micropython

esptools / ampy

```
pip install esptool
pip install adafruit-ampy
```

identify

```
esptool.py chip_id
```

esp8266

download micropython from http://micropython.org/download#esp8266

```
wget http://micropython.org/resources/firmware/esp8266-20171101-v1.9.3.bin
```

erase (optional ?) and upload

```
esptool.py --port /dev/ttyUSB0 erase_flash
esptool.py --port /dev/ttyUSB0 --baud 460800 write_flash --flash_size=detect
0 esp8266-20171101-v1.9.3.bin
```

access from serial over USB

```
sudo apt install picocom
picocom /dev/ttyUSB0 -b115200
```

network wifi STA

```
import network
sta_if = network.WLAN(network.STA_IF)
sta_if.active(True)
sta_if.connect('<your ESSID>', '<your password>')
sta_if.ifconfig()

('192.168.2.32', '255.255.255.0', '192.168.2.1', '192.168.2.1')
```

enable webrepl

```
import webrepl_setup
```

reboot and connect to webrepl using http://micropython.org/webrepl/

main

```
ampy -p /dev/ttyUSB0 put blink.py  /main.py
```

led

```
from machine import Pin
from time import sleep

# GPIO16 (D0) is the internal LED for NodeMCU
led = Pin(16, Pin.OUT)

# The internal LED turn on when the pin is LOW
while True:
    led.value(not led.value())
    #led.on()
    sleep(1)
    #led.off()
    #sleep(1)
```

jupyter

https://github.com/goatchurchprime/jupyter_micropython_kernel/

```
git clone https://github.com/goatchurchprime/jupyter_micropython_kernel.git
pip install -e jupyter_micropython_kernel
python -m jupyter_micropython_kernel.install
```

widgets

```
pip install ipywidgets
jupyter nbextension enable --py widgetsnbextension
<code>

turtle [[https://github.com/takluyver/mobilechelonian docs]]
<code>
pip install https://github.com/takluyver/mobilechelonian/archive/master.zip
```

run jupyter

```
jupyter notebook
```