

การสร้าง MQTT Server บน Raspberry Pi เพื่อใช้งาน Chatbot LINE ในฟาร์มอัจฉริยะ
Chatbot LINE from Raspberry Pi MQTT Server for Smart Farming

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6/6 - คำถามท้ายบทเพื่อทดสอบความเข้าใจ

Quiz_301 – Blynk with Node-RED

- ทดสอบควบคุม 4 LED ด้วย Raspberry Pi ผ่าน Node-RED
- เพิ่มเติมให้ส่งข้อมูล Temperature ไปแสดงที่ Gauge บน Blynk

Node-RED Code

```
[
  {
    "id": "dfffb1502c3eae6c",
    "type": "tab",
    "label": "Q301-0101",
    "disabled": false,
    "info": "",
    "env": []
  },
  {
    "id": "e76f6e2313c72d81",
    "type": "blynk-iot-in-write",
    "z": "dfffb1502c3eae6c",
    "name": "",
    "pin": "0",
    "pin_all": false,
    "client": "ab1d4c09e1839ba9",
    "x": 230,
    "y": 140,
    "wires": [
      [
        "23ded503dec1d0d4"
      ]
    ]
  },
  {
    "id": "2aaf67f44c16e9f0",
    "type": "blynk-iot-in-write",
```

```

    "z": "dfffb1502c3eae6c",
    "name": "",
    "pin": "1",
    "pin_all": 0,
    "client": "ab1d4c09e1839ba9",
    "x": 230,
    "y": 200,
    "wires": [
      [
        "98eb1b7fc15cac1b"
      ]
    ]
  },
  {
    "id": "b0d1341f3399701c",
    "type": "blynk-iot-in-write",
    "z": "dfffb1502c3eae6c",
    "name": "",
    "pin": "2",
    "pin_all": 0,
    "client": "ab1d4c09e1839ba9",
    "x": 230,
    "y": 260,
    "wires": [
      [
        "9aa1f7f09a97fbe0"
      ]
    ]
  },
  {
    "id": "8f8fe54a60f8704f",
    "type": "blynk-iot-in-write",
    "z": "dfffb1502c3eae6c",
    "name": "",
    "pin": "3",
    "pin_all": 0,
    "client": "ab1d4c09e1839ba9",
    "x": 230,
    "y": 320,

```

```

    "wires": [
      [
        "a98d8b1201ddb4fc"
      ]
    ]
  },
  {
    "id": "cebb6018060d7824",
    "type": "debug",
    "z": "dffb1502c3eae6c",
    "name": "",
    "active": true,
    "tosidebar": true,
    "console": false,
    "tostatus": false,
    "complete": "false",
    "statusVal": "",
    "statusType": "auto",
    "x": 910,
    "y": 380,
    "wires": []
  },
  {
    "id": "2267963996589c42",
    "type": "blynk-iot-out-write",
    "z": "dffb1502c3eae6c",
    "name": "",
    "pin": "4",
    "pinmode": 0,
    "client": "ab1d4c09e1839ba9",
    "x": 740,
    "y": 600,
    "wires": []
  },
  {
    "id": "94700921cad1a81",
    "type": "rpi-dht22",
    "z": "dffb1502c3eae6c",
    "name": "",

```

```

"topic": "rpi-dht22",
"dht": 22,
"pintype": "0",
"pin": "4",
"x": 300,
"y": 480,
"wires": [
  [
    "2267963996589c42",
    "7f368d2ad74d89d4",
    "dda967c453255a84"
  ]
]
},
{
  "id": "d2e24577f9ae5d91",
  "type": "inject",
  "z": "dfffb1502c3eae6c",
  "name": "",
  "props": [
    {
      "p": "payload"
    },
    {
      "p": "topic",
      "vt": "str"
    }
  ],
  "repeat": "10",
  "crontab": "",
  "once": false,
  "onceDelay": 0.1,
  "topic": "",
  "payload": "",
  "payloadType": "date",
  "x": 150,
  "y": 480,
  "wires": [
    [

```

```

        "94700921cad1a81"
    ]
]
},
{
    "id": "50906e1c5b229ab0",
    "type": "blynk-iot-out-write",
    "z": "dfffb1502c3eae6c",
    "name": "",
    "pin": "5",
    "pinmode": 0,
    "client": "ab1d4c09e1839ba9",
    "x": 740,
    "y": 540,
    "wires": []
},
{
    "id": "7f368d2ad74d89d4",
    "type": "change",
    "z": "dfffb1502c3eae6c",
    "name": "",
    "rules": [
        {
            "t": "set",
            "p": "payload",
            "pt": "msg",
            "to": "humidity",
            "tot": "msg"
        }
    ],
    "action": "",
    "property": "",
    "from": "",
    "to": "",
    "reg": false,
    "x": 520,
    "y": 480,
    "wires": [
        [

```

```

        "50906e1c5b229ab0",
        "d91e02b8f04b7ec3"
    ]
]
},
{
    "id": "dda967c453255a84",
    "type": "function",
    "z": "dffb1502c3eaef6c",
    "name": "",
    "func": "var    data = {}\ndata.Tempp = msg.payload;\n\nmsg.payload = data\n\nreturn
msg;",
    "outputs": 1,
    "noerr": 0,
    "initialize": "",
    "finalize": "",
    "libs": [],
    "x": 720,
    "y": 380,
    "wires": [
        [
            "cebb6018060d7824"
        ]
    ]
},
{
    "id": "d91e02b8f04b7ec3",
    "type": "function",
    "z": "dffb1502c3eaef6c",
    "name": "",
    "func": "var    data = {}\ndata.Humid = msg.payload;\n\nmsg.payload = data\n\nreturn
msg;",
    "outputs": 1,
    "noerr": 0,
    "initialize": "",
    "finalize": "",
    "libs": [],
    "x": 720,
    "y": 420,

```

```

    "wires": [
      [
        "cebb6018060d7824"
      ]
    ]
  },
  {
    "id": "23ded503dec1d0d4",
    "type": "rpi-gpio out",
    "z": "dfffb1502c3eaef6c",
    "name": "",
    "pin": "26",
    "set": "",
    "level": "0",
    "freq": "",
    "out": "out",
    "bcm": true,
    "x": 520,
    "y": 140,
    "wires": []
  },
  {
    "id": "98eb1b7fc15cac1b",
    "type": "rpi-gpio out",
    "z": "dfffb1502c3eaef6c",
    "name": "",
    "pin": "19",
    "set": "",
    "level": "0",
    "freq": "",
    "out": "out",
    "bcm": true,
    "x": 520,
    "y": 200,
    "wires": []
  },
  {
    "id": "9aa1f7f09a97fbe0",
    "type": "rpi-gpio out",

```

```

    "z": "dfffb1502c3eae6c",
    "name": "",
    "pin": "16",
    "set": "",
    "level": "0",
    "freq": "",
    "out": "out",
    "bcm": true,
    "x": 520,
    "y": 260,
    "wires": []
  },
  {
    "id": "a98d8b1201ddb4fc",
    "type": "rpi-gpio out",
    "z": "dfffb1502c3eae6c",
    "name": "",
    "pin": "20",
    "set": "",
    "level": "0",
    "freq": "",
    "out": "out",
    "bcm": true,
    "x": 520,
    "y": 320,
    "wires": []
  },
  {
    "id": "ab1d4c09e1839ba9",
    "type": "blynk-iot-client",
    "name": "",
    "path": "blynk.cloud",
    "key": "1Bq5LDdI8r_G-XbkXv44o_ht0E2iqDH0",
    "tpl": "TMPL6mzpuFkns",
    "dbg_all": false,
    "dbg_log": false,
    "dbg_prop": false,
    "dbg_sync": false,
    "dbg_low": false,

```

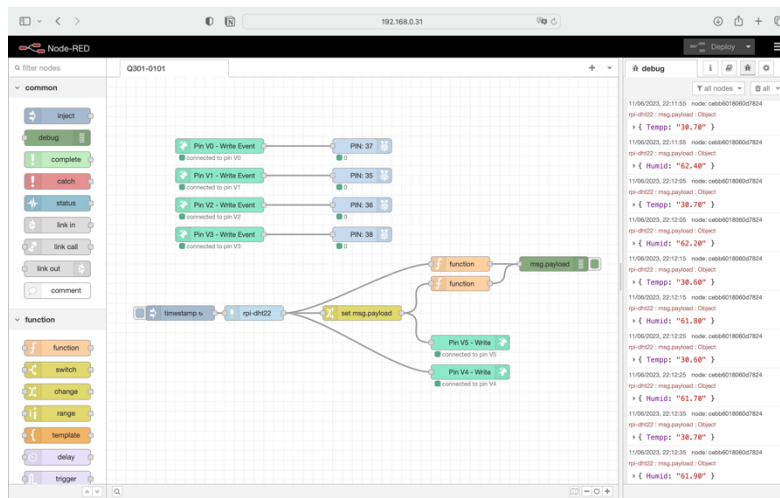


```

"dbg_pins": "",
"multi_cmd": false,
"enabled": true
}
]

```

Node-RED Flow



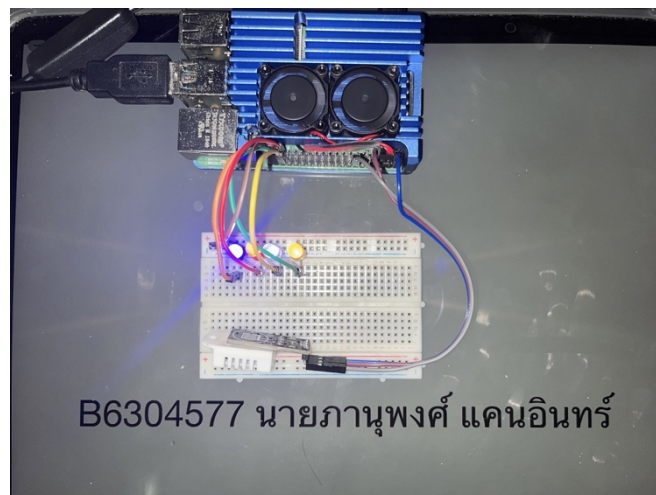
หน้าจอ Blynk



รูปการทดสอบ 1



รูปการทดสอบ 2



Quiz_302 – MQTT Client with Node-RED

- ทดสอบควบคุม 4 LED ด้วย Raspberry Pi ผ่าน Node-RED
- เพิ่มเติมให้ส่งข้อมูล Temperature ไปแสดงที่ บน Server

Node-RED Code

```
[
  {
    "id": "51676f5ae1675c99",
    "type": "tab",
    "label": "Q302-0101",
    "disabled": false,
    "info": "",
    "env": []
  },
  {
    "id": "ede8af72fbce249f",
    "type": "debug",
    "z": "51676f5ae1675c99",
    "name": "",
    "active": true,
    "tosidebar": true,
    "console": false,
    "tostatus": false,
    "complete": "false",
    "statusVal": "",
    "statusType": "auto",
    "x": 750,
    "y": 40,
    "wires": []
  },
  {
    "id": "250656607fc84a6b",
    "type": "change",
    "z": "51676f5ae1675c99",
    "name": "Change: LED1",
    "rules": [
      {
        "t": "change",
```

```

        "p": "payload",
        "pt": "msg",
        "from": "OFF1",
        "fromt": "str",
        "to": "false",
        "tot": "bool"
    },
    {
        "t": "change",
        "p": "payload",
        "pt": "msg",
        "from": "ON1",
        "fromt": "str",
        "to": "true",
        "tot": "bool"
    }
],
"action": "",
"property": "",
"from": "",
"to": "",
"reg": false,
"x": 460,
"y": 120,
"wires": [
    [
        "9f24efe46f80ece3"
    ]
]
},
{
    "id": "3ef021806c6b9745",
    "type": "inject",
    "z": "51676f5ae1675c99",
    "name": "ON1",
    "props": [
        {
            "p": "payload"
        }
    ],

```

```

        {
            "p": "topic",
            "vt": "str"
        }
    ],
    "repeat": "",
    "crontab": "",
    "once": false,
    "onceDelay": 0.1,
    "topic": "",
    "payload": "ON1",
    "payloadType": "str",
    "x": 230,
    "y": 300,
    "wires": [
        [
            "4f81208d4aa232bb"
        ]
    ]
},
{
    "id": "ebb6f203af356f41",
    "type": "inject",
    "z": "51676f5ae1675c99",
    "name": "OFF1",
    "props": [
        {
            "p": "payload"
        },
        {
            "p": "topic",
            "vt": "str"
        }
    ]
},
    "repeat": "",
    "crontab": "",
    "once": false,
    "onceDelay": 0.1,
    "topic": "",

```

```

    "payload": "OFF1",
    "payloadType": "str",
    "x": 230,
    "y": 340,
    "wires": [
      [
        "4f81208d4aa232bb"
      ]
    ]
  },
  {
    "id": "660c806e35360b3a",
    "type": "inject",
    "z": "51676f5ae1675c99",
    "name": "ON2",
    "props": [
      {
        "p": "payload"
      },
      {
        "p": "topic",
        "vt": "str"
      }
    ],
    "repeat": "",
    "crontab": "",
    "once": false,
    "onceDelay": 0.1,
    "topic": "",
    "payload": "ON2",
    "payloadType": "str",
    "x": 230,
    "y": 400,
    "wires": [
      [
        "4f81208d4aa232bb"
      ]
    ]
  },

```

```

{
  "id": "b120aaa6f163009a",
  "type": "inject",
  "z": "51676f5ae1675c99",
  "name": "OFF2",
  "props": [
    {
      "p": "payload"
    },
    {
      "p": "topic",
      "vt": "str"
    }
  ],
  "repeat": "",
  "crontab": "",
  "once": false,
  "onceDelay": 0.1,
  "topic": "",
  "payload": "OFF2",
  "payloadType": "str",
  "x": 230,
  "y": 440,
  "wires": [
    [
      "4f81208d4aa232bb"
    ]
  ]
},
{
  "id": "affad71055d20fc9",
  "type": "inject",
  "z": "51676f5ae1675c99",
  "name": "ON3",
  "props": [
    {
      "p": "payload"
    },
    {

```

```

        "p": "topic",
        "vt": "str"
    }
],
"repeat": "",
"crontab": "",
"once": false,
"onceDelay": 0.1,
"topic": "",
"payload": "ON3",
"payloadType": "str",
"x": 230,
"y": 500,
"wires": [
    [
        "4f81208d4aa232bb"
    ]
]
},
{
    "id": "53898654fded8848",
    "type": "inject",
    "z": "51676f5ae1675c99",
    "name": "OFF3",
    "props": [
        {
            "p": "payload"
        },
        {
            "p": "topic",
            "vt": "str"
        }
    ]
},
"repeat": "",
"crontab": "",
"once": false,
"onceDelay": 0.1,
"topic": "",
"payload": "OFF3",

```



```

    "payloadType": "str",
    "x": 230,
    "y": 540,
    "wires": [
      [
        "4f81208d4aa232bb"
      ]
    ]
  },
  {
    "id": "cb65d8fe58a56115",
    "type": "inject",
    "z": "51676f5ae1675c99",
    "name": "ON4",
    "props": [
      {
        "p": "payload"
      },
      {
        "p": "topic",
        "vt": "str"
      }
    ],
    "repeat": "",
    "crontab": "",
    "once": false,
    "onceDelay": 0.1,
    "topic": "",
    "payload": "ON4",
    "payloadType": "str",
    "x": 230,
    "y": 600,
    "wires": [
      [
        "4f81208d4aa232bb"
      ]
    ]
  },
  {

```

```

    "id": "90648d0de7b7d03c",
    "type": "inject",
    "z": "51676f5ae1675c99",
    "name": "OFF4",
    "props": [
      {
        "p": "payload"
      },
      {
        "p": "topic",
        "vt": "str"
      }
    ],
    "repeat": "",
    "crontab": "",
    "once": false,
    "onceDelay": 0.1,
    "topic": "",
    "payload": "OFF4",
    "payloadType": "str",
    "x": 230,
    "y": 640,
    "wires": [
      [
        "4f81208d4aa232bb"
      ]
    ]
  },
  {
    "id": "fc71a41e06c42f96",
    "type": "change",
    "z": "51676f5ae1675c99",
    "name": "Change: LED2",
    "rules": [
      {
        "t": "change",
        "p": "payload",
        "pt": "msg",
        "from": "OFF2",

```

```

        "fromt": "str",
        "to": "false",
        "tot": "bool"
    },
    {
        "t": "change",
        "p": "payload",
        "pt": "msg",
        "from": "ON2",
        "fromt": "str",
        "to": "true",
        "tot": "bool"
    }
],
"action": "",
"property": "",
"from": "",
"to": "",
"reg": false,
"x": 460,
"y": 160,
"wires": [
    [
        "73c248834cd70d73"
    ]
]
},
{
    "id": "b33943e6fd663555",
    "type": "change",
    "z": "51676f5ae1675c99",
    "name": "Change: LED3",
    "rules": [
        {
            "t": "change",
            "p": "payload",
            "pt": "msg",
            "from": "OFF3",
            "fromt": "str",

```

```

        "to": "false",
        "tot": "bool"
    },
    {
        "t": "change",
        "p": "payload",
        "pt": "msg",
        "from": "ON3",
        "fromt": "str",
        "to": "true",
        "tot": "bool"
    }
],
"action": "",
"property": "",
"from": "",
"to": "",
"reg": false,
"x": 460,
"y": 200,
"wires": [
    [
        "a7be2b60ab8da531"
    ]
]
},
{
    "id": "b01f6765bf25358a",
    "type": "change",
    "z": "51676f5ae1675c99",
    "name": "Change: LED4",
    "rules": [
        {
            "t": "change",
            "p": "payload",
            "pt": "msg",
            "from": "OFF4",
            "fromt": "str",
            "to": "false",

```

```

        "tot": "bool"
    },
    {
        "t": "change",
        "p": "payload",
        "pt": "msg",
        "from": "ON4",
        "fromt": "str",
        "to": "true",
        "tot": "bool"
    }
],
"action": "",
"property": "",
"from": "",
"to": "",
"reg": false,
"x": 460,
"y": 240,
"wires": [
    [
        "f72f99cf183ec4fb"
    ]
]
},
{
    "id": "c82886c94c3c8693",
    "type": "inject",
    "z": "51676f5ae1675c99",
    "name": "",
    "props": [
        {
            "p": "payload"
        },
        {
            "p": "topic",
            "vt": "str"
        }
    ]
},

```

```

    "repeat": "60",
    "crontab": "",
    "once": false,
    "onceDelay": 0.1,
    "topic": "",
    "payload": "",
    "payloadType": "date",
    "x": 210,
    "y": 720,
    "wires": [
      [
        "31a5cb37583fb4c3"
      ]
    ]
  },
  {
    "id": "31a5cb37583fb4c3",
    "type": "rpi-dht22",
    "z": "51676f5ae1675c99",
    "name": "",
    "topic": "rpi-dht22",
    "dht": 22,
    "pintype": 1,
    "pin": "32",
    "x": 380,
    "y": 720,
    "wires": [
      [
        "891f6a710fa6a730"
      ]
    ]
  },
  {
    "id": "891f6a710fa6a730",
    "type": "function",
    "z": "51676f5ae1675c99",
    "name": "",
    "func": "var    data = {};\ndata.Tempp = msg.payload;\ndata.Humid =
msg.humidity;\nmsg.payload  = data;\nreturn  msg;",

```

```

    "outputs": 1,
    "noerr": 0,
    "initialize": "",
    "finalize": "",
    "libs": [],
    "x": 540,
    "y": 720,
    "wires": [
      [
        "4f81208d4aa232bb"
      ]
    ]
  },
  {
    "id": "d25587a16e46fe2c",
    "type": "mqtt in",
    "z": "51676f5ae1675c99",
    "name": "",
    "topic": "control/leds",
    "qos": "2",
    "datatype": "auto-detect",
    "broker": "f87103da3a72f890",
    "nl": false,
    "rap": true,
    "rh": 0,
    "inputs": 0,
    "x": 150,
    "y": 40,
    "wires": [
      [
        "ede8af72fbce249f",
        "250656607fc84a6b",
        "fc71a41e06c42f96",
        "b33943e6fd663555",
        "b01f6765bf25358a"
      ]
    ]
  },
  {
    {

```

```

    "id": "4f81208d4aa232bb",
    "type": "mqtt out",
    "z": "51676f5ae1675c99",
    "name": "",
    "topic": "control/leds",
    "qos": "0",
    "retain": "true",
    "respTopic": "",
    "contentType": "",
    "userProps": "",
    "correl": "",
    "expiry": "",
    "broker": "f87103da3a72f890",
    "x": 750,
    "y": 460,
    "wires": []
  },
  {
    "id": "9f24efe46f80ece3",
    "type": "rpi-gpio out",
    "z": "51676f5ae1675c99",
    "name": "",
    "pin": "26",
    "set": "",
    "level": "0",
    "freq": "",
    "out": "out",
    "bcm": true,
    "x": 740,
    "y": 120,
    "wires": []
  },
  {
    "id": "73c248834cd70d73",
    "type": "rpi-gpio out",
    "z": "51676f5ae1675c99",
    "name": "",
    "pin": "19",
    "set": "",

```



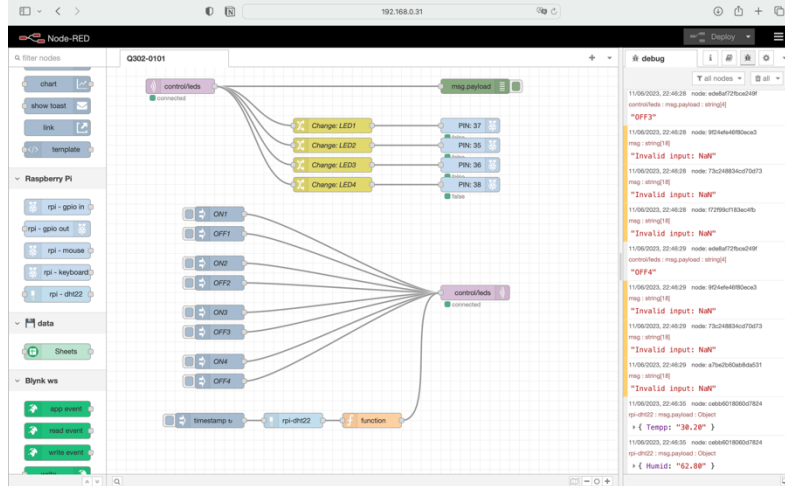
```

    "level": "0",
    "freq": "",
    "out": "out",
    "bcm": true,
    "x": 740,
    "y": 160,
    "wires": []
  },
  {
    "id": "a7be2b60ab8da531",
    "type": "rpi-gpio out",
    "z": "51676f5ae1675c99",
    "name": "",
    "pin": "16",
    "set": "",
    "level": "0",
    "freq": "",
    "out": "out",
    "bcm": true,
    "x": 740,
    "y": 200,
    "wires": []
  },
  {
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    "type": "rpi-gpio out",
    "z": "51676f5ae1675c99",
    "name": "",
    "pin": "20",
    "set": "",
    "level": "0",
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    "bcm": true,
    "x": 740,
    "y": 240,
    "wires": []
  },
  {

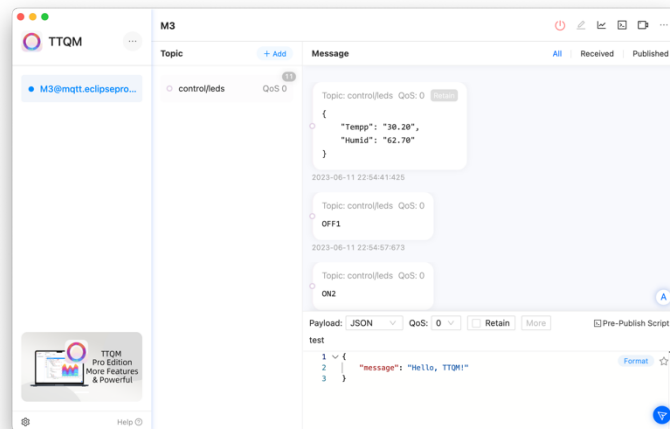
```

```
"id": "f87103da3a72f890",
"type": "mqtt-broker",
"name": "MQTT",
"broker": "mqtt.eclipseprojects.io",
"port": "1883",
"clientId": "",
"autoConnect": true,
"usetls": false,
"protocolVersion": "4",
"keepalive": "60",
"cleansession": true,
"birthTopic": "",
"birthQos": "0",
"birthPayload": "",
"birthMsg": {},
"closeTopic": "",
"closeQos": "0",
"closePayload": "",
"closeMsg": {},
"willTopic": "",
"willQos": "0",
"willPayload": "",
"willMsg": {},
"sessionExpiry": ""
}
]
```

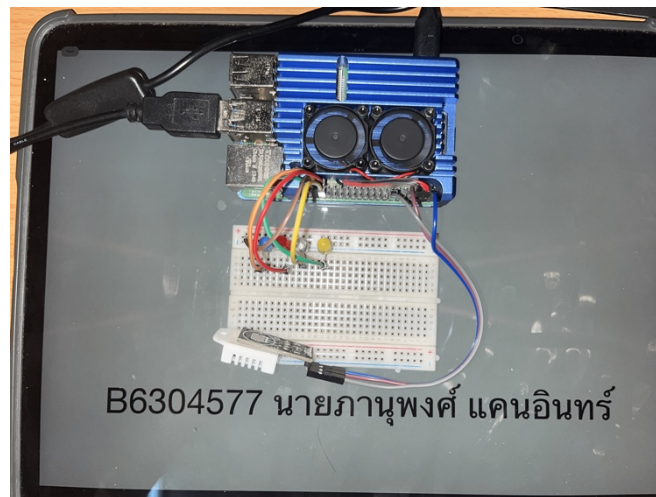
Node-RED Flow



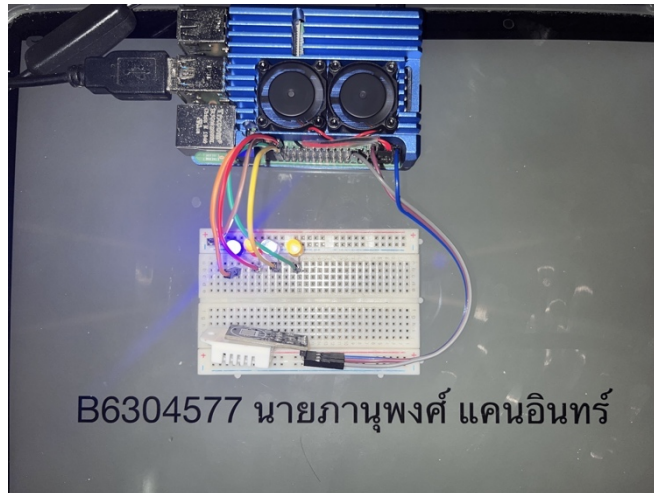
หน้าจอ MQTT Lens



รูปการทดสอบ 1



รูปการทดสอบ 2



Quiz_303 – MQTT Server on Raspberry Pi

- ทดสอบควบคุม 4 LED ด้วย Raspberry Pi ผ่าน Node-RED ไปยัง private server
- เพิ่มเติมให้ส่งข้อมูล Temperature ไปแสดงที่ บน private Server

Client ID: myhome

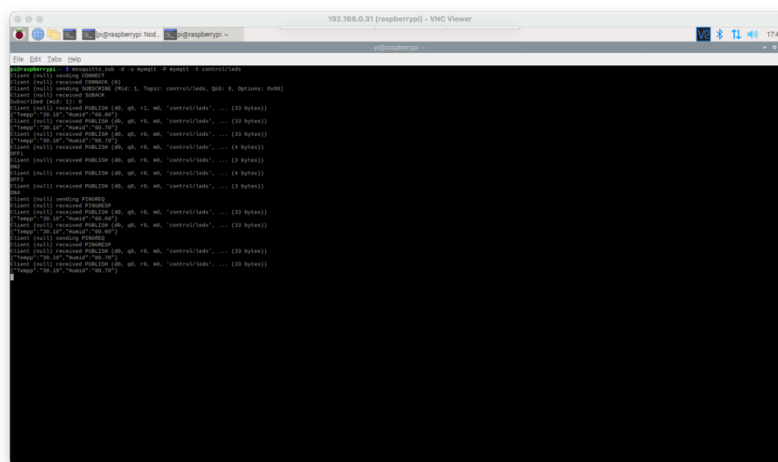
Server: 192.168.0.31

Port: 1883

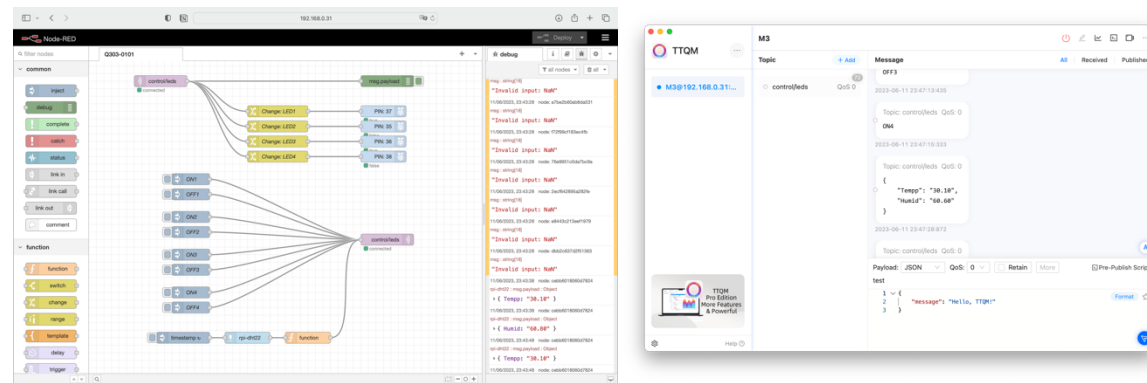
User Name: mymqtt

Password: mymqtt

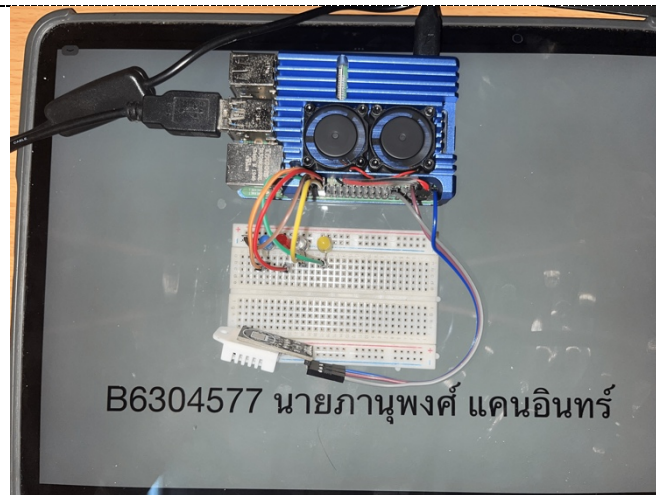
โปรแกรมที่ใช้ทดสอบ



รูปถ่ายหน้า Web Browser



รูปการทดสอบ 1



รูปการทดสอบ 2

