

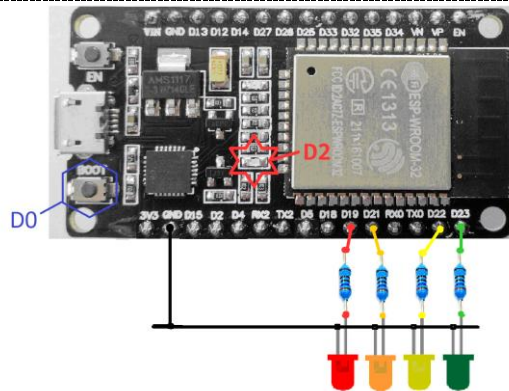
แนวทางการใช้งานอินเทอร์เน็ตของสรรพสิ่งในระบบการผลิต

IoT Approaches to Manufacturing System

ชื่อ-สกุล : อนุรักษ์ โตะแอ รหัสนักศึกษา : B6310158

3/3. คำถามท้ายบทเพื่อทดสอบความเข้าใจ

Quiz_301 – 4 External LED Control



< Test Code >

Quiz301 | Arduino 1.8.19
File Edit Sketch Tools Help



Quiz301

```
1 //Blynk
2 #define BLYNK_PRINT Serial
3
4 #define BLYNK_TEMPLATE_ID "TMPL60ruc5lix"
5 #define BLYNK_TEMPLATE_NAME "Quiz301"
6 #define BLYNK_AUTH_TOKEN "JXNxoGLwEiQjT7CDe2sKUH-ZtLJZjXpw"
7 #include <WiFi.h>
8 #include <WiFiClient.h>
9 #include <BlynkSimpleEsp32.h>
10
11 // Your WiFi credentials.
12 // Set password to "" for open networks.
13 char ssid[] = "jjjj";
14 char pass[] = "0846894722";
15
16 void setup()
17 {
18   // Debug console
19   Serial.begin(9600);
20
21   Blynk.begin(BLYNK_AUTH_TOKEN, ssid, pass);
22 }
23
24 void loop()
25 {
26   Blynk.run();
27 }
```

Done uploading.

leaving...
Hard resetting via RTS pin...

6

```
//Blynk
#define BLYNK_PRINT Serial
#define BLYNK_TEMPLATE_ID "TMPL60ruc5lix"
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}

void loop()
{
  Blynk.run();
}

```

รูปหน้าจอ Blynk



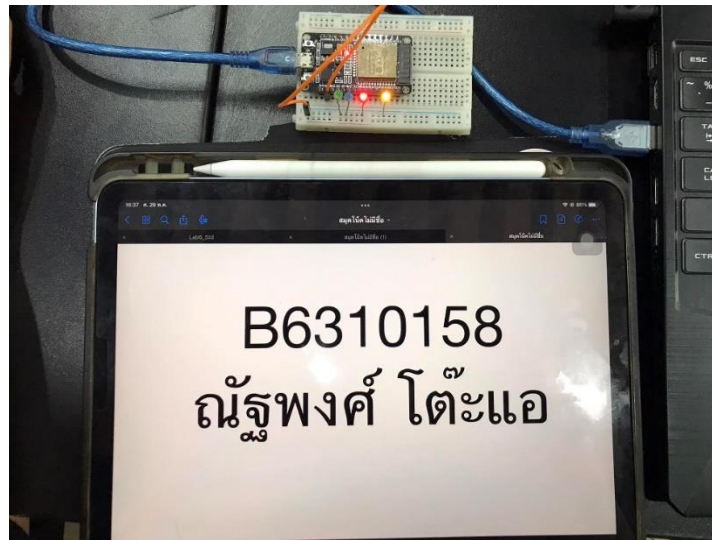
B Quiz301 Edit

Home Metadata **Datstreams** Events Automations Web Dashboard Mobile Dashboard

Search datstream

ID	Name	Alias	Color	Pin	Data Type	Units	Is Row	Min	Max	Decimals	Default Value
1	led1	led1	■	2	Integer		false	0	1	—	0
2	led2	led2	■	4	Integer		false	0	1	—	0
3	led3	led3	■	5	Integer		false	0	1	—	0
4	led4	led4	■	3	Integer		false	0	1	—	0

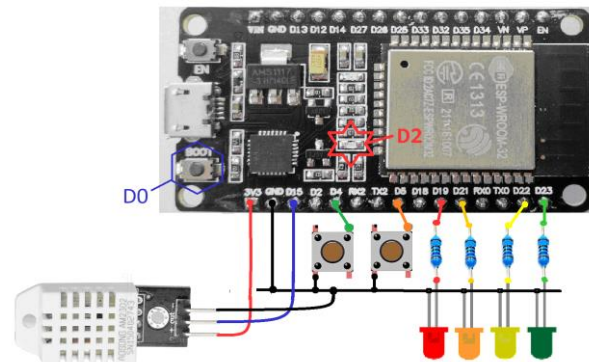
รูปการต่อวงจร - 1



รูปการต่อวงจร - 2



Quiz_302 – DHT22 + 4 LED + 2 Switch



< Test Code >

```

Quiz302 (Arduino 1.8.19)
File Edit Sketch Tools Help

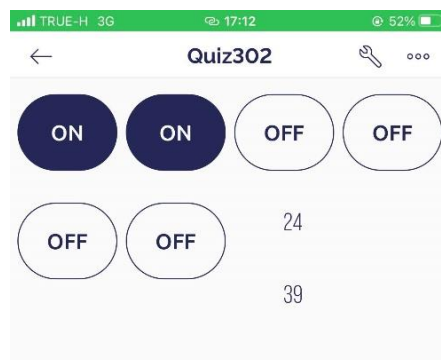
Quiz302
29 pinMode(btnPin, INPUT_PULLDOWN);
30 pinMode(btnPin2, INPUT_PULLDOWN);
31 Blynk.begin(BLYNK_AUTH_TOKEN, ssid, pass);
32 timer.setInterval(1000L, myTimerEvent);
33
34 void myTimerEvent() {
35   float humidity = dht.getHumidity();
36   float temperature = dht.getTemperature();
37   Blynk.virtualWrite(V0, temperature);
38   Blynk.virtualWrite(V1, humidity);
39   bool btnPressed = (digitalRead(btnPin) == LOW);
40   if (btnPressed != btnState)
41   { if (btnPressed)
42     blynk_LED.on();
43   else
44     blynk_LED.off();
45     btnState = btnPressed;
46     Serial.print(" LED Status = ");
47     Serial.println(btnState);
48   if (btnPressed)
49     blynk_LED2.on();
50   else
51     blynk_LED2.off();
52     btnState2 = btnPressed;
53     Serial.print(" LED2 Status = ");
54     Serial.println(btnState2);
55   }
56   Serial.print(" Temp(°C) >> "); Serial.print(temperature, 1);
57   Serial.print(" Humidity(%) >> "); Serial.println(humidity, 1);
58 }
59 void loop()
60 { Blynk.run();
61   timer.run();
62 }
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```

```

char pass[] = "0846894722";
DHTesp dht;
//boolean btnState = false;
void setup()
{
  // Debug console
  Serial.begin(9600);
  dht.setup(DHT22_Pin, DHTesp::DHT22); // Connect DHT sensor to GPIO 15
  pinMode(btnPin, INPUT_PULLDOWN);
  pinMode(btnPin2, INPUT_PULLDOWN);
  Blynk.begin(BLYNK_AUTH_TOKEN, ssid, pass);
  timer.setInterval(1000L, myTimerEvent);
}
void myTimerEvent() {
  float humidity = dht.getHumidity();
  float temperature = dht.getTemperature();
  Blynk.virtualWrite(V0, temperature);
  Blynk.virtualWrite(V1, humidity);
  boolean isPressed = (digitalRead(btnPin) == LOW);
  if (isPressed != btnState)
  { if (isPressed)
    blynk_LED.on();
    else
    blynk_LED.off();
    btnState = isPressed;
    Serial.print(" LED Status = ");
    Serial.println(btnState);
    if (isPressed)
    blynk_LED2.on();
    else
    blynk_LED2.off();
    btnState2 = isPressed;
    Serial.print(" LED Status = ");
    Serial.println(btnState2);
  }
  Serial.print(" Temp('C) >> "); Serial.print(temperature, 1);
  Serial.print(", Humidity(%) >> "); Serial.println(humidity, 1);
}
void loop()
{
  Blynk.run();
  timer.run();
}

```

รูปหน้าจอ Blynk



B

Quiz302

Edit

Home

Metadata

Datstreams

Events

Automations

Web Dashboard

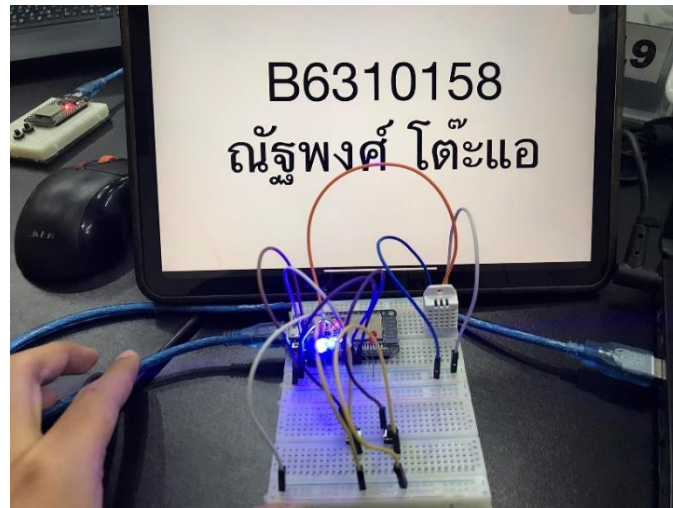
Mobile Dashboard

Search-datstream

Id	Name	Alias	Color	Pin	Data Type	Units	Is Raw	Min	Max	Decimals	Default Value
4	led4	led4		3	Integer		false	0	1	--	0
5	button1	button1		V5	Integer		false	0	1	--	0
6	button2	button2		V6	Integer		false	0	1	--	0
7	temp	temp		V0	Integer		false	0	100	--	0
8	humi	humi		V1	Integer		false	0	100	--	0

Region: sg1 Privacy Policy

รูปการต่อวงจร - 1



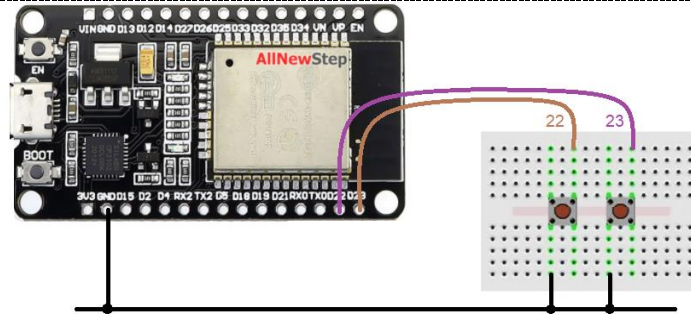
รูปการต่อวงจร - 2



Quiz_303 – Social Alert

ทดสอบการส่งข้อมูลไป ☐ LINE สำหรับสวิตช์กด 3 ตัว

- กดปุ่ม B ที่ต่อกับ ESP32- ให้ส่งข้อความ “Door Open Alarm”
- กดปุ่ม C ที่ต่อกับ ESP32- ให้ส่งข้อความ “Intruders Alarm”



< Test Code >

```

Quiz303 (Arduino 1.8.19)
File Edit Sketch Tools Help

Quiz303
7 #define testSwitch0 22 //
8 #define testSwitch1 23 //
9 void setup() {
10   Serial.begin(115200);
11   WiFi.begin(WIFI_SSID, WIFI_PASS);
12   Serial.println("Connecting");
13   while (WiFi.status() != WL_CONNECTED) {
14     delay(500);
15     Serial.print(".");
16   }
17   Serial.println("");
18   Serial.print("Connected to WiFi network with IP Address: ");
19   Serial.println(WiFi.localIP());
20   pinMode(testSwitch0, INPUT_PULLUP);
21   pinMode(testSwitch1, INPUT_PULLUP);
22   randomSeed(analogRead(33));
23 }
24 void loop() {
25   if (digitalRead(testSwitch0) == LOW) {
26     String serverName = "http://maker.ifttt.com/trigger/" + String(WebHooksEventName) + "/" +
27     String(httpRequestData = "value2" + String("Door Open Alarm"));
28     Serial.println("Server Name : " + serverName);
29     Serial.println("json httpRequestData : " + httpRequestData);
30     if (WiFi.status() == WL_CONNECTED) {
31       HTTPClient http;
32       http.begin(serverName);
33       http.addHeader("Content-Type", "application/x-www-form-urlencoded");
34       int httpResponseCode = http.POST(httpRequestData);
35       Serial.println("HTTP Response code: ");
36       Serial.println(httpResponseCode);
37       http.end();
38       if (httpResponseCode == 200)
39         Serial.println("Successfully sent");
40       else
41         Serial.println("Failed");
42     }
43   }
44 }
45 }

COM3
17054515452210 >> Ready
Server Name :http://maker.ifttt.com/trigger/Quiz303/with/key/HW1bc6zwT2r-a66D347FI
json httpRequestData :value2Intruders Alarm
HTTP Response code: 200
Successfully sent
>> Wait for 10 Sec --> 1705453210 >> Ready
Server Name :http://maker.ifttt.com/trigger/Quiz303/with/key/HW1bc6zwT2r-a66D347FI
json httpRequestData :value2Door Open Alarm
HTTP Response code: 200
Successfully sent
>> Wait for 10 Sec --> 1705454910
Autoscroll Show timestamp No line ending 115200 baud Clear output
DOT ESP32 DEVKIT V1, 80MHz, 512KB, 10pin on-board

```

```

#include <WiFi.h>
#include <HTTPClient.h>
#define WIFI_SSID "jjjj"
#define WIFI_PASS "0846894722"
#define WebHooksKey "HW1bc6zwT2r-a66D347FI"
#define WebHooksEventName "Quiz303"
#define testSwitch0 22 //
#define testSwitch1 23 //
void setup() {
  Serial.begin(115200);
  WiFi.begin(WIFI_SSID, WIFI_PASS);
  Serial.println("Connecting");
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.print("Connected to WiFi network with IP Address: ");

```



```

Serial.println(WiFi.localIP());
pinMode(testSwitch0, INPUT_PULLUP);
pinMode(testSwitch1, INPUT_PULLUP);
randomSeed(analogRead(33));
}
void loop() {
  if (digitalRead(testSwitch0) == LOW) {
    String serverName = "http://maker.ifttt.com/trigger/" + String(WebHooksEventName)
+ "/with/key/" + String(WebHooksKey);
    String httpRequestData = "value2=" + String("Door Open Alarm");
    Serial.println("Server Name :" + serverName);
    Serial.println("json httpRequestData :" + httpRequestData);
    if (WiFi.status() == WL_CONNECTED) {
      HTTPClient http;
      http.begin(serverName);
      http.addHeader("Content-Type", "application/x-www-form-urlencoded");
      int httpResponseCode = http.POST(httpRequestData);
      Serial.print("HTTP Response code: ");
      Serial.println(httpResponseCode);
      http.end();
      if (httpResponseCode == 200)
        Serial.println("Successfully sent");
      else
        Serial.println("Failed!");
    }
    else {
      Serial.println("WiFi Disconnected");
    }

    Serial.print(" >> Wait for 10 Sec --> ");
    for (int i = 9; i >= 0; i--) {
      Serial.print(i);
      delay(1000);
    }
    Serial.println(" >> Ready");
  }

  if (digitalRead(testSwitch1) == LOW) {
    String serverName = "http://maker.ifttt.com/trigger/" + String(WebHooksEventName)
+ "/with/key/" + String(WebHooksKey);
    String httpRequestData = "value2=" + String("Intruders Alarm");
    Serial.println("Server Name :" + serverName);
    Serial.println("json httpRequestData :" + httpRequestData);
    if (WiFi.status() == WL_CONNECTED) {
      HTTPClient http;
      http.begin(serverName);
      http.addHeader("Content-Type", "application/x-www-form-urlencoded");
      int httpResponseCode = http.POST(httpRequestData);
      Serial.print("HTTP Response code: ");
      Serial.println(httpResponseCode);
      http.end();
      if (httpResponseCode == 200)
        Serial.println("Successfully sent");
      else
        Serial.println("Failed!");
    }
    else {
      Serial.println("WiFi Disconnected");
    }
  }
}

```

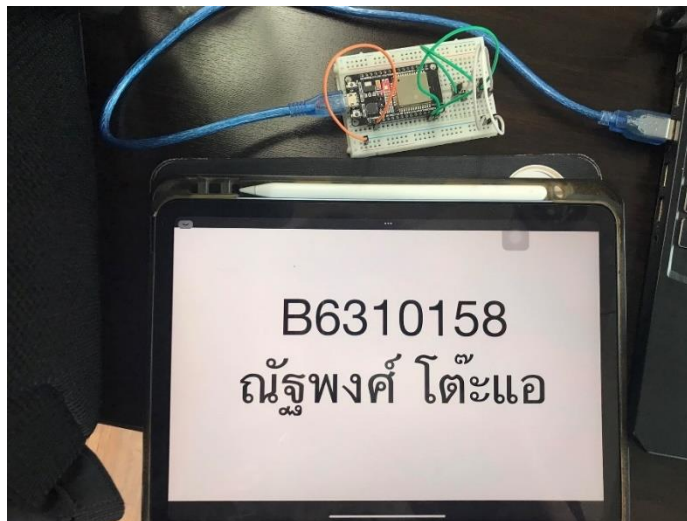


```
Serial.print(" >> Wait for 10 Sec --> ");  
for (int i = 9; i >= 0; i--) {  
  Serial.print(i);  
  delay(1000);  
}  
Serial.println(" >> Ready");  
}  
}
```

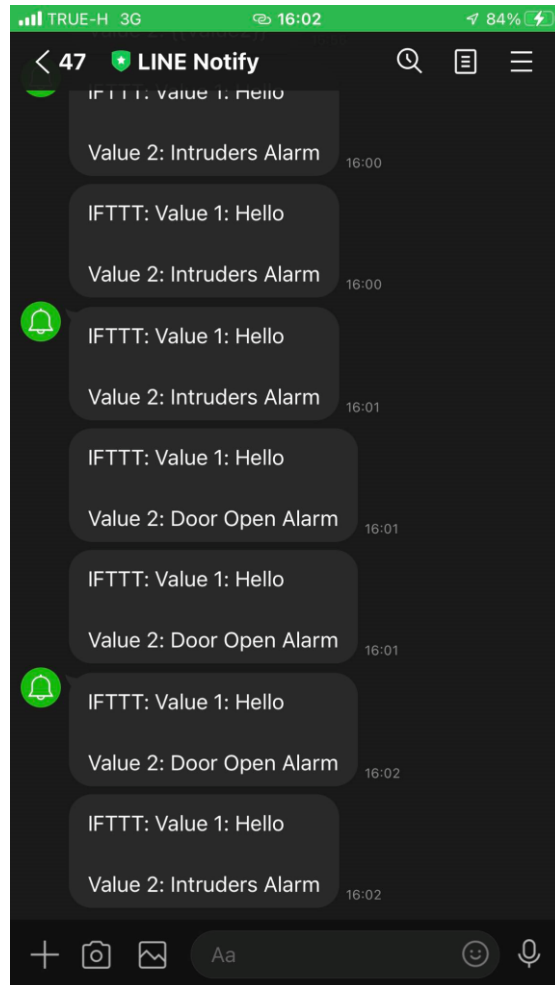
รูปการต่อวงจร - 1



รูปการต่อวงจร - 2

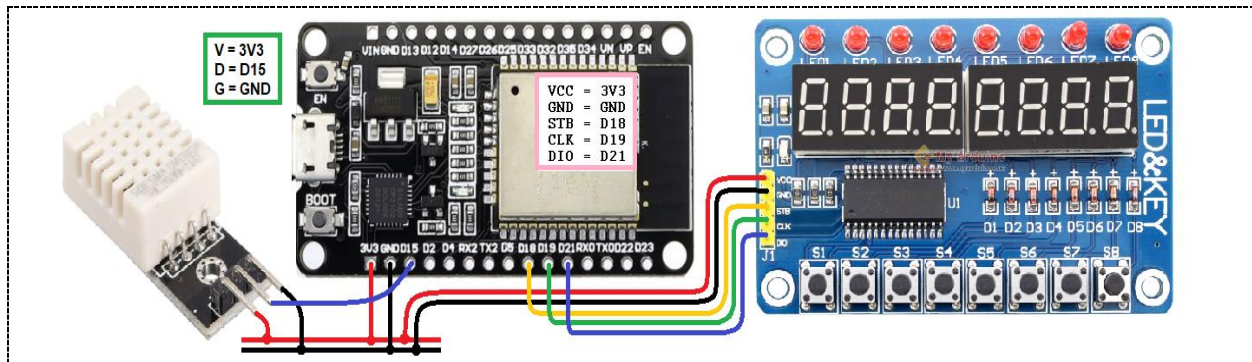


รูปหน้าจอ LINE ผลการทดสอบ



Quiz_304 – Data Logger and Social Alarm

- ส่งข้อมูลอุณหภูมิไปยัง Google Spreadsheet (ทำแล้วในข้อ QB4)
- หากอุณหภูมิที่อ่านได้เกิน 28°C ให้แจ้งเตือนผ่าน ____ และบอกด้วยว่าอุณหภูมิเท่าใด
☐ SMS, ☐ FB Page, ☐ FB Messenger, ☐ Twitter, ☒ LINE
- แสดงอุณหภูมิที่ 7_Segment Display TM1638 Board



< Test Code >

```

Quiz304 (Arduino 1.8.19)
File Edit Sketch Tools Help

Quiz304
58 Serial.println(" --> Failed!");
59 }
60 else {
61   Serial.println("WiFi Disconnected");
62 }
63 if (temperature > 20) {
64   String serverName = "http://maker.ifttt.com/trigger/" + String(WebHooksEventName_LINE);
65   String httpRequestData = "value2=" + String(temperature);
66   Serial.println();
67   Serial.println("Server Name >> " + serverName);
68   Serial.println("JSON httpRequestData >> " + httpRequestData);
69   if (WiFi.status() == WL_CONNECTED) {
70     HTTPClient http;
71     http.begin(serverName);
72     http.addHeader("Content-Type", "application/x-www-form-urlencoded");
73     int httpStatusCode = http.POST(httpRequestData);
74     Serial.println("HTTP Response code: ");
75     Serial.println(httpStatusCode);
76     http.end();
77     if (httpStatusCode == 200)
78       Serial.println("[line] --> Successfully sent");
79     else
80       Serial.println("[line] --> Failed!");
81   }
82   else {
83     Serial.println("WiFi Disconnected");
84   }
85 }
86 int t = int(temperature * 100);
87 int Temp2 = (int)temperature / 10; int Temp1 = (int)temperature % 10; int Temp0 = (int)temperature % 10;
88 int Humi2 = (int)humidity / 10; int Humi1 = (int)humidity % 10; int Humi0 = (int)humidity % 10;
89 tm.displayHex(0, Temp0);
90 tm.displayABCDHex(1, Temp1 + "°"); // turn on dot
91 tm.displayHex(2, Temp0);
92 tm.display7Seg(3, 804011000); // Code my fadoba

Serial.begin(9600);
void setup() {
  pinMode(DHT22, INPUT);
  pinMode(STB, OUTPUT);
  pinMode(CLK, OUTPUT);
  pinMode(DIO, OUTPUT);
}

void loop() {
  readTempHumidity();
  displayTempHumidity();
  sendDataToIFTTT();
  delay(1000);
}
  
```

```

#include <WiFi.h>
#include <HTTPClient.h>
#include "DHTesp.h"
#include <TM1638plus.h>
#define WIFI_SSID "jjjj"
#define WIFI_PASS "0846894722"
#define WebHooksKey "HWIbc6zwT2r-a66D347FI"
#define WebHooksEventName "Quiz304"
#define WebHooksEventName_LINE "Quiz303"
#define My_NAME "B6310158"
#define Pin_DHT22 4
#define Brd_STB 18
#define Brd_CLK 19
#define Brd_DIO 5
  
```

```

bool high_freq = true;
TM1638plus tm(Brd_STB, Brd_CLK , Brd_DIO, high_freq);
DHTesp dht;
void setup() {
  Serial.begin(115200);
  tm.displayBegin();
  WiFi.begin(WIFI_SSID, WIFI_PASS);
  Serial.println("Connecting");
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.print("Connected to WiFi network with IP Address: ");
  Serial.println(WiFi.localIP());
  dht.setup(Pin_DHT22, DHTesp::DHT22);
}
void loop() {
  float humidity = dht.getHumidity();
  float temperature = dht.getTemperature();
  Serial.println();
  Serial.print("\nTemperature('C) = ");
  Serial.print(temperature, 1);
  Serial.print("\tHumidity(%) = ");
  Serial.print(humidity, 1);
  String serverName = "http://maker.ifttt.com/trigger/" + String(WebHooksEventName)
+ "/with/key/" +
    String(WebHooksKey);
  String httpRequestData = "value1=" + String(My_NAME) + "&value2=" +
String(temperature) + "&value3=" +
    String(humidity);
  Serial.println();
  Serial.println("Server Name >> " + serverName);
  Serial.println("json httpRequestData >> " + httpRequestData);
  if (WiFi.status() == WL_CONNECTED) {
    HTTPClient http;
    http.begin(serverName);
    http.addHeader("Content-Type", "application/x-www-form-urlencoded");
    int httpResponseCode = http.POST(httpRequestData);
    Serial.print("HTTP Response code: ");
    Serial.println(httpResponseCode);
    http.end();
    if (httpResponseCode == 200)
      Serial.println("--> Successfully sent");
    else
      Serial.println("--> Failed!");
  }
  else {
    Serial.println("WiFi Disconnected");
  }
  if (temperature > 28) {
    String serverName = "http://maker.ifttt.com/trigger/" +
String(WebHooksEventName_LINE) + "/with/key/" + String(WebHooksKey);
    String httpRequestData = "value2=" + String(temperature);
    Serial.println();
    Serial.println("Server Name >> " + serverName);
    Serial.println("json httpRequestData >> " + httpRequestData);
    if (WiFi.status() == WL_CONNECTED) {
      HTTPClient http;

```

```

http.begin(serverName);
http.addHeader("Content-Type", "application/x-www-form-urlencoded");
int httpResponseCode = http.POST(httpRequestData);
Serial.print("HTTP Response code: ");
Serial.println(httpResponseCode);
http.end();
if (httpResponseCode == 200)
  Serial.println("[Line] --> Successfully sent");
else
  Serial.println("[Line] --> Failed!");
}
else {
  Serial.println("WiFi Disconnected");
}
}
int t = int(temperature * 100);
int Tempp2 = (int)temperature / 10; int Tempp1 = (int)temperature % 10; int Tempp0 =
(int)(temperature * 10) % 10;
int Humi2 = (int)humidity / 10; int Humi1 = (int)humidity % 10; int Humi0 =
(int)(humidity * 10) % 10;
tm.displayHex(0, Tempp2);
tm.displayASCIIwDot(1, Tempp1 + '0'); // turn on dot
tm.displayHex(2, Tempp0);
tm.display7Seg(3, B01011000); // Code=tgfedcba
tm.displayHex(4, Humi2);
tm.displayASCIIwDot(5, Humi1 + '0'); // turn on dot
tm.displayHex(6, Humi0);
tm.display7Seg(7, B01110100); // Code=tgfedcba
delay(2000);
int WaitTime = 5;
Serial.print(" >> Wait for next time --> ");
for (int i = WaitTime; i >= 0; i -= 5) {
  Serial.print(",");
  Serial.print(i);
  delay(5000);
}
}
}

```

รูปการต่อวงจร - 1

