Day 01-3

Assignment:

- Homework 02, Due Tuesday
-

Today's Topics:

- Python GPIO
- /sys/

01-3 – Blink an LED the Easy Way

Much of this is from
BeagleBone Cookbook

Blink an LED

```
#!/usr/bin/env python3
import Adafruit_BBIO.GPIO as GPIO
import time

LED = "USR0"
delay = 0.25

GPIO.setup(LED, GPIO.OUT)

while True:
    GPIO.output(LED, 1)
    time.sleep(delay)
    GPIO.output(LED, 0)
    time.sleep(delay)
```

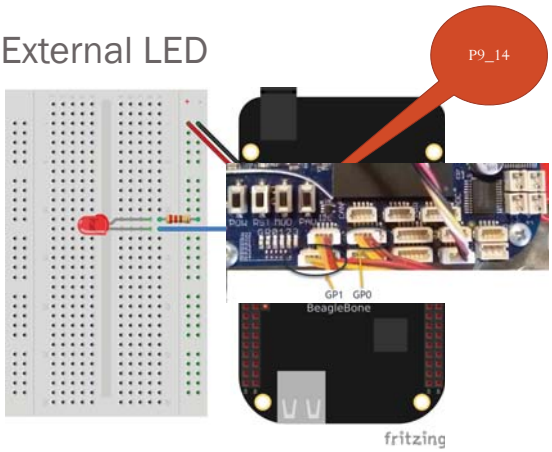
`exercises/displays/blue/blink1led.py`

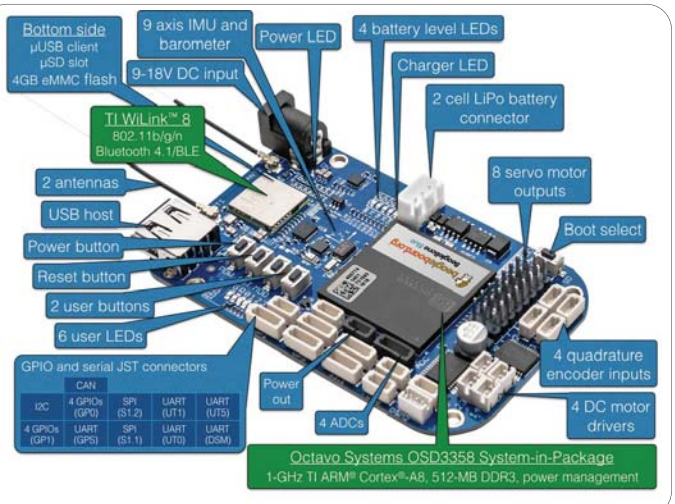
Running py

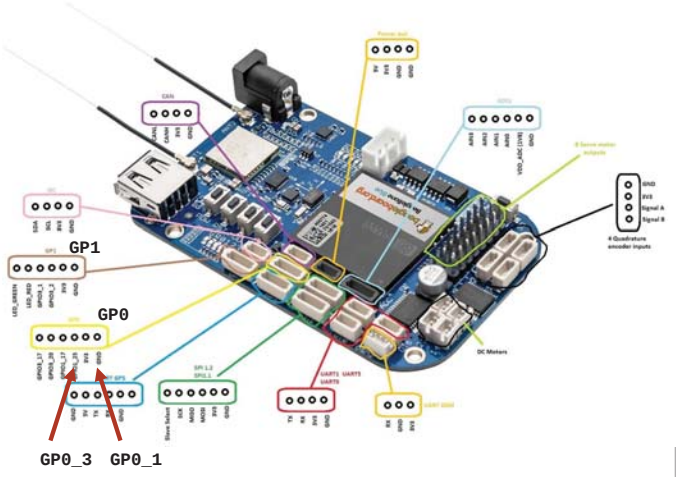
- Use Cloud9 debugger
- From command line
- If the first line is: **`#!/usr/bin/env python3`**

```
bone$ ./blink1led.py
```

External LED







Blink an LED

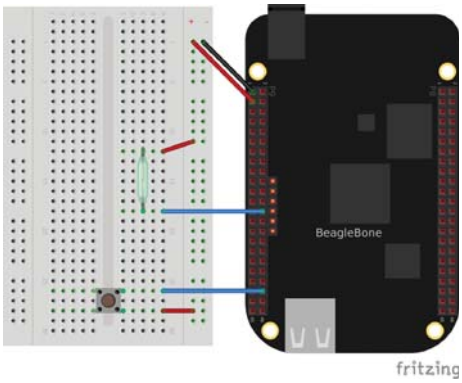
External

```
#!/usr/bin/env python3
import Adafruit_BBIO.GPIO as GPIO
import time

LED = “GP0_3"
delay = 0.25

GPIO.setup(LED, GPIO.OUT)

while True:
    GPIO.output(LED, 1)
    time.sleep(delay)
    GPIO.output(LED, 0)
    time.sleep(delay)
```

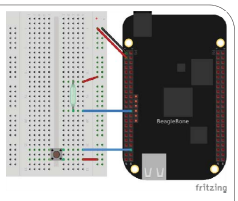
Internal

```
#!/usr/bin/env python3
import Adafruit_BBIO.GPIO as GPIO
import time

LED = "USR0"
delay = 0.25

GPIO.setup(LED, GPIO.OUT)

while True:
    GPIO.output(LED, 1)
    time.sleep(delay)
    GPIO.output(LED, 0)
    time.sleep(delay)
```

Read a button



Button




```
#!/usr/bin/env python3
import Adafruit_BBIO.GPIO as GPIO
import time
button="PAUSE"  # PAUSE or MODE
LED   ="USR3"
# Set the GPIO pins:
GPIO.setup(LED,    GPIO.OUT)
GPIO.setup(button, GPIO.IN)

while True:
  state = GPIO.input(button)
  GPIO.output(LED, state)

  GPIO.wait_for_edge(button, GPIO.BOTH)
  print("Pressed")
```

Button - Events

```
#!/usr/bin/env python3
import Adafruit_BBIO.GPIO as GPIO
import time

buttonP="PAUSE"  # PAUSE or MODE
buttonM="MODE"

LEDp   ="RED"
LEDm   ="GREEN"

# Set the GPIO pins:
GPIO.setup(LEDp,    GPIO.OUT)
GPIO.setup(LEDm,    GPIO.OUT)
GPIO.setup(buttonP, GPIO.IN)
GPIO.setup(buttonM, GPIO.IN)

# Turn on both LEDs
GPIO.output(LEDp, 1)
GPIO.output(LEDm, 1)
```

```
# Map buttons to LEDs
map = {buttonP: LEDp, buttonM: LEDm}

def updateLED(channel):
    print("channel = " + channel)
    state = GPIO.input(channel)
    GPIO.output(map[channel], state)
    print(map[channel] + " Toggled")

print("Running...")

GPIO.add_event_detect(buttonP, GPIO.BOTH, callback=updateLED)
# RISING, FALLING or BOTH
GPIO.add_event_detect(buttonM, GPIO.BOTH, callback=updateLED)

try:
    while True:
        time.sleep(100)   # Let other processes run

except KeyboardInterrupt:
    print("Cleaning Up")
    GPIO.cleanup()
GPIO.cleanup()
```