8266 breakout board



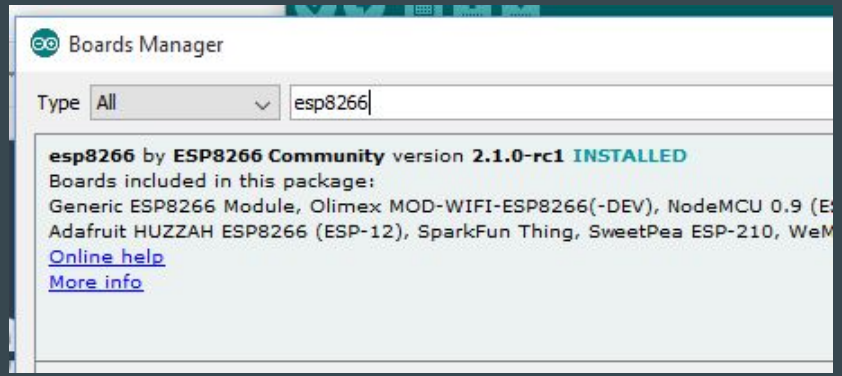
Download the Arduino IDE 1.6.5

1. Downloading and Install **Arduino 1.6.5** from the Arduino website. Ensure that you download version 1.6.5, not the latest version. https://www.arduino.cc/en/Main/OldSoftwareReleases#previous



Update Arduino board manager

1. File ⇒ Preferences
2. Update “Addition Boards Managers URLs” to http://arduino.esp8266.com/stable/package_esp8266com_index.json
3. Tools ⇒ Board ⇒ Board manager
4. Search for “ESP8266” and install the new board.



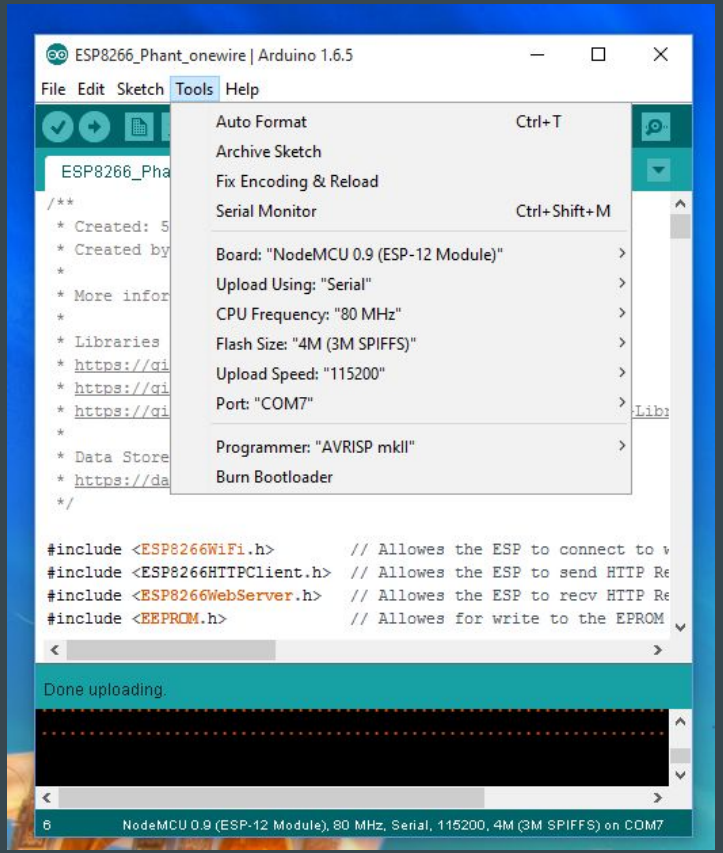
If MAC OS then download these additional drivers

ToDo: Is this even necessary ?

Connect to the board

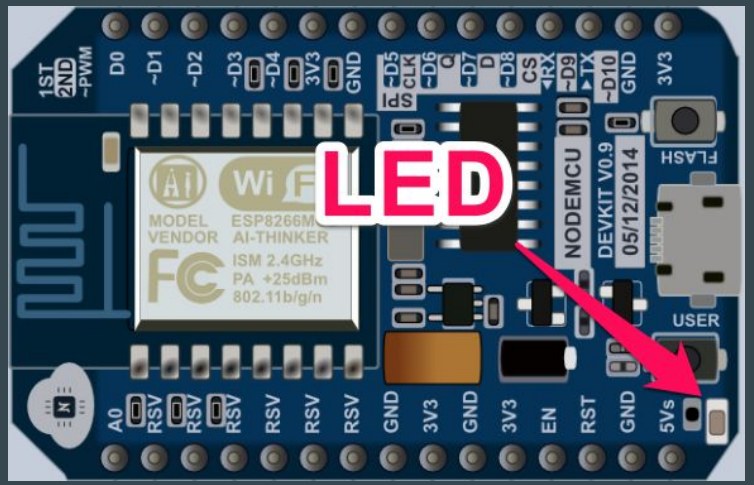
1. Tools ⇒ Board ⇒ NodeMCU 0.9 (ESP-12 Module)

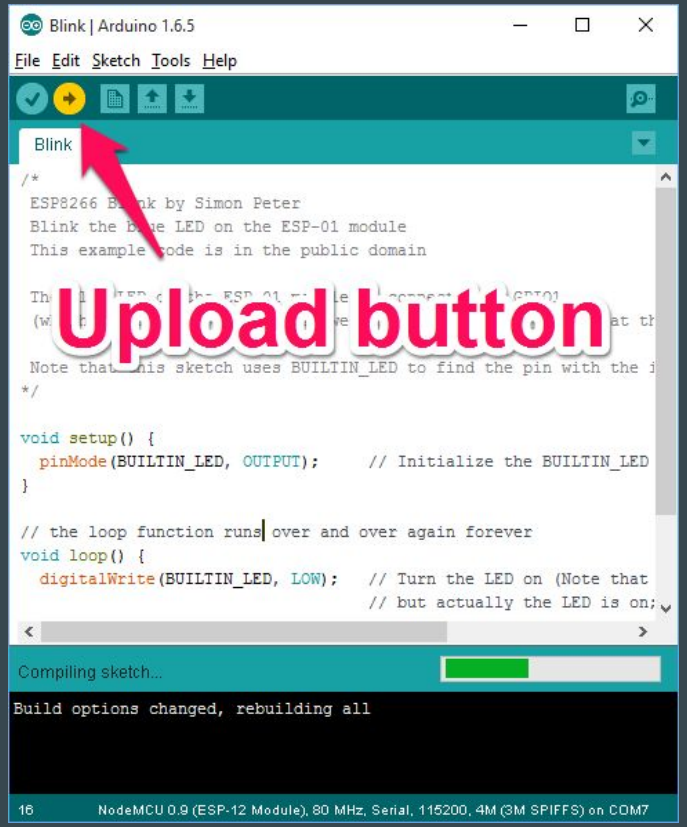
2. Select the right port for the board.
   - If the com port does not show up ensure that you have the device connected.
   - If your OS is Mac ensure that you have install the XXXX drivers.



Load the Blink sketch

1. File ⇒ Examples ⇒ ESP8266 ⇒ Blink
2. Sketch ⇒ Upload or click the Upload button
3. The LED on the NodeMCU should start blinking





Install 3rd party libraries

WiFiManager:

1. Goto https://github.com/tzapu/WiFiManager and “Download Zip”
2. Sketch ⇒ Include library ⇒ Add .Zip Library...
3. Find and select the “WiFiManager-master.zip” archive

Arduino-Temperature-Control-Library

1. Goto https://github.com/milesburton/Arduino-Temperature-Control-Library and “Download Zip”
2. Sketch ⇒ Include library ⇒ Add .Zip Library...
3. Find and select the “Arduino-Temperature-Control-Library-master.zip” archive

Into to data.sparkfun.com

ToDo: Talk about what phant is.

Why we choose to use it for this course. Its free, its uses REST, it makes graphs, does not rely on libraries, You can export your data, self-hosting option, etc..

There are lots of other IoT data stores.

- io.adafruit.com - Supports MQTT, free, lots of tutorials, in beta.
- Xively - mature, developer-friendly but paid for real stuff.
- Kinesis - Amazon, usual Amazon complexity, costs seem reasonable.
- etc...

Create account on data.sparkfun.com

1) Goto http://data.sparkfun.com
2) Create a data stream
3) Add “celsius” and “device” to the “Fields”
4) Save the Public, Private and Delete keys.

Wiring DS18B20 - One Wire Temperature sensor

ToDo: Add more info

1. GND to Black wire
2. 3.3V to Red Wire
3. D6 (Data) to Yellow Wire
4. Resistor between Red (3.3v) and Yellow (Data) wire