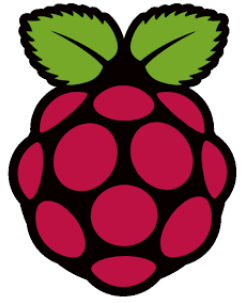


MQTT

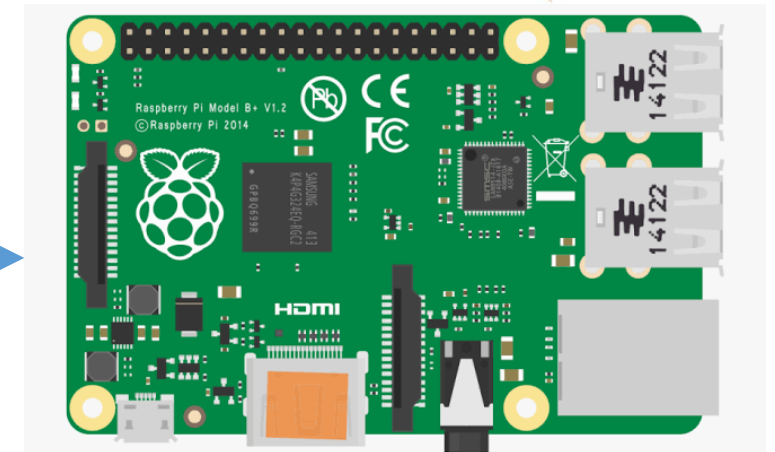
With Raspberry pi

Mr.Surawut Sukkum

Raspberry pi via NodeMCU by MQTT



Server

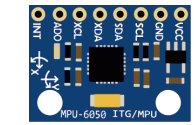
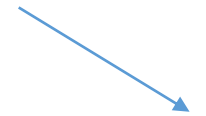


Mr.Surawut Sukkum

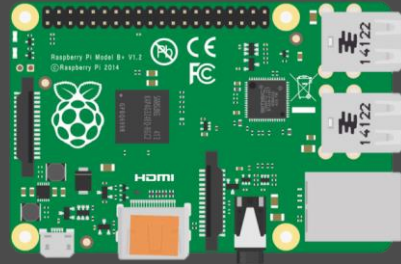
Client



MQTT

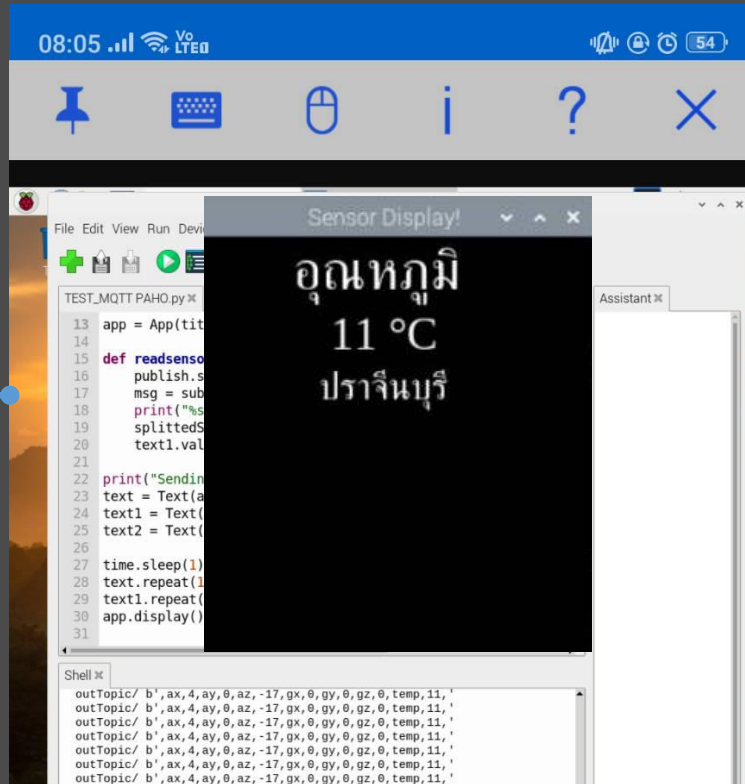


MQTT Broker



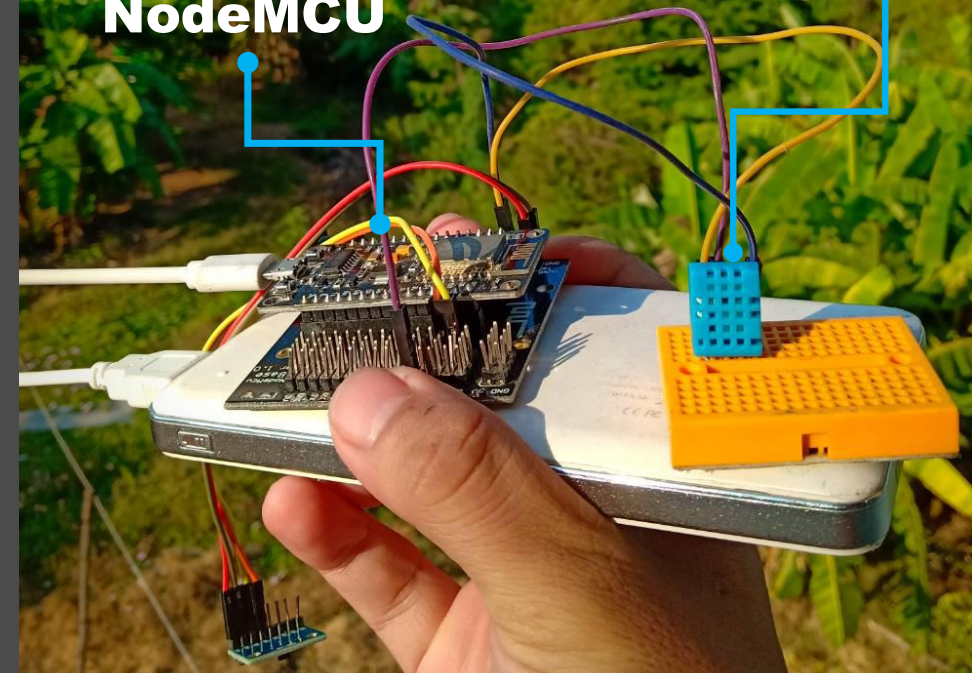
Example

Mr.Surawut Sukkum

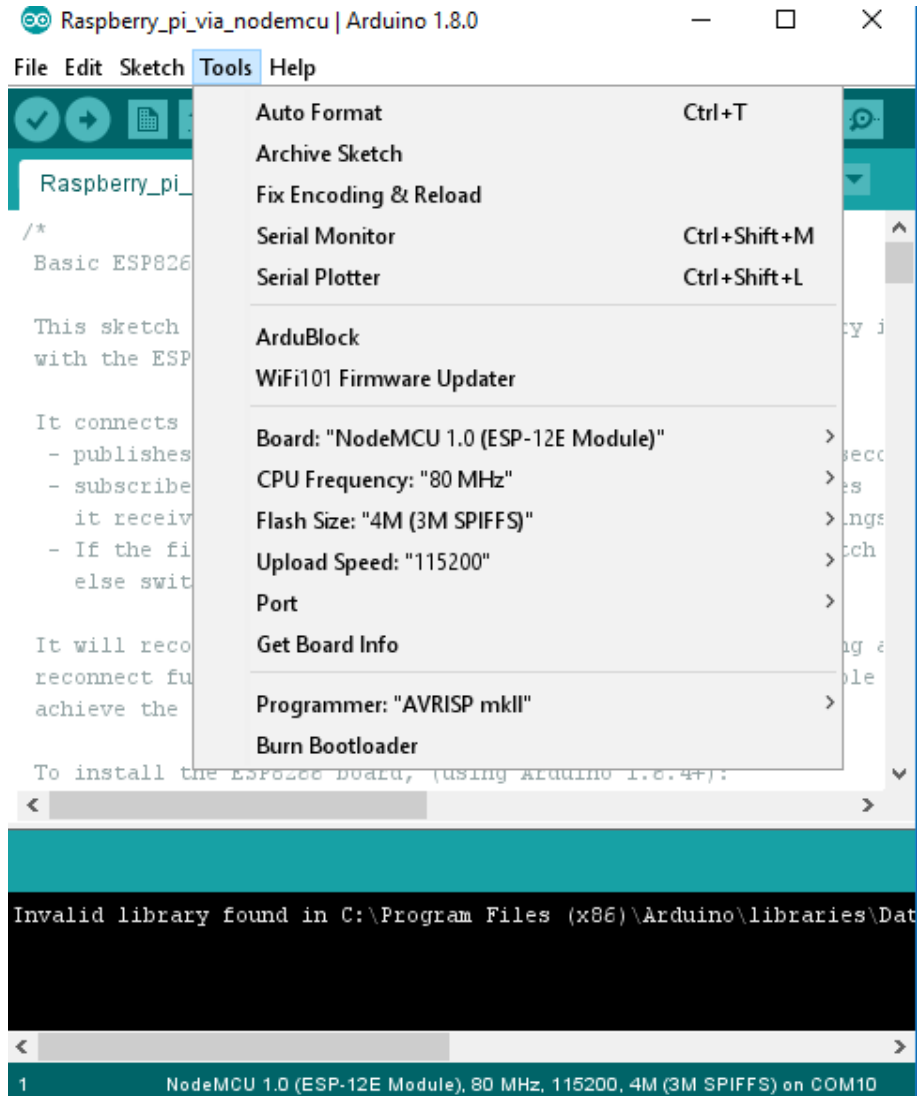


NodeMCU

Sensor

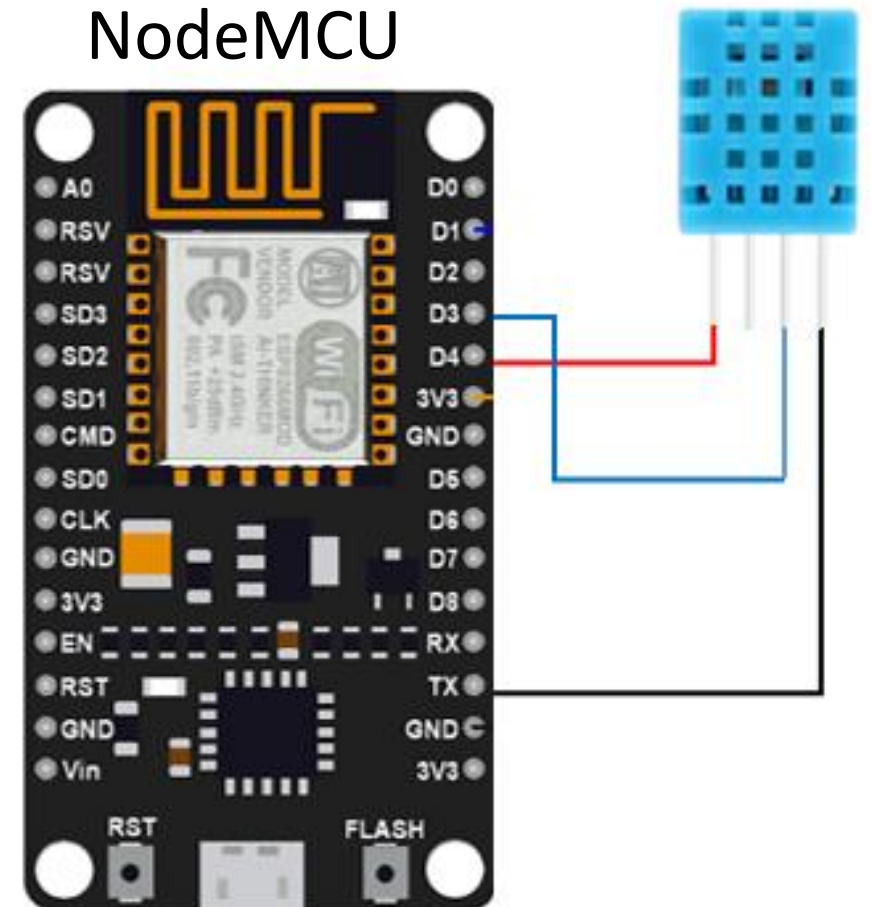


Arduino IDE

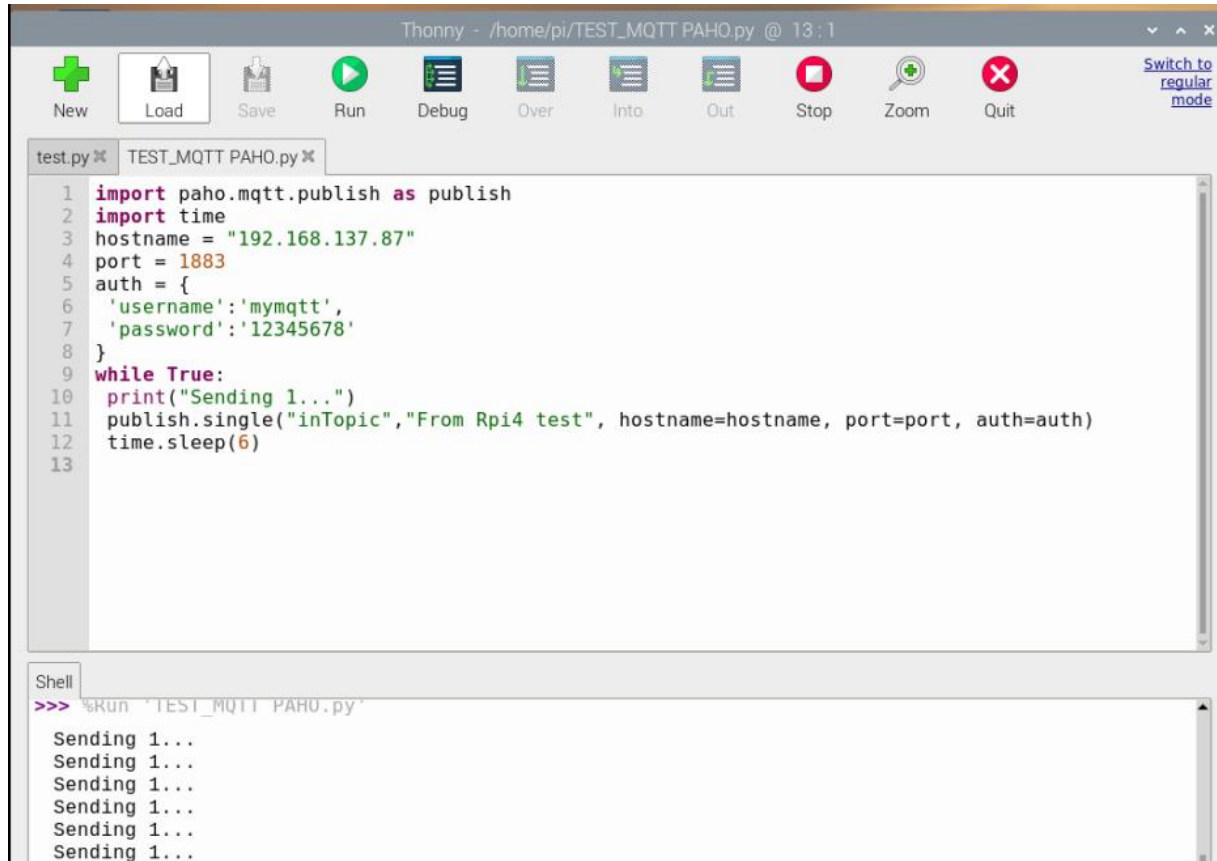


Diagram

NodeMCU



publish



Thonny - /home/pi/TEST_MQTT_PAHO.py @ 13:1

```
1 import paho.mqtt.publish as publish
2 import time
3 hostname = "192.168.137.87"
4 port = 1883
5 auth = {
6     'username': 'mymqtt',
7     'password': '12345678'
8 }
9 while True:
10     print("Sending 1...")
11     publish.single("inTopic", "From Rpi4 test", hostname=hostname, port=port, auth=auth)
12     time.sleep(6)
13
```

Shell

```
>>> %Run TEST_MQTT_PAHO.py
Sending 1...
Sending 1...
Sending 1...
Sending 1...
Sending 1...
Sending 1...
```



COM5

```
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Message arrived [inTopic] From Rpi4 test
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0
Publish message: Gyro ax=-4 ay=-15 az=1 gx=0 gy=0 gz=0
```

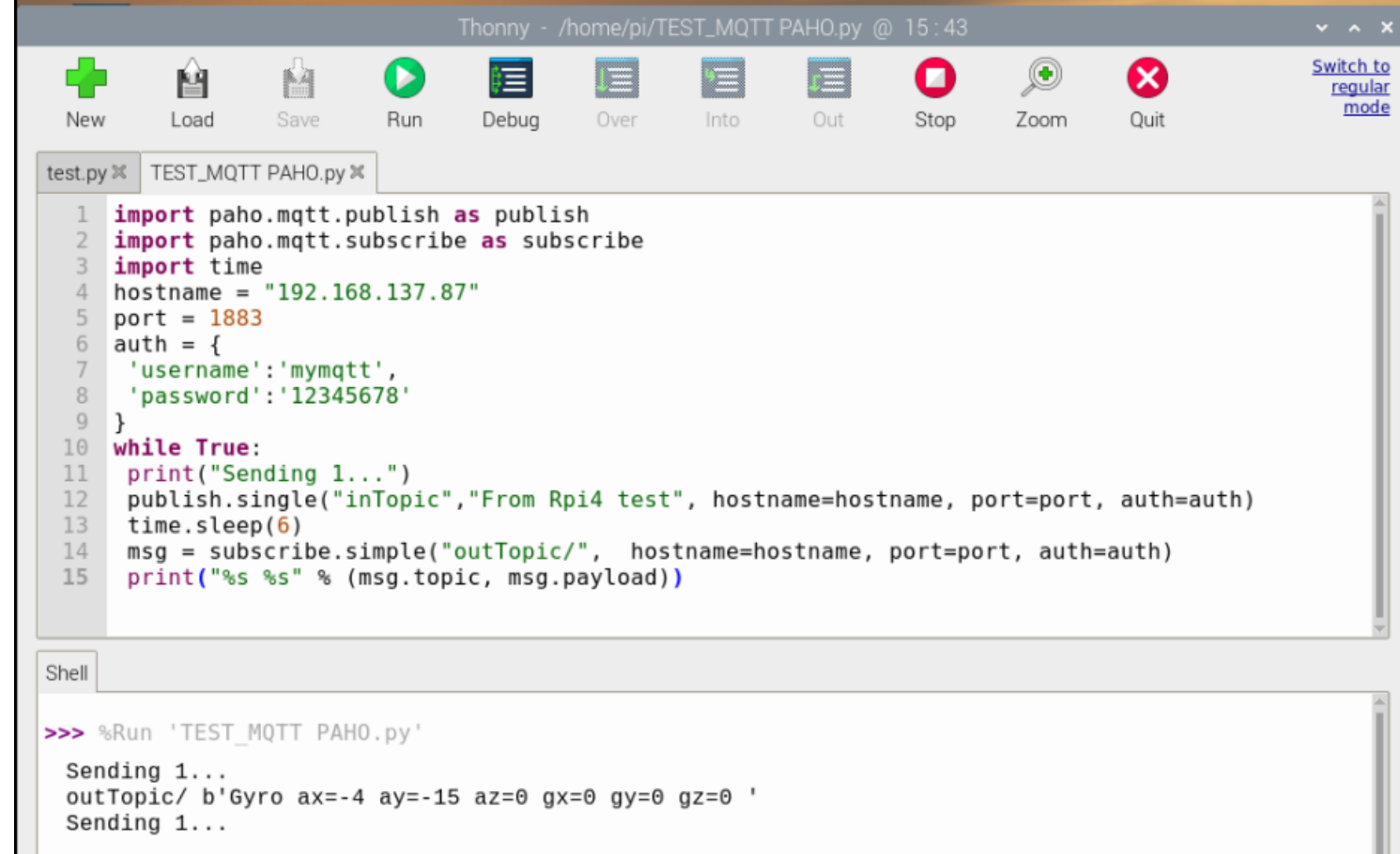
☐ Autoscroll

No line ending 115200 baud

subscript

```
import paho.mqtt.publish as publish
import paho.mqtt.subscribe as subscribe
import time
hostname = "192.168.137.87"
port = 1883
auth = {
    'username': 'mymqtt',
    'password': '12345678'
}
```

```
while True:
    print("Sending 1...")
    publish.single("inTopic", "From Rpi4 test", hostname=hostname, port=port, auth=auth)
    time.sleep(6)
    msg = subscribe.simple("outTopic/", hostname=hostname, port=port, auth=auth)
    print("%s %s" % (msg.topic, msg.payload))
```



Thonny - /home/pi/TEST_MQTT PAHO.py @ 15:43

New Load Save Run Debug Over Into Out Stop Zoom Quit

test.py TEST_MQTT PAHO.py

```
1 import paho.mqtt.publish as publish
2 import paho.mqtt.subscribe as subscribe
3 import time
4 hostname = "192.168.137.87"
5 port = 1883
6 auth = {
7     'username': 'mymqtt',
8     'password': '12345678'
9 }
10 while True:
11     print("Sending 1...")
12     publish.single("inTopic", "From Rpi4 test", hostname=hostname, port=port, auth=auth)
13     time.sleep(6)
14     msg = subscribe.simple("outTopic/", hostname=hostname, port=port, auth=auth)
15     print("%s %s" % (msg.topic, msg.payload))
```

Shell

```
>>> %Run 'TEST_MQTT PAHO.py'

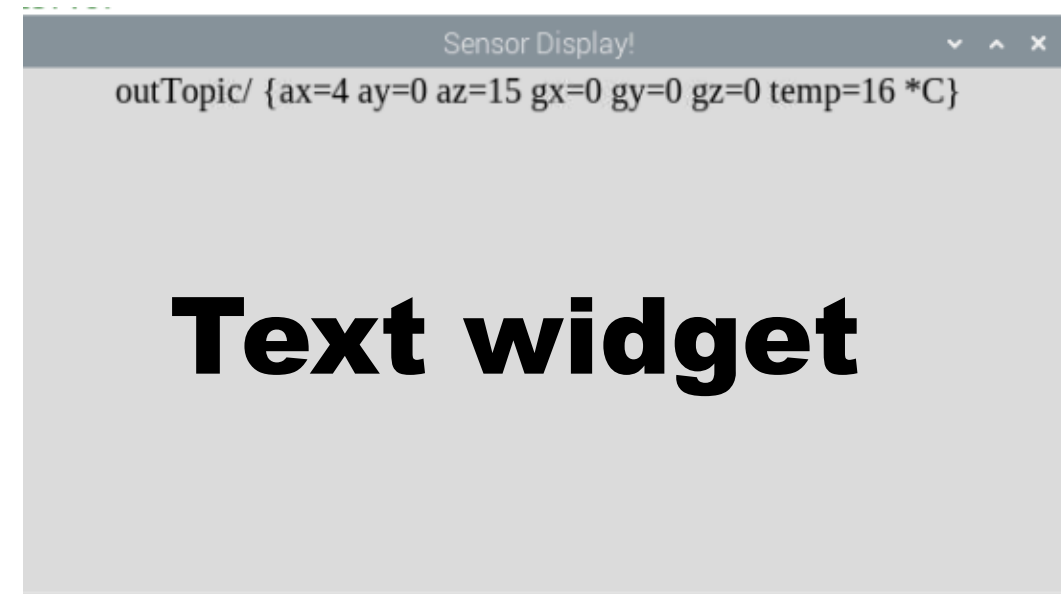
Sending 1...
outTopic/ b'Gyro ax=-4 ay=-15 az=0 gx=0 gy=0 gz=0 '
Sending 1...
```

```
import paho.mqtt.publish as publish
import paho.mqtt.subscribe as subscribe
from guizero import App
from guizero import App, Text
import time
```

```
hostname = "192.168.137.87"
port = 1883
auth = {
    'username':'mymqtt',
    'password':'12345678'
}
app = App(title='Sensor Display!',height=300,width=600)
```

```
def readsensor():
    publish.single("inTopic","From Rpi4 test", hostname=hostname, port=port, auth=auth)
    msg = subscribe.simple("outTopic/", hostname=hostname, port=port, auth=auth)
    print("%s %s " % (msg.topic, msg.payload))
    text.value = (msg.topic,msg.payload)
```

```
print("Sending 1...")
text = Text(app, text= "START", size=15, font="Times New Roman", color="black")
time.sleep(1)
text.repeat(1000,readsensor)
app.display()
```



Text widget background

```
import paho.mqtt.publish as publish
import paho.mqtt.subscribe as subscribe
from guizero import App
from guizero import App, Text
import time
```

```
hostname = "192.168.137.87"
```

```
port = 1883
```

```
auth = {
    'username': 'mymqtt',
    'password': '12345678'
}
```

```
app = App(title='Sensor Display!', height=300, width=600, bg="black")
```

```
def readsensor():
```

```
    publish.single("inTopic", "From Rpi4 test", hostname=hostname, port=port,
auth=auth)
```

```
    msg = subscribe.simple("outTopic/", hostname=hostname, port=port,
auth=auth)
```

```
    print("%s %s" % (msg.topic, msg.payload))
```

```
    text.value = (msg.topic, msg.payload)
```

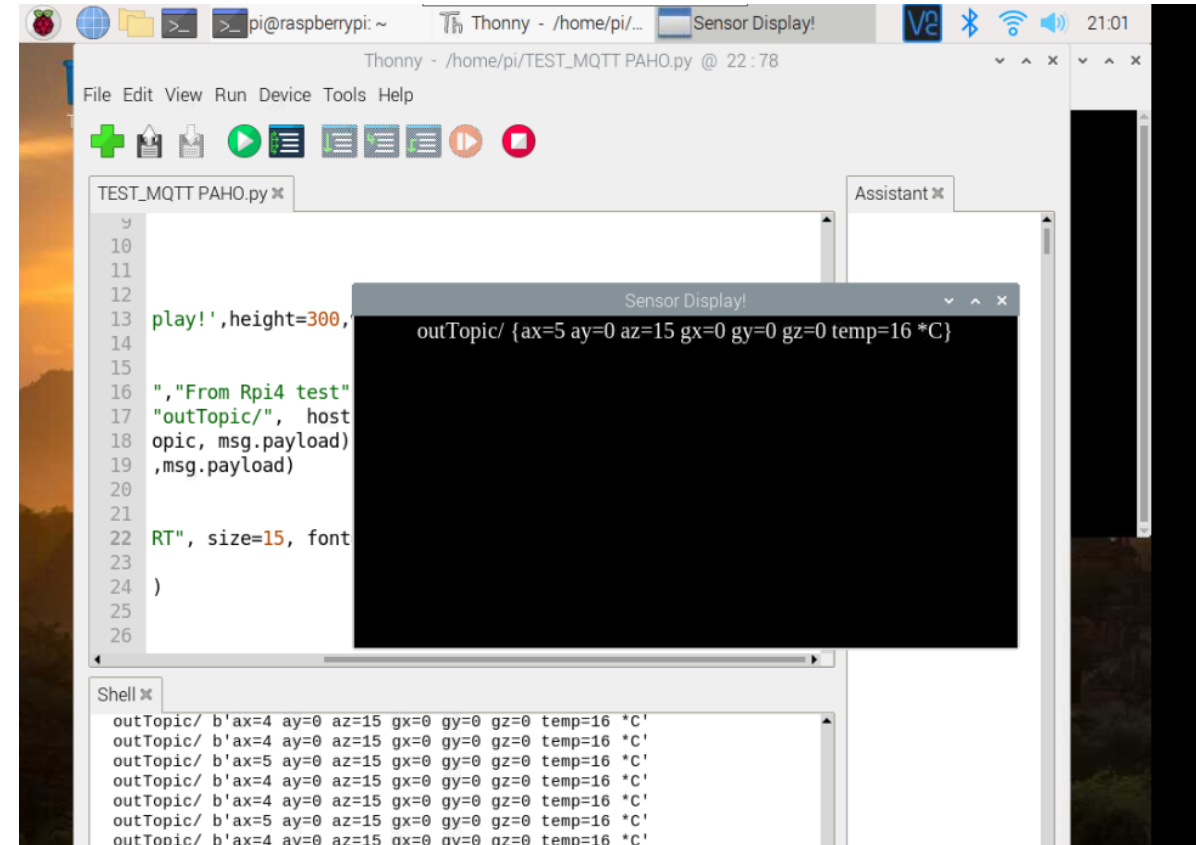
```
print("Sending 1...")
```

```
text = Text(app, text="START", size=15, font="Times New Roman", color="white")
```

```
time.sleep(1)
```

```
text.repeat(1000, readsensor)
```

```
app.display()
```



Text widget background layout grid

```
splittedString = msg.payload.decode().split(';')
```

```
import paho.mqtt.publish as publish
import paho.mqtt.subscribe as subscribe
from guizero import App
from guizero import App, Text
import time
```

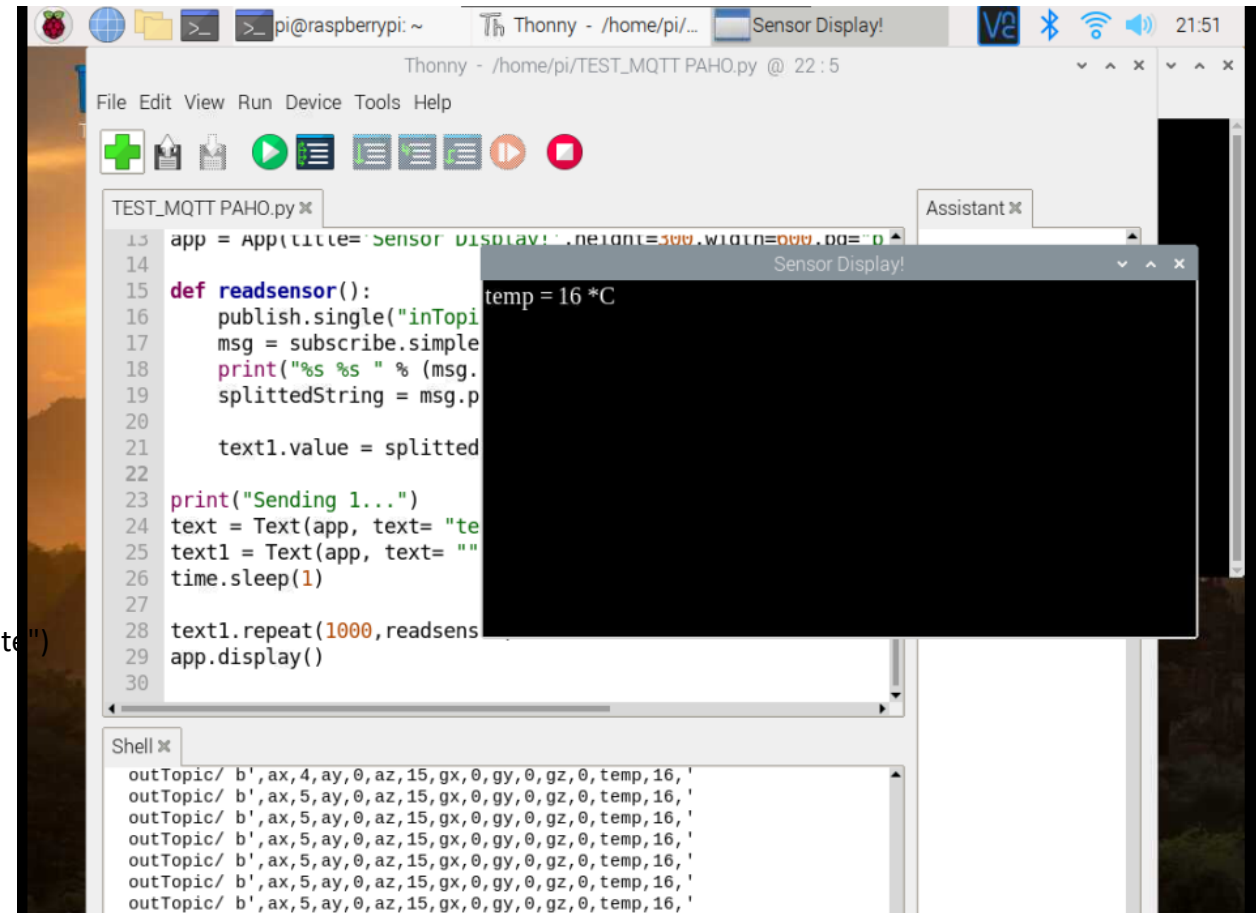
```
hostname = "192.168.137.87"
port = 1883
auth = {
    'username':'mymqtt',
    'password':'12345678'
}
app = App(title='Sensor Display!',height=300,width=600,bg="black",layout = "grid")
```

```
def readsensor():
    publish.single("inTopic","From Rpi4 test", hostname=hostname, port=port, auth=auth)
    msg = subscribe.simple("outTopic/", hostname=hostname, port=port, auth=auth)
    print("%s %s " % (msg.topic, msg.payload))
    splittedString = msg.payload.decode().split(';')
```

```
    text1.value = splittedString[14]+ " *C"
```

```
print("Sending 1...")
text = Text(app, text= "temp =", size=15, grid=[2,1], font="Times New Roman", color="white")
text1 = Text(app, text= "", size=15, grid=[3,1], font="Times New Roman", color="white")
time.sleep(1)
```

```
text1.repeat(1000,readsensor)
app.display()
```



```

import paho.mqtt.publish as publish
import paho.mqtt.subscribe as subscribe
from guizero import App
from guizero import App, Text
import time

```

```
hostname = "192.168.137.87"
```

```
port = 1883
```

```

auth = {
    'username': 'mymqtt',
    'password': '12345678'
}

```

```
app = App(title='Sensor Display!', height=300, width= 300, bg="black")
```

```
def readsensor():
```

```
    publish.single("inTopic", "From Rpi4 test", hostname=hostname, port=port, auth=auth)
```

```
    msg = subscribe.simple("outTopic/", hostname=hostname, port=port, auth=auth)
```

```
    print("%s %s " % (msg.topic, msg.payload))
```

```
    splittedString = msg.payload.decode().split(',')
```

```
    text1.value = splittedString[14]+ " °C"
```

```
print("Sending 1...")
```

```
text = Text(app, text= "อุณหภูมิ", size=30, align="top", font="Times New Roman", color="white")
```

```
text1 = Text(app, text= "", size=25, align="top", font="Times New Roman", color="white")
```

```
text2 = Text(app, text= "ปราจีนบุรี", size=20, font="Times New Roman", color="white")
```

```
time.sleep(1)
```

```
text.repeat(1000, readsensor)
```

```
text1.repeat(1000, readsensor)
```

```
app.display()
```

```

Thonny - /home/pi/... Sensor Display!
Thonny - /home/pi/TEST_MQTT PAHO.py @ 30:11
File Edit View Run Device Tools Help

TEST_MQTT PAHO.py x
13 app = App(title='Sensor Display!')
14
15 def readsensor():
16     publish.single("inTopic", "From Rpi4 test", hostname=hostname, port=port, auth=auth)
17     msg = subscribe.simple("outTopic/", hostname=hostname, port=port, auth=auth)
18     print("%s %s " % (msg.topic, msg.payload))
19     splittedString = msg.payload.decode().split(',')
20     text1.value = splittedString[14]+ " °C"
21
22 print("Sending 1...")
23 text = Text(app, text= "อุณหภูมิ", size=30, align="top", font="Times New Roman", color="white")
24 text1 = Text(app, text= "", size=25, align="top", font="Times New Roman", color="white")
25 text2 = Text(app, text= "ปราจีนบุรี", size=20, font="Times New Roman", color="white")
26
27 time.sleep(1)
28 text.repeat(1000, readsensor)
29 text1.repeat(1000, readsensor)
30 app.display()
31

Shell x
outTopic/ b', ax, 1, ay, 1, az, -17, gx, 0, gy, 0, gz, 0, temp, 16, '
outTopic/ b', ax, 1, ay, 1, az, -17, gx, 0, gy, 0, gz, 0, temp, 16, '
outTopic/ b', ax, 1, ay, 1, az, -17, gx, 0, gy, 0, gz, 0, temp, 16, '
outTopic/ b', ax, 1, ay, 1, az, -17, gx, 0, gy, 0, gz, 0, temp, 16, '

```

BUTTON

```
import paho.mqtt.publish as publish
import paho.mqtt.subscribe as subscribe
from guizero import App
from guizero import App, Text
from guizero import App, PushButton
import time

i = 0
hostname = "192.168.137.87"
port = 1883

auth = {
    'username': 'mymqtt',
    'password': '12345678'
}
app = App(title='Sensor Display!', height=300, width=300, bg="blue")
def start():
    start_button.disable()
    stop_button.enable()
    print("RELAY1 ON")
    publish.single("inTopic", "RELAY1 ON", hostname=hostname, port=port, auth=auth)

def stop():
    start_button.enable()
    stop_button.disable()
    print("RELAY1 OFF")
    publish.single("inTopic", "RELAY1 OFF", hostname=hostname, port=port, auth=auth)

def readsensor():
    global i
    i = i + 1
    msg = subscribe.simple("outTopic/", hostname=hostname, port=port, auth=auth)
    print("%s %s " % (msg.topic, msg.payload))
    splittedString = msg.payload.decode().split(',')
    text1.value = splittedString[14] + " °C"
    print(i)

print("Sending 1...")
text = Text(app, text="อุณหภูมิ", size=30, align="top", font="Times New Roman", color="white")
text1 = Text(app, text="", size=25, align="top", font="Times New Roman", color="white")
text2 = Text(app, text="ปราจีนบุรี", size=20, font="Times New Roman", color="white")

start_button = PushButton(app, command=start, text="RELAY1 ON")
stop_button = PushButton(app, command=stop, text="RELAY1 OFF", enabled=False)
time.sleep(1)
text.repeat(1000, readsensor)
text1.repeat(1000, readsensor)
app.display()
```

