การสร้าง MQTT Server บน Raspberry Pi เพื่อใช้งาน Chatbot LINE ในฟาร์มอัจฉริยะ Chatbot LINE from Raspberry Pi MQTT Server for Smart Farming
ชื่อ-สกุล :นายอติชติ ภู่นิเทศ
6/6 – คำถามท้ายบทเพื่อทดสอบความเข้าใจ

Quiz_101 – ทดสอบ RPi4 GPIO with Python

Python.1 - Python Switch control LED >> กดติด ปล่อยดับ

โปรแกรมที่ใช้ทดสอบ

```
import RPi.GPIO as GPIO # Add GPIO library to a Python sketch
import time # Add time library to a Python sketch

LED_pin = 32 # Ref Board
SW_Pin = 36
GPIO.setmode(GPIO.BOARD) #Setup GPIO using GPIO.Pin
GPIO.setup(LED_pin, GPIO.OUT) #Setup pin to output
GPIO.setup(SW_Pin, GPIO.IN, pull_up_down = GPIO.PUD_UP)
 #Setup pin to input and Pull-Up

while True:
 if (GPIO.input(SW_Pin)==1): # Read Botton pin
    GPIO.output(LED_pin,GPIO.LOW) # Set LED pin to LOW
    print("Input = 0, LOW")
 else:
    GPIO.output(LED_pin,GPIO.HIGH) # Set LED pin to HIGH
    print("Input = 1, HIGH")
    time.sleep(0.5)
```

รูป Code Capture

lab1-1.py - /home/pi - Geany

File Edit Search View Document Project Build Tools Help

Symbols

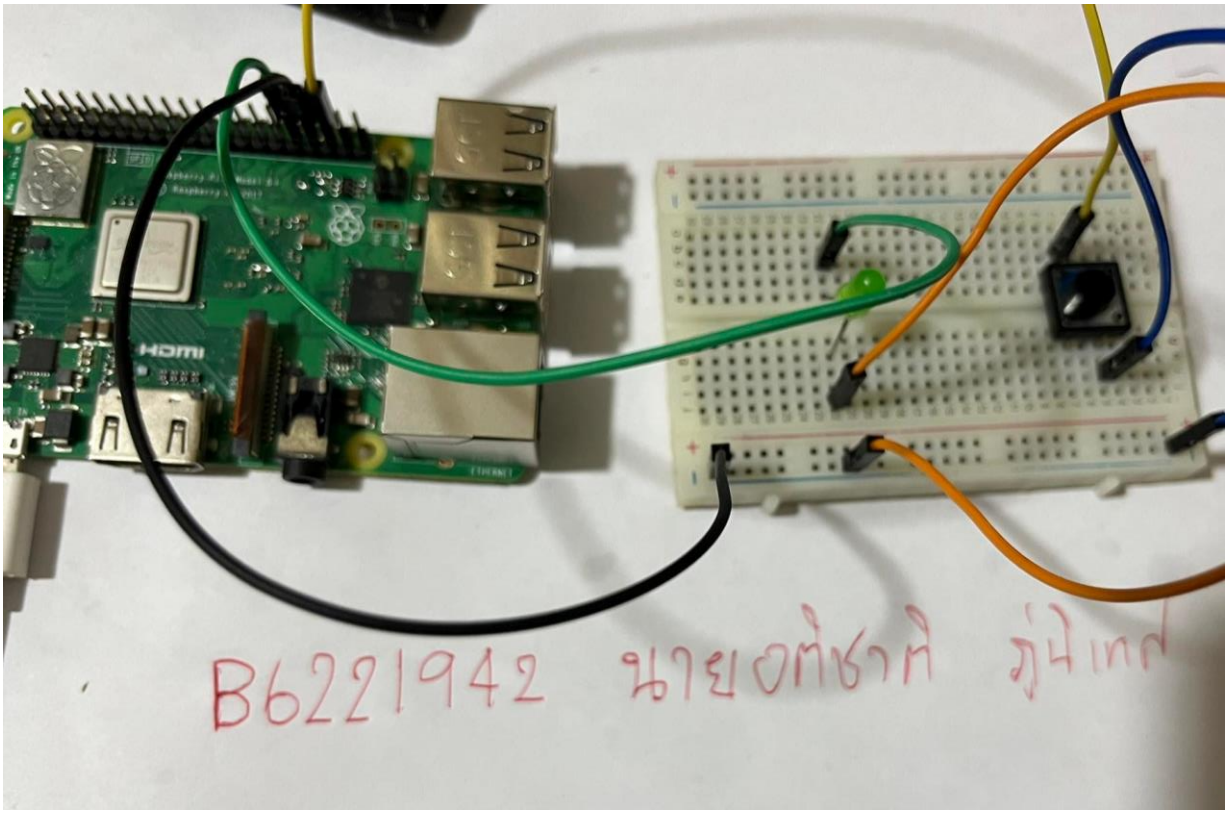
lab1-1.py

- Variables
  - LED_pin [4]
  - SW_Pin [5]
- Imports
  - GPIO [1]
  - RPi [1]
  - time [2]

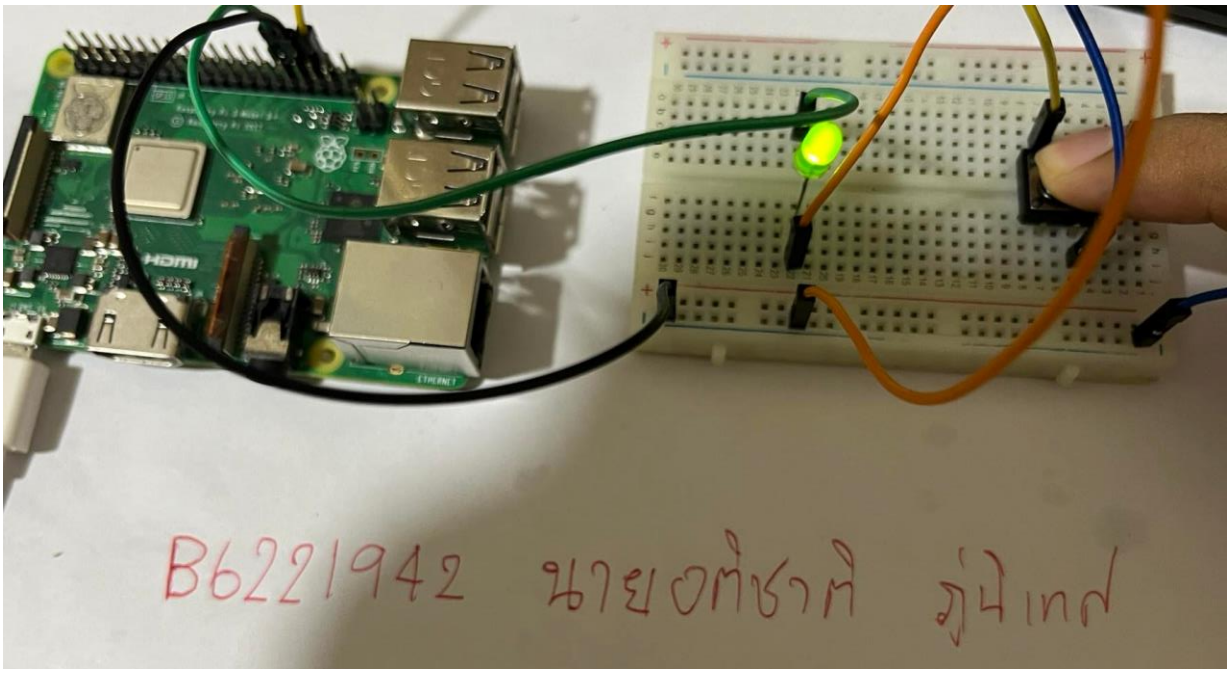
```
1  import RPi.GPIO as GPIO # Add GPIO library to a Python sketch
2  import time # Add time library to a Python sketch
3
4  LED_pin = 32 # Ref Board
5  SW_Pin = 36
6  GPIO.setmode(GPIO.BOARD) #Setup GPIO using GPIO.Pin
7  GPIO.setup(LED_pin, GPIO.OUT) #Setup pin to output
8  GPIO.setup(SW_Pin, GPIO.IN, pull_up_down = GPIO.PUD_UP)
9   #Setup pin to input and Pull-Up
10
11 while True:
12  if (GPIO.input(SW_Pin)==1): # Read Botton pin
13     GPIO.output(LED_pin,GPIO.LOW) # Set LED pin to LOW
14     print("Input = 0, LOW")
15  else:
16     GPIO.output(LED_pin,GPIO.HIGH) # Set LED pin to HIGH
17     print("Input = 1, HIGH")
18  time.sleep(0.5)
19
```

01:23:24: File /home/pi/lab1-1.py saved.

รูปการทดสอบ 1



รูปการทดสอบ 2



Python.2 - Python Switch control LED >> กดติด กดดับ

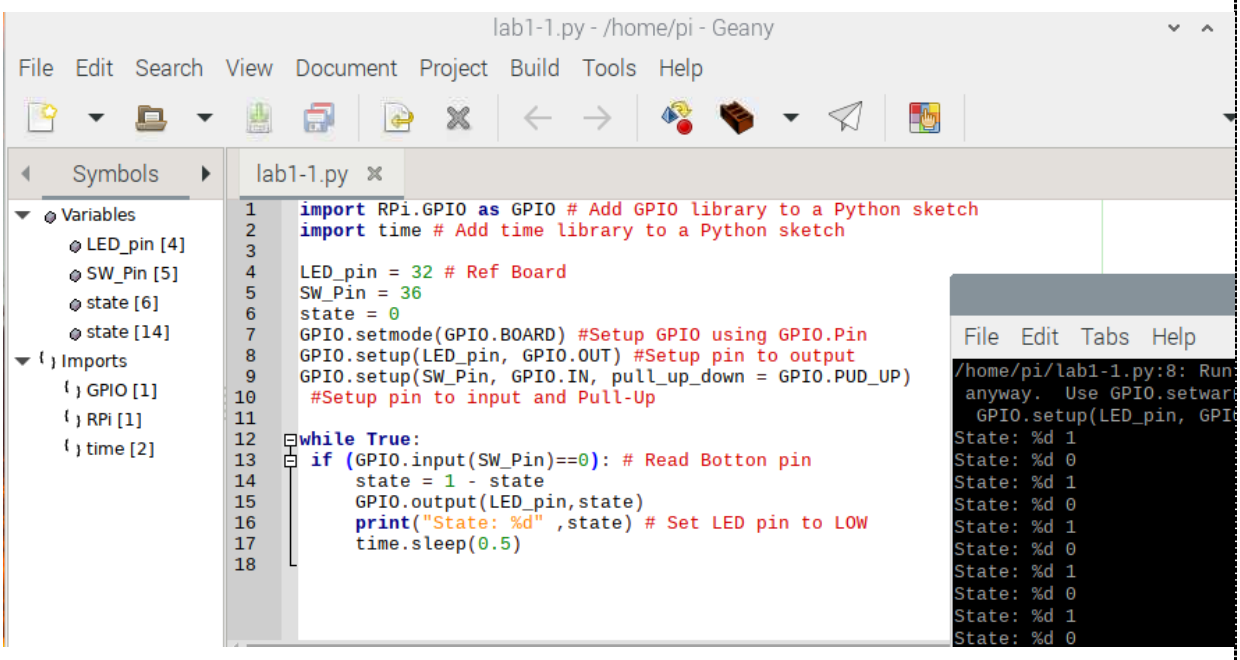
โปรแกรมที่ใช้ทดสอบ

```
import RPi.GPIO as GPIO # Add GPIO library to a Python sketch
import time # Add time library to a Python sketch

LED_pin = 32 # Ref Board
SW_Pin = 36
State = 0

GPIO.setmode(GPIO.BOARD) #Setup GPIO using GPIO.Pin
GPIO.setup(LED_pin, GPIO.OUT) #Setup pin to output
GPIO.setup(SW_Pin, GPIO.IN, pull_up_down = GPIO.PUD_UP)
#Setup pin to input and Pull-Up

while True:
    if (GPIO.input(SW_Pin)==0): # Read Botton pin
        state = 1 – state
        GPIO.output(LED_pin,GPIO.HIGH) # Set LED pin
```

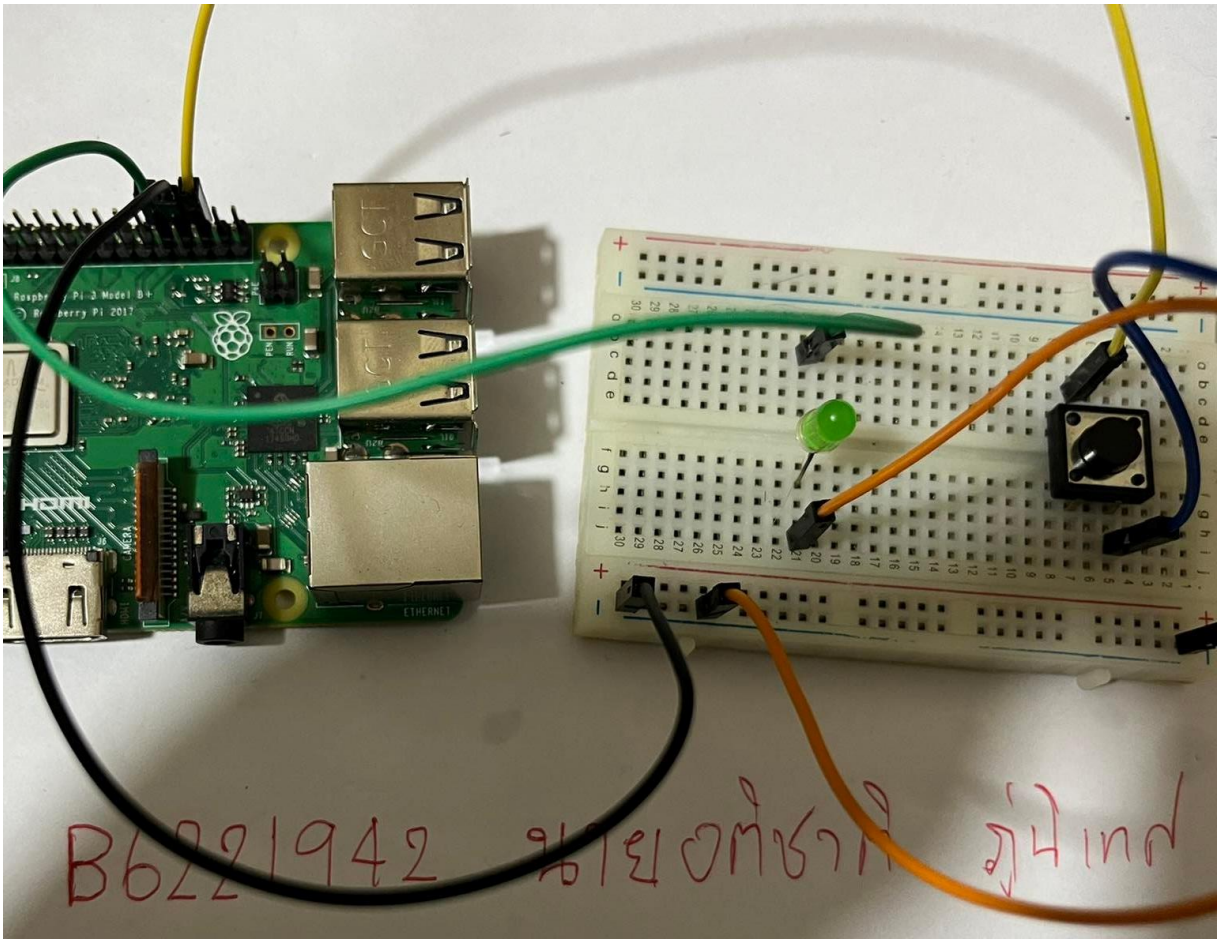
print(“State: %d”, state)

time.sleep(0.5)

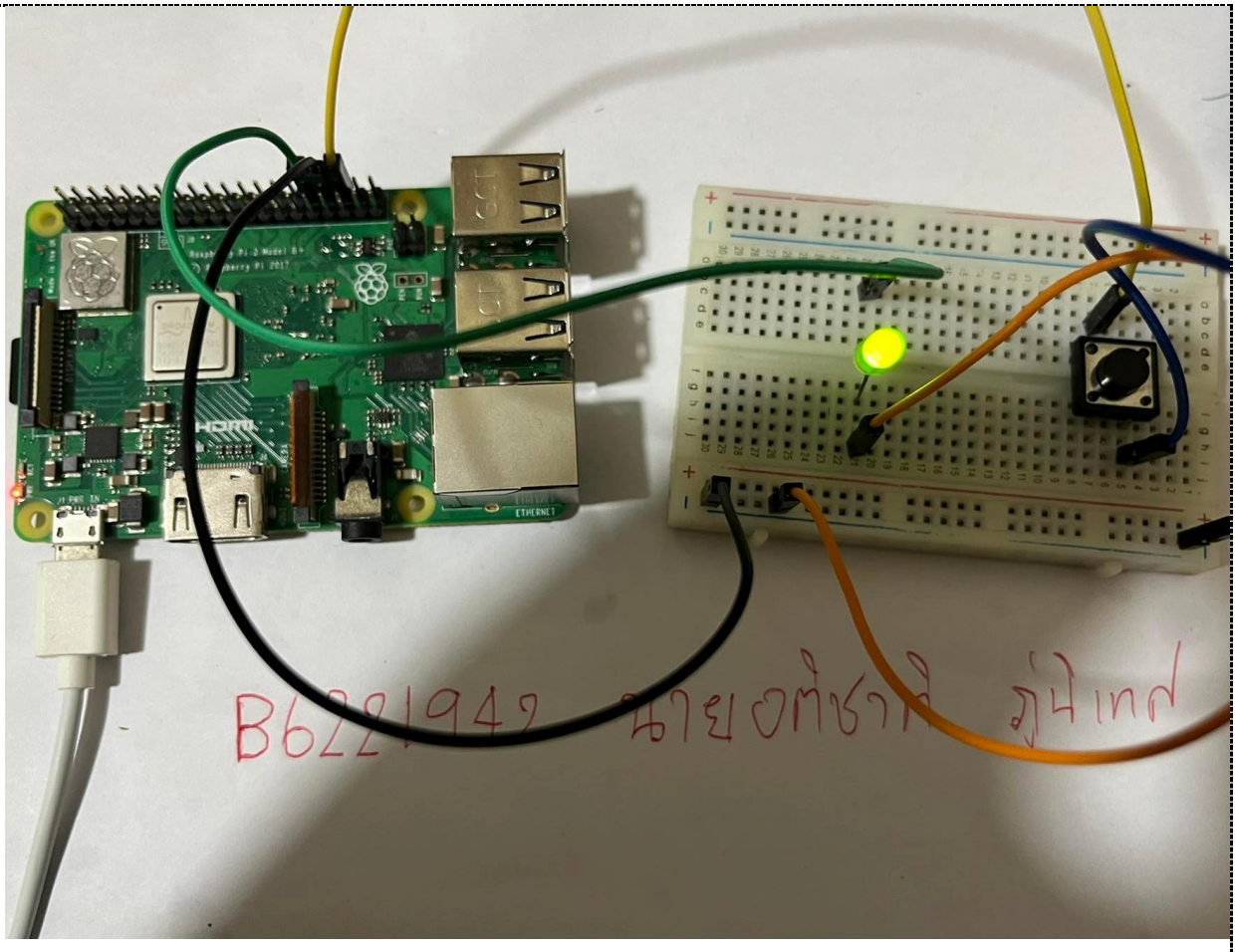
รูป Code Capture



รูปการทดสอบ 1



รูปการทดสอบ 2



POython.3 - Python Switch >> Switch Counter

โปรแกรมที่ใช้ทดสอบ

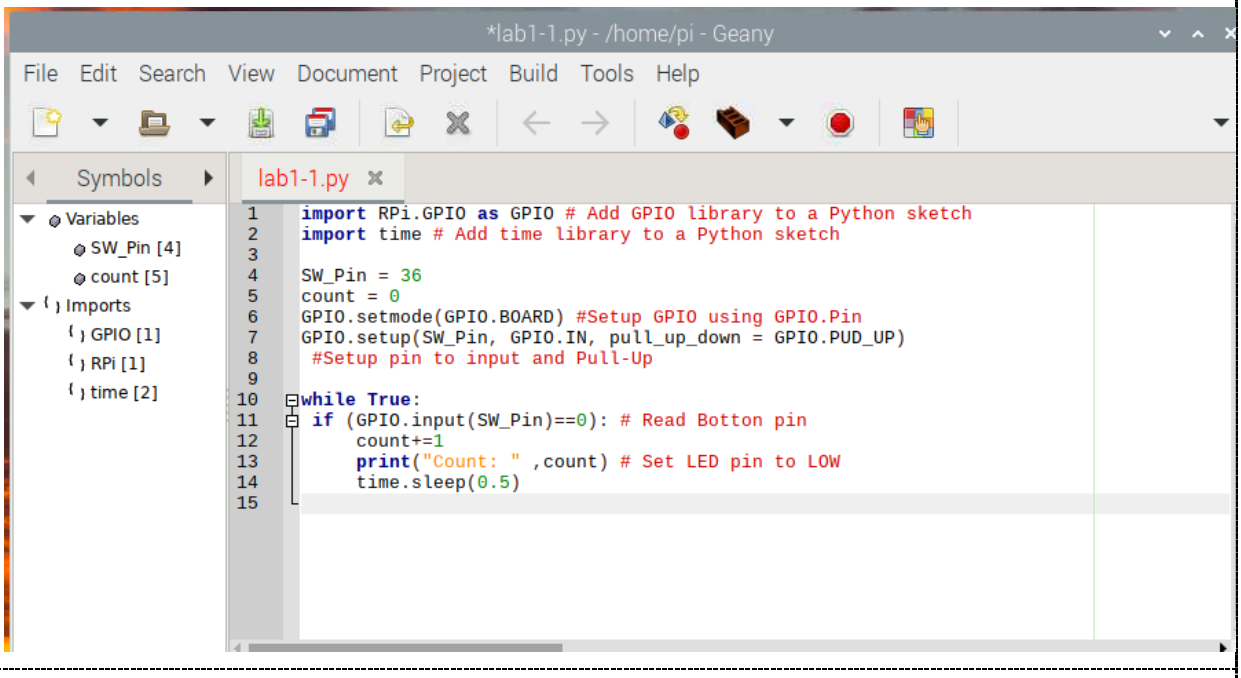
```
import RPi.GPIO as GPIO # Add GPIO library to a Python sketch
import time # Add time library to a Python sketch

SW_Pin = 36
Count = 0

GPIO.setmode(GPIO.BOARD) #Setup GPIO using GPIO.Pin
GPIO.setup(SW_Pin, GPIO.IN, pull_up_down = GPIO.PUD_UP)
#Setup pin to input and Pull-Up

while True:
    if (GPIO.input(SW_Pin)==1): # Read Botton pin
```

Count+=1

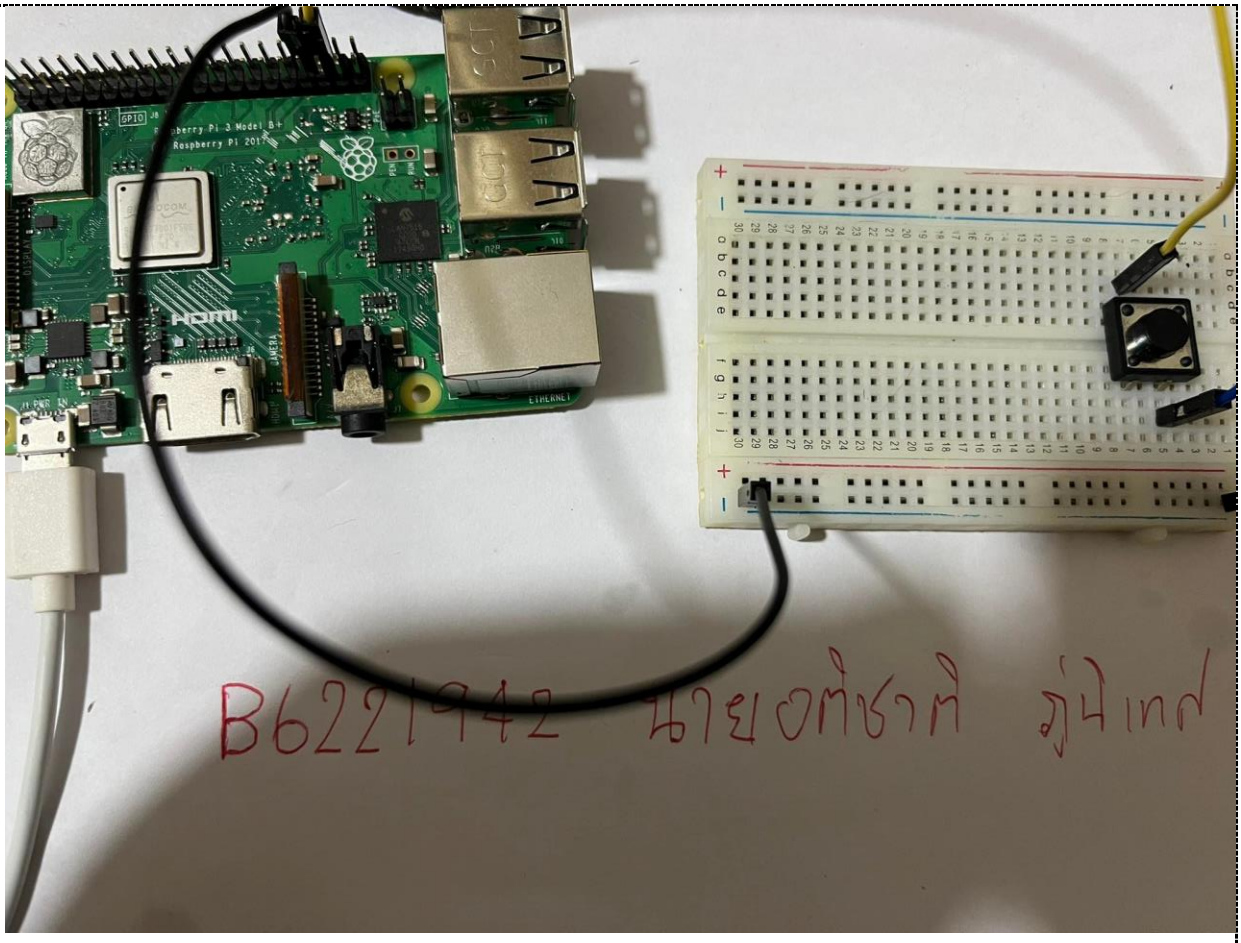
print("Count: ",Count)

time.sleep(0.5)

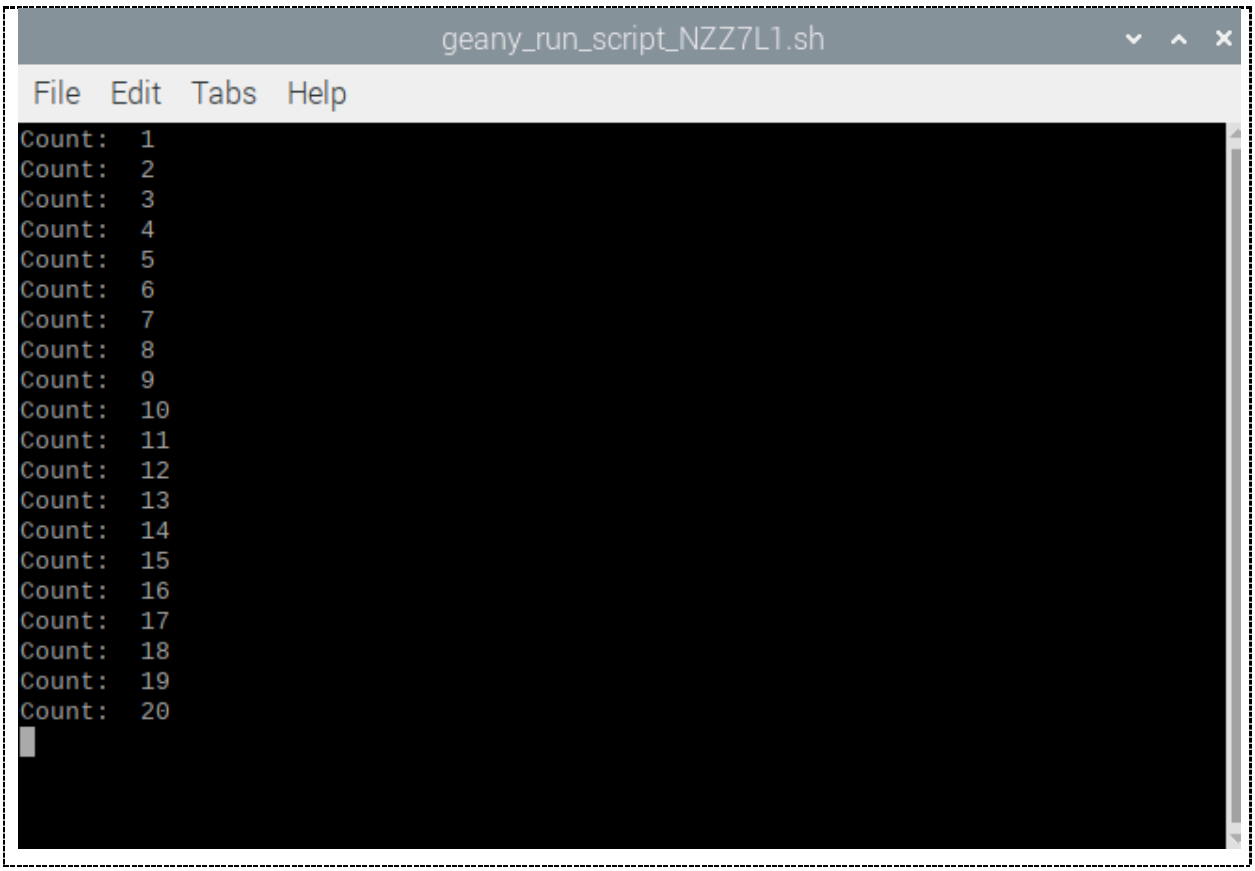
รูป Code Capture



รูปการทดสอบ 1



รูปการทดสอบ 2


geany_run_script_NZZ7L1.sh
File Edit Tabs Help
Count: 1
Count: 2
Count: 3
Count: 4
Count: 5
Count: 6
Count: 7
Count: 8
Count: 9
Count: 10
Count: 11
Count: 12
Count: 13
Count: 14
Count: 15
Count: 16
Count: 17
Count: 18
Count: 19
Count: 20

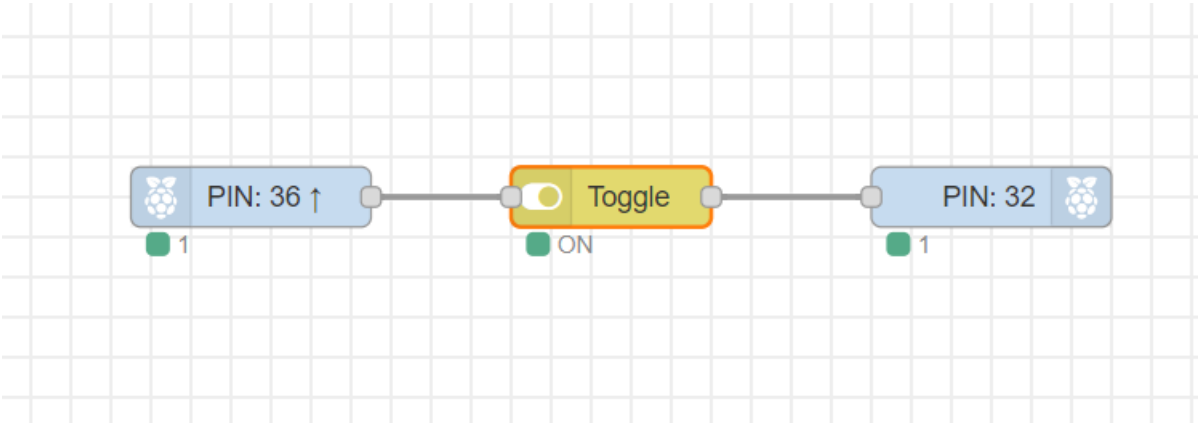
Quiz_102 – ทดสอบ RPi4 GPIO with Node-RED

Node-RED.1 – Node-RED เพื่อควบคุมสวิตช์กดแบบ กดติด กดดับ {Switch-LED 1 คู่}

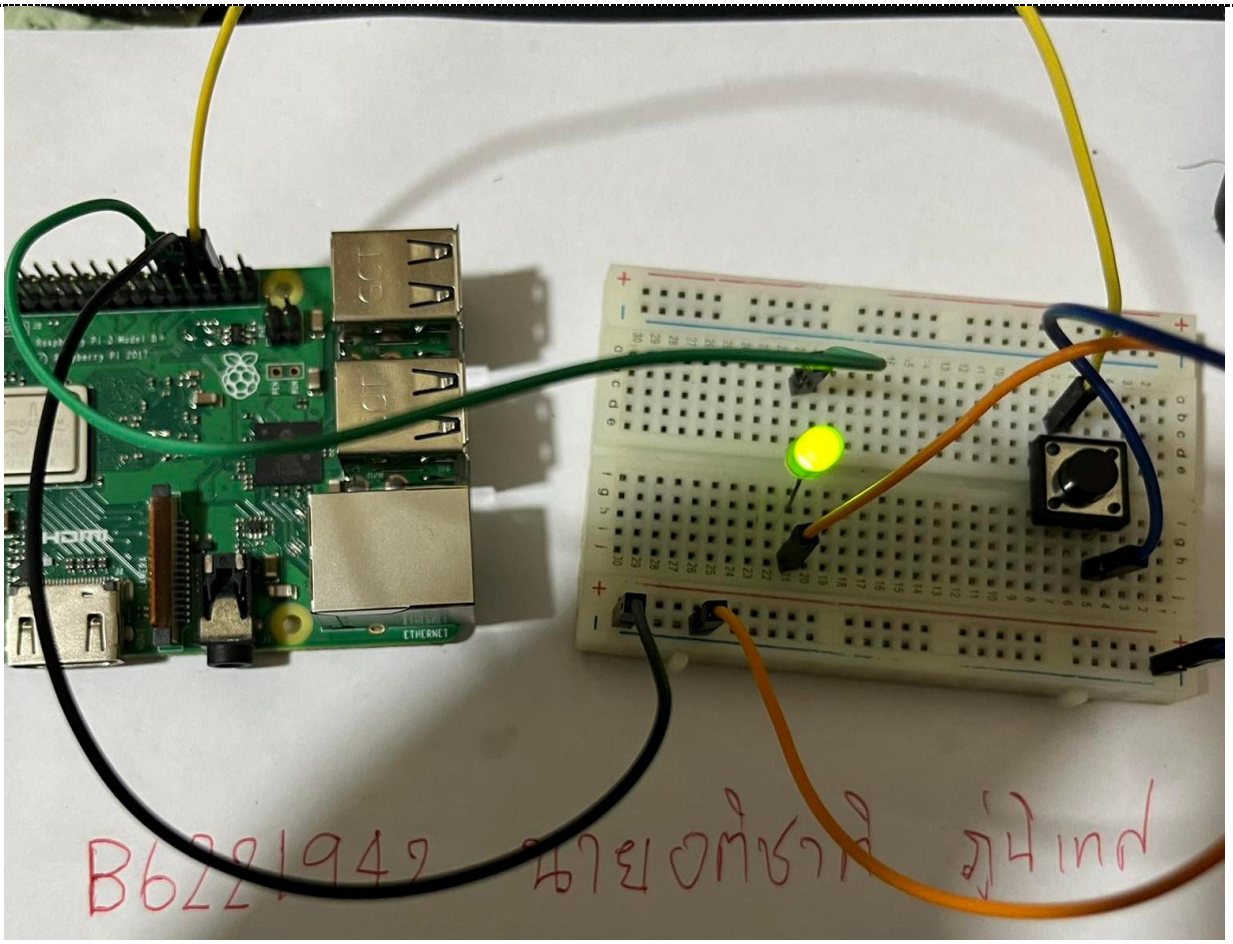
โปรแกรมที่ใช้ทดสอบ

[{"id":"2ea6c3a668637a03","type":"tab","label":"Flow 2","disabled":false,"info":"","env":[]},{"id":"e7624f12eddd0ecd","type":"rpi-gpio in","z":"2ea6c3a668637a03","name":"","pin":"16","intype":"tri","debounce":"25","read":false,"bcm":true,"x":230,"y":240,"wires":[["cc37ede6ca4beeed"]]},{"id":"1c153335fa5c851d","type":"rpi-gpio out","z":"2ea6c3a668637a03","name":"","pin":"12","set":"","level":"0","freq":"","out":"out","bcm":true,"x":660,"y":240,"wires":[]},{"id":"cc37ede6ca4beeed","type":"toggle","z":"2ea6c3a668637a03","name":"","onOffTopic":"gpio/36","onValue":"1","onType":"str","offValue":"0","offType":"str","toggleTopic":"","toggleValue":"0","toggleType":"str","passOnOff":"","x":440,"y":240,"wires":[["1c153335fa5c851d"]]}]

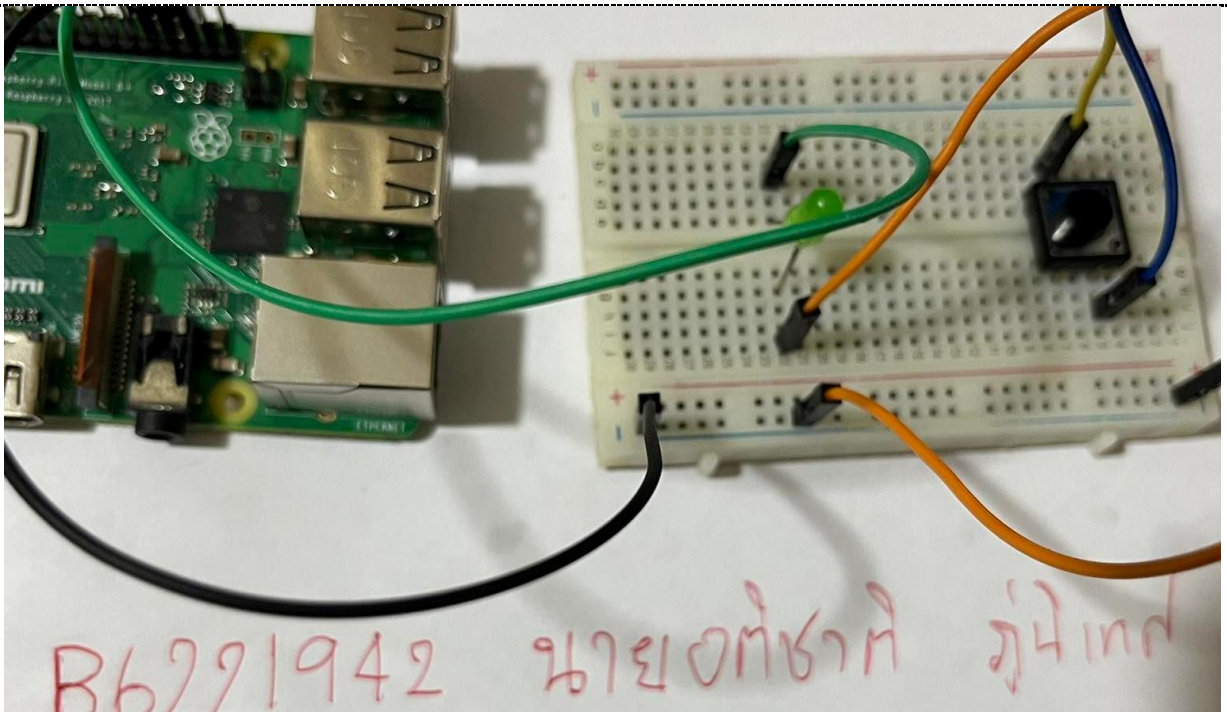
รูป Code Capture



รูปการทดสอบ 1



รูปการทดสอบ 2

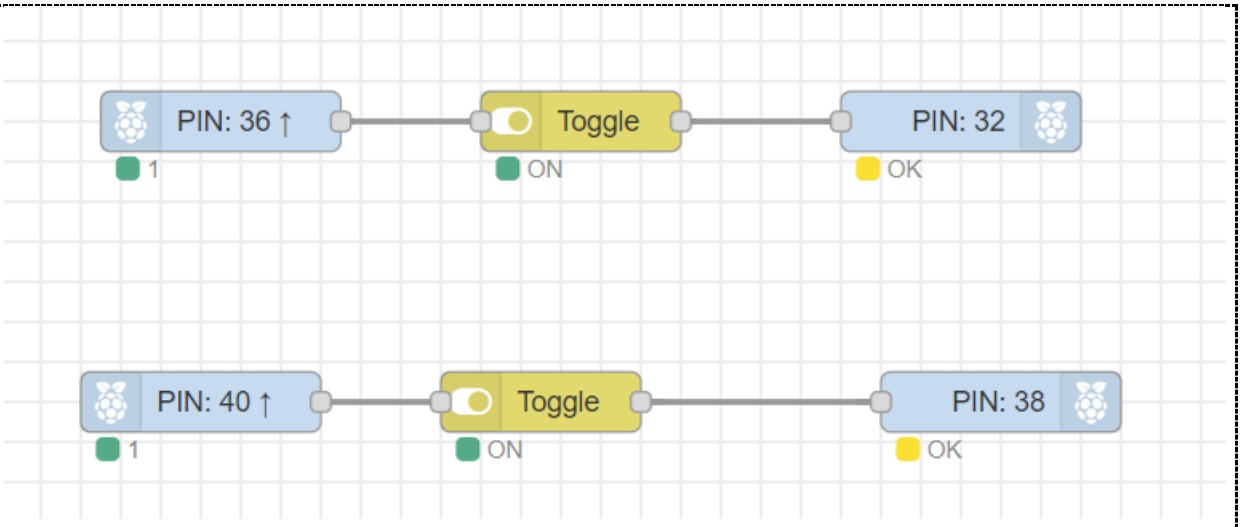


Node-RED.2 - Node-RED เพื่อควบคุมสวิตซ์กดแบบ กดติด กดดับ 2 คู่

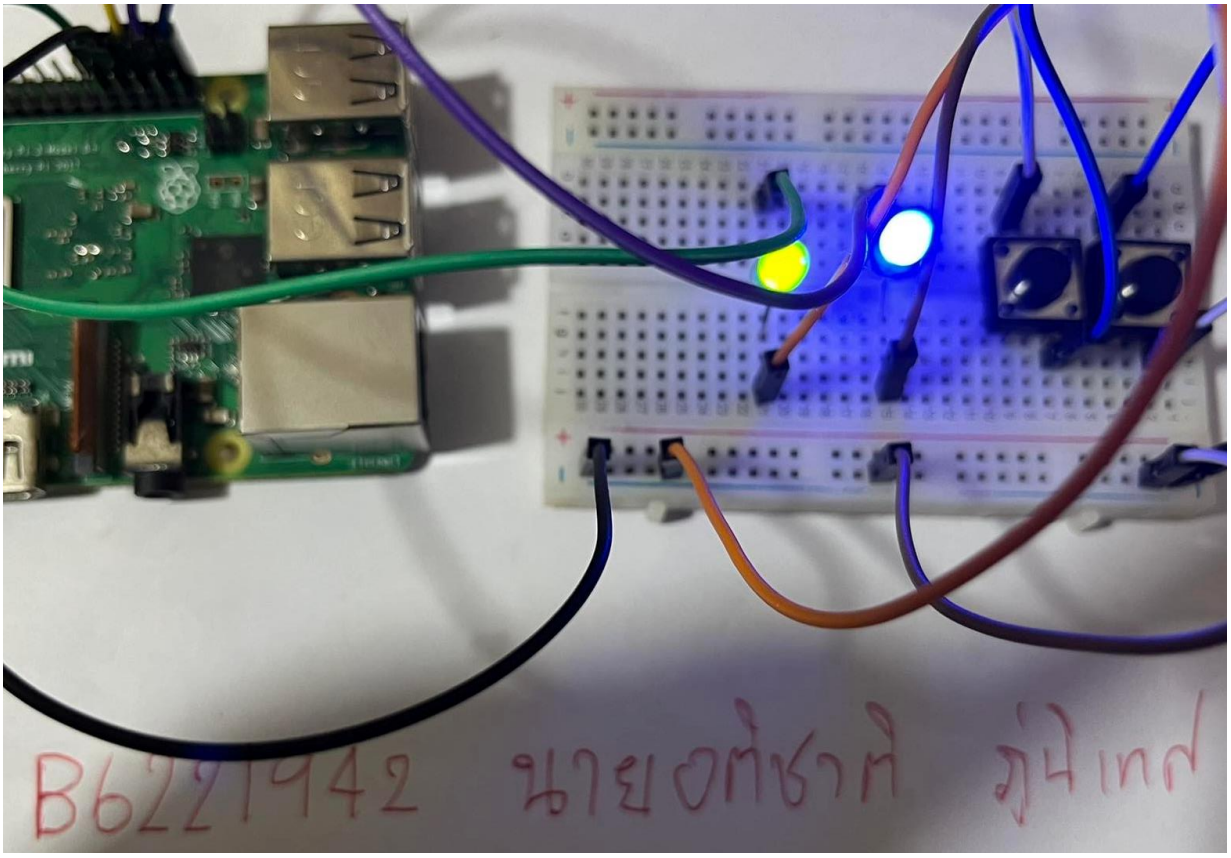
โปรแกรมที่ใช้ทดสอบ

[{"id":"c0e4aacac2c1e182","type":"tab","label":"Flow 5","disabled":false,"info":"","env":[]},{"id":"7dd583e01e8ffce8","type":"rpi-gpio in","z":"c0e4aacac2c1e182","name":"","pin":"16","intype":"up","debounce":"25","read":false,"bcm":true,"x":330,"y":200,"wires":[["79a050ff564ec93b"]]},{"id":"3536a7e662fa4cb3","type":"rpi-gpio out","z":"c0e4aacac2c1e182","name":"","pin":"12","set":"","level":"0","freq":"","out":"out","bcm":true,"x":700,"y":200,"wires":[]},{"id":"79a050ff564ec93b","type":"toggle","z":"c0e4aacac2c1e182","name":"Toggle","onOffTopic":"gpio/36","onValue":"1","onType":"num","offValue":"0","offType":"num","toggleTopic":"","toggleValue":"0","toggleType":"num","passOnOff":"","x":510,"y":200,"wires":[["3536a7e662fa4cb3"]]},{"id":"17f2c69da7f82b3f","type":"rpi-gpio in","z":"c0e4aacac2c1e182","name":"","pin":"21","intype":"up","debounce":"25","read":false,"bcm":true,"x":320,"y":340,"wires":[["24123b43dc7e93cf"]]},{"id":"326027dd62db1aae","type":"rpi-gpio out","z":"c0e4aacac2c1e182","name":"","pin":"20","set":"","level":"0","freq":"","out":"out","bcm":true,"x":720,"y":340,"wires":[]},{"id":"24123b43dc7e93cf","type":"toggle","z":"c0e4aacac2c1e182","name":"","onOffTopic":"gpio/40","onValue":"1","onType":"str","offValue":"0","offType":"str","toggleTopic":"","toggleValue":"0","toggleType":"str","passOnOff":"","x":490,"y":340,"wires":[["326027dd62db1aae"]]}]

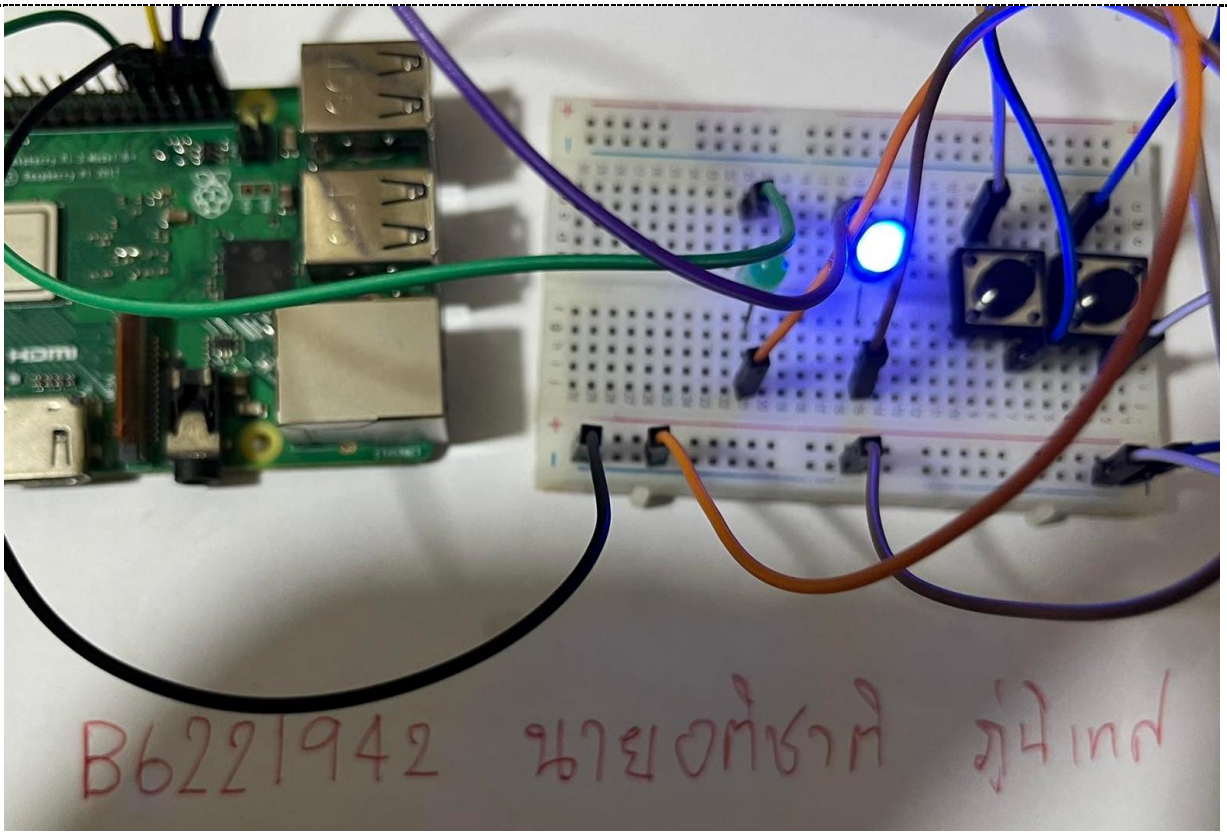
รูป Code Capture



รูปการทดสอบ 1



รูปการทดสอบ 2

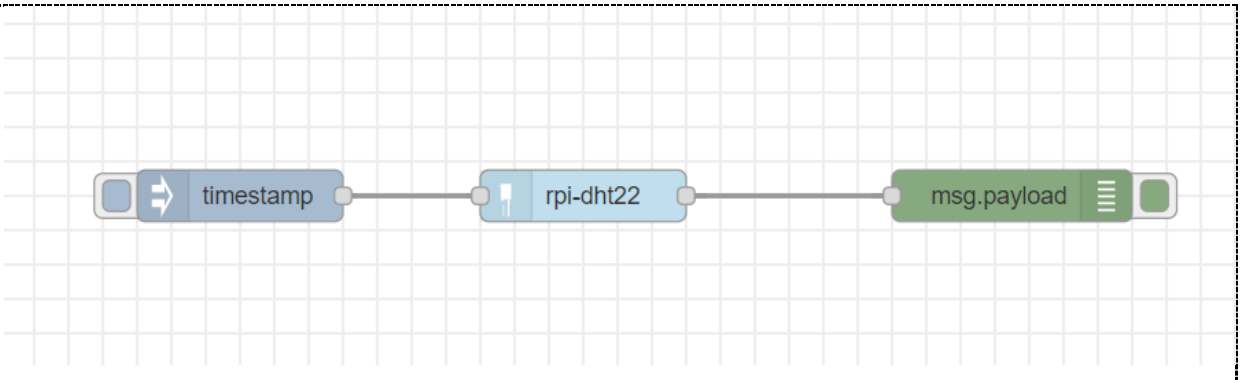


Node-RED.3 - Node-RED เพื่ออ่าน DHT-22 Sensor

โปรแกรมที่ใช้ทดสอบ

[{"id":"95e14f3908f78d10","type":"tab","label":"Flow 1","disabled":false,"info":"","env":[]},{"id":"49f4e98091eef55b","type":"inject","z":"95e14f3908f78d10","name":"","props":[{"p":"payload"},{"p":"topic","vt":"str"}],"repeat":"","crontab":"","once":false,"onceDelay":0.1,"topic":"","payload":"","payloadType":"date","x":200,"y":280,"wires":[["5063271611a2b9c1"]]},{"id":"f92f516360db9610","type":"debug","z":"95e14f3908f78d10","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"false","statusVal":"","statusType":"auto","x":650,"y":280,"wires":[]},{"id":"5063271611a2b9c1","type":"rpi-dht22","z":"95e14f3908f78d10","name":"","topic":"rpi-dht22","dht":22,"pintype":"3","pin":"5","x":400,"y":280,"wires":[["f92f516360db9610"]]}]

รูป Code Capture



รูปการทดสอบ 1

รูปการทดสอบ 2

B6221942 นายอัชชา ภู่นิเกต