

IFTTT with ESP 32

Week08 @19,20,21 กันยายน 2560

1. Introduction

<http://www.instructables.com/id/ESP8266-to-IFTTT-Using-Arduino-IDE/>



Some example Recipes



<https://ifttt.com/blog/2016/08/ifttt-is-coming-to-an-app-near-you>

2. Read This

- <https://marooter.blogspot.com/2017/06/week04-arduino-iots-sms.html>
- <http://www.olrepublic.com/careerlab/เทคนิคการทำงาน-อ่านแล้วใช้เลย-Working-Tips/1697-IFTTT-If-This-Then-That.html>
- <https://circuitdigest.com/microcontroller-projects/sending-sms-using-esp8266>
- <https://www.twilio.com/docs/guides/send-sms-and-mms-messages-esp8266-cpp>
- <http://www.ioxhop.com/article/47/esp8266-esp8285-กับการส่งการแจ้งเตือนเข้า-line>

3. Experiment

1. MQTT Lens

- MQTT Broker
 - `iot.eclipse.org` 1883
 - `test.mosquitto.org` 1883
 - `broker.mqttdashboard.com` 1883

2. Singe in IFTTT

- <https://ifttt.com/discover>

3. Add Library IFTTT and Arduino JSON

- from <https://github.com/witnessmenow/arduino-ifttt-maker/archive/master.zip>
- Add Lib Sketch → Include Lib → Add Zip...
- from <https://github.com/bblanchon/ArduinoJson/archive/master.zip>
- Add Lib Sketch → Include Lib → Add Zip...

4. IFTTT Test_1 – If Time Then SMS

- If `Date&Time` Then `SMS`

5. Test_2 – Basic Trigger to Google Spreadsheet

- Open File >> File → Example → IFTTTMaker → ESP8266 → TrigerEvent

- แก้ไข

บรรทัดที่ 2 แก้ไขจาก
เป็น

```
#include <ESP8266WiFi.h>
#include <WiFi.h>

#define KEY "dAaxAGi8wPjYP4nMahlM23"
#define EVENT_NAME "ClassChk0920"

if(ifttt.triggerEvent(EVENT_NAME, ssid, ip.toString(), "B3706985")){
```

- เมื่อโปรแกรมทำงานผ่านโปรแกรมย่อย SETUP จะ Trigger WebHooks 1 ครั้ง

```
#include <IFTTTMaker.h>
#include <WiFi.h>
#include <WiFiClientSecure.h>

//----- Replace the following! -----
char ssid[]      = "IOT_Test";           // your network SSID (name)
char password[]  = "Pk0123456789";       // your network key
#define KEY       "dAaxAGi8wPjYP4nMahlM23" // Get it from this page https://ifttt.com/services/maker/settings
#define EVENT_NAME "ClassChk0920"         // Name of your event name, set when you are creating the applet

WiFiClientSecure client;
IFTTTMaker ifttt(KEY, client);

void setup() {
  Serial.begin(115200);

  // Set WiFi to station mode and disconnect from an AP if it was Previously
  // connected
  WiFi.mode(WIFI_STA);
  WiFi.disconnect();
  delay(100);

  // Attempt to connect to Wifi network:
  Serial.print("Connecting Wifi: ");
  Serial.println(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    Serial.print(".");
    delay(500);
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  IPAddress ip = WiFi.localIP();
  Serial.println(ip);

  //triggerEvent takes an Event Name and then you can optional pass in up to 3 extra Strings
  if(ifttt.triggerEvent(EVENT_NAME, ssid, ip.toString(), "B3706985")){
    Serial.println("Successfully sent");
  } else
  { Serial.println("Failed!");
  }
}

void loop() {
}
```

6. Test3_IFTTT Setup

- If WebHooks Then SMS
- ตรวจสอบคีย์ WebHooks ที่หน้าต่าง WebHooks Documentation

Your key is: **d0Q1u2QLksT74wZ6c3i_7A**

◀ Back to service

To trigger an Event

Make a POST or GET web request to:

```
https://maker.ifttt.com/trigger/{event}/with/key/d0Q1u2QLksT74wZ6c3i_7A
```

With an optional JSON body of:

```
{ "value1" : " ", "value2" : " ", "value3" : " " }
```

- ทดสอบการทำงาน Trigger WebHooks ด้วยปุ่ม Test
- The data is completely optional, and you can also pass `value1`, `value2`, and `value3` as qu passed on to the Action in your Recipe.

You can also try it with `curl` from a command line.

```
curl -X POST https://maker.ifttt.com/trigger/Pk1234/with/key/d0Q1u2QLksT74wZ6c3i_7A
```

Test

- Open File >> File → Example → IFTTTMaker → ESP8266 → TrigerEvent
- แก้ไข

บรรทัดที่ 2 แก้ไขจาก

#include <ESP8266WiFi.h>

เป็น

#include <WiFi.h>

#define KEY

"kkkkkkkkkkkkkkkkkkkkkk"

```
#include <IFTTMaker.h>
#include <WiFi.h>
#include <WiFiClientSecure.h>

//----- Replace the following! -----
char ssid[]      = "IoT_Test";           // your network SSID (name)
char password[]  = "Pk0123456789";       // your network key
#define KEY       "XXXXXX"

WiFiClientSecure client;
IFTTMaker ifttt(KEY, client);

void setup() {
  Serial.begin(115200);

  // Set WiFi to station mode and disconnect from an AP if it was Previously
  // connected
  WiFi.mode(WIFI_STA);
  WiFi.disconnect();
  delay(100);

  // Attempt to connect to Wifi network:
  Serial.print("Connecting Wifi: ");
  Serial.println(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    Serial.print(".");
    delay(500);
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  IPAddress ip = WiFi.localIP();
  Serial.println(ip);

  pinMode(23, INPUT_PULLUP);
}

void loop() {
  int ChkStatus;
  if (digitalRead(23) == LOW)
  { Serial.print("Pin 23 Trigger ..... ");
    ChkStatus = ifttt.triggerEvent("Trigger23");
    if (ChkStatus == 0)
      Serial.println(" > Successfully sent");
    else
      Serial.println(" > Failed!");
    delay(2000);
  }
}
```

7. Test_4 – Basic Trigger

- Open File >> File → Example → IFTTTMaker → ESP8266 → TrigerEvent

- แก้ไข

- บรรทัดแรก

- จาก `#include <ESP8266WiFi.h>`
- เป็น `#include <WiFi.h>`

- Access Point → SSID, PASSWORD

- KEY YYYYY

- EVENT_NAME XXXX

- เมื่อโปรแกรมทำงานผ่านโปรแกรมย่อย SETUP จะ Trigger WebHooks 1 ครั้ง

```
#include <IFTTMaker.h>
#include <WiFi.h>
#include <WiFiClientSecure.h>

//----- Replace the following! -----
char ssid[]      = "testVirus";
char password[]  = "1510031510";
#define KEY      "doQ1u2QLksT74wZ6c3i_7A"
#define EVENT_NAME "Pk1234"

WiFiClientSecure client;
IFTTMaker ifttt(KEY, client);

void setup() {
  Serial.begin(115200);

  // Set WiFi to station mode and disconnect from an AP if it was Previously
  // connected
  WiFi.mode(WIFI_STA);
  WiFi.disconnect();
  delay(100);

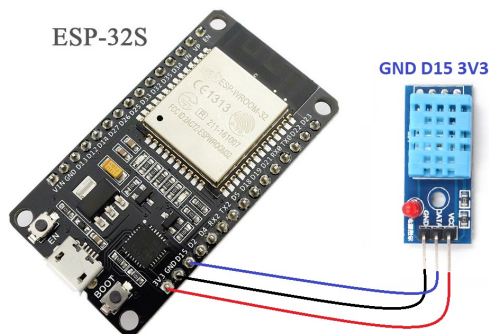
  // Attempt to connect to Wifi network:
  Serial.print("Connecting Wifi: ");
  Serial.println(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    Serial.print(".");
    delay(500);
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  IPAddress ip = WiFi.localIP();
  Serial.println(ip);

  //triggerEvent takes an Event Name and then you can optional pass in up to 3 extra Strings
  if (ifttt.triggerEvent(EVENT_NAME, ssid, ip.toString())) {
    Serial.println("Successfully sent");
  } else {
    {
      Serial.println("Failed!");
    }
  }
}

void loop() {
}
```

8. Test_5 - DHT11 Start

- ต่อวงจร DHT-11 to D15
DHT11 (VCC, DIN, GND)
ESP32 (3V3, D15, GND)
- File → Example → DHT Sensor
Library → DHT Tester
แก้ไขโปรแกรม
#define DHTPIN 15
#define DHTTYPE DHT11
- โหลดโปรแกรมทดสอบ



```
#include "DHT.h"
#define DHTPIN 15 // what digital pin we're connected to
#define DHTTYPE DHT11 // DHT 11
DHT dht(DHTPIN, DHTTYPE);

void setup() {
  Serial.begin(9600);
  Serial.println("DHTxx test!");
  dht.begin();
}

void loop() {
  delay(2000);
  float h = dht.readHumidity();
  float t = dht.readTemperature();
  float f = dht.readTemperature(true);
  float hif = dht.computeHeatIndex(f, h);
  float hic = dht.computeHeatIndex(t, h, false);

  if (isnan(h) || isnan(t) || isnan(f)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }

  Serial.print("Humidity: ");      Serial.print(h);
  Serial.print("\tTemperature: "); Serial.print(t);
  Serial.print(" *C, ");          Serial.print(f);
  Serial.print(" *F\tHeat index: "); Serial.print(hic);
  Serial.print(" *C,");           Serial.print(hif);
  Serial.println(" *F");
}
```

9. Test_6 – Send Temperature to Google Spreadsheet

- ตั้ง IFTTT → If WebHooks Then Google Drive
- ทดสอบ WebHooks Trigger แล้วดูผลการทำงานที่ Google Sheet

Your key is: d0Q1u2QLksT74wZ6c3i_7A
◀ Back to service

To trigger an Event
Make a POST or GET web request to:
`https://maker.ifttt.com/trigger/XXXX/with/key/d0Q1u2QLksT74wZ6c3i_7A`
With an optional JSON body of:
`{ "value1" : " 12 ", "value2" : " 34 ", "value3" : " 56 " }`
The data is completely optional, and you can also pass value1, value2, and value3 as query param passed on to the Action in your Recipe.
You can also try it with curl from a command line.
`curl -X POST -H "Content-Type: application/json" -d '{"value1": "12", "value2": "34", "value3": "56"}' https://maker.ifttt.com/trigger/XXXX/with/key/d0Q1u2QLksT74wZ6c3i_7A`

Test it

- โหลดโปรแกรมต่อไปนี่

```
#include <IFTTMaker.h>
#include <WiFi.h>
#include <WiFiClientSecure.h>
#include "DHT.h"
#define DHTPIN 15
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);

//----- Replace the following! -----
char ssid[]      = "IoT_Test";           // your network SSID (name)
char password[]  = "Pk0123456789";      // your network key
#define KEY       "XXXXXXX"

WiFiClientSecure client;
IFTTMaker ifttt(KEY, client);
int Count = 15;

void setup() {
  Serial.begin(115200);
  // Set WiFi to station mode and disconnect from an AP if it was Previously
  // connected
  WiFi.mode(WIFI_STA);
  WiFi.disconnect();
  delay(100);

  // Attempt to connect to Wifi network:
  Serial.print("Connecting Wifi: ");
  Serial.println(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    Serial.print(".");
    delay(500);
  }
  Serial.println("");
  Serial.println("Wifi connected");
  Serial.println("IP address: ");
  IPAddress ip = WiFi.localIP();
  Serial.println(ip);
  dht.begin();
}

void loop() {
  float h = dht.readHumidity();
  float t = dht.readTemperature();          float f = dht.readTemperature(true);
  float hif = dht.computeHeatIndex(f, h);    float hic = dht.computeHeatIndex(t, h, false);

  if (isnan(h) || isnan(t) || isnan(f)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }

  Serial.print("Count = ");          Serial.print(Count);
  Serial.print("\tHumidity: ");      Serial.print(h);
  Serial.print("\tTemperature: ");   Serial.print(t);
  Serial.print(" * C, ");            Serial.print(f);
  Serial.print(" * F\tHeat index: "); Serial.print(hic);
  Serial.print(" * C,");              Serial.print(hif);
  Serial.println(" * F");

  if (Count <= 0)
  {
    Count = 15;
    Serial.print("Temperature Save Tepperature..... ");
    int ChkStatus = ifttt.triggerEvent("TriggerSaveTemp", String(h), String(t), String(hic));
    if (ChkStatus == 0)
      Serial.println(" > Successfully sent");
    else
      Serial.println(" > Failed!");
  }
  delay(2000);
  Count--;
}
```


10. Test_7 – If Temperature over 30°C Alarm

- ตั้ง IFTTT ➔ If WebHooks Then SMS
- โหลดโปรแกรมต่อไปนี้

```
#include <IFTTMaker.h>
#include <WiFi.h>
#include <WiFiClientSecure.h>
#include "DHT.h"
#define DHTPIN 15
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);

//----- Replace the following! -----
char ssid[]      = "IOT_Test";           // your network SSID (name)
char password[]  = "Pk0123456789";      // your network key
#define KEY      "XXXXXXX"

WiFiClientSecure client;
IFTTMaker ifttt(KEY, client);
int Count = 15;

void setup() {
  Serial.begin(115200);
  WiFi.mode(WIFI_STA);
  delay(100);

  // Attempt to connect to Wifi network:
  Serial.print("Connecting Wifi: ");
  Serial.println(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    Serial.print(".");
    delay(500);
  }
  Serial.println("");
  IPAddress ip = WiFi.localIP();
  Serial.println(ip);
  dht.begin();
}

void loop() {
  float h = dht.readHumidity();
  float t = dht.readTemperature();
  float hif = dht.computeHeatIndex(f, h);

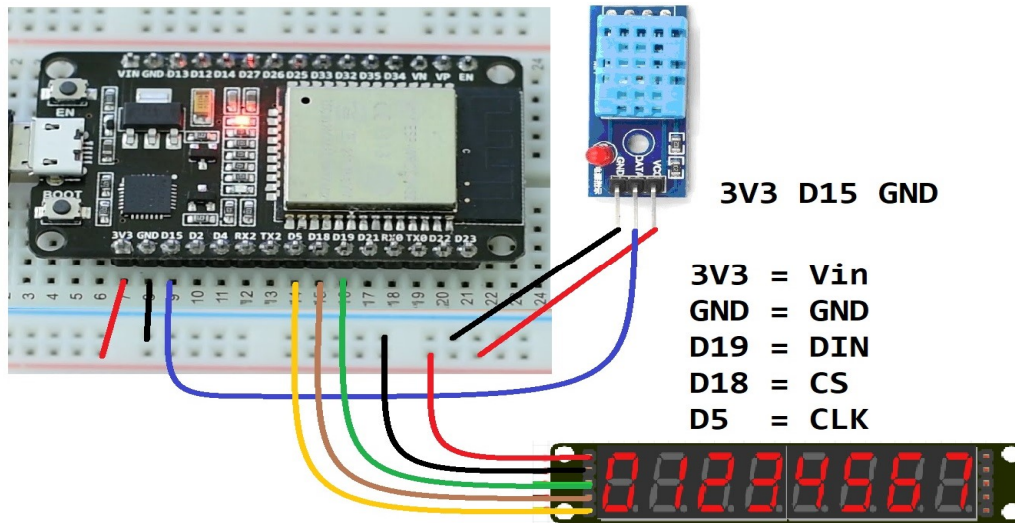
  float f = dht.readTemperature(true);
  float hic = dht.computeHeatIndex(t, h, false);

  if (isnan(h) || isnan(t) || isnan(f)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  Serial.print("Count = ");
  Serial.print(Count);
  Serial.print("\tHumidity: ");
  Serial.print(h);
  Serial.print("\tTemperature: ");
  Serial.print(t);
  Serial.print(" *C, ");
  Serial.print(f);
  Serial.print(" *F\tHeat index: ");
  Serial.print(hic);
  Serial.print(" *C,");
  Serial.print(hif);
  Serial.println(" *F");

  if (Count <= 0)
  {
    Count = 15;
    if (t > 30 )
    {
      Serial.print("Temperature Trigger..... ");
      int ChkStatus = ifttt.triggerEvent("TriggerTemp");
      if (ChkStatus == 0)
        Serial.println(" > Successfully sent");
      else
        Serial.println(" > Failed");
    }
  }
  delay(2000);
  Count--;
}
```

11. Test_8: From DHT-11 Send to Google Sheet and Display with MAX-7219 7Segment

- ต่อวงจรเพิ่มเติม



- Add Library <https://github.com/wayoda/LedControl/archive/master.zip>
- ทดสอบโปรแกรม File → Example → LedControl → LCDemo7Segment
- ปรับแก้โปรแกรมจากขา [DIN, CLK, CS] = [12,11,10] มาเป็นขา [19,5,18]
- จากโปรแกรมตัวอย่าง ให้ปรับแก้โปรแกรมให้เหมาะสม

```
#include "LedControl.h"
/****** These pin numbers will probably not work with your hardware *****/
pin 5 is connected to the DataIn
pin 19 is connected to the CLK
pin 18 is connected to LOAD
We have only a single MAX72XX.
*/
LedControl lc = LedControl(5, 19, 18, 1);

void setup() {
  lc.shutdown(0, false);
  lc.setIntensity(0, 8);
  lc.clearDisplay(0);
}

void loop() {
  for (int i = 16; i >= 0; i--)
  { lc.setChar(0, 7, 'a', false); // Charector
    lc.setRow(0, 6, 0x05); // Manual Code
    lc.setChar(0, 5, 'd', false);
    lc.setRow(0, 4, 0x1c);
    lc.setRow(0, 3, 0x0010000);
    lc.setRow(0, 2, 0x15);
    lc.setRow(0, 1, 0x1D);
    lc.setDigit(0, 0, i, false); // Dec Value
    delay(500);

    lc.clearDisplay(0);
    delay(500);
  }
}
```

PCเลขที่ _____ รหัส _____ ชื่อ-สกุล _____

4. Exercise

- ทดสอบการส่งข้อมูลไปยัง Google Spreadsheet ของอาจารย์ กับ 3 Cell คือ SSID, IP, Student_ID

```
#define KEY "dAaxAGi8wPjYP4nMahIM23"  
#define EVENT_NAME "ClassChk0920"  
ifttt.triggerEvent(EVENT_NAME, ssid, ip.toString(), "B37[REDACTED]")
```

- ทดสอบการส่งข้อมูลไปแบบ SMS, LINE, Facebook, twitter, FB Messenger

- ☐ กดปุ่ม A ที่ต่อกับ Node32 – ให้ส่งข้อความ “Overheats Alarm”
- ☐ กดปุ่ม B ที่ต่อกับ Node32 – ให้ส่งข้อความ “Door Open Alarm”
- ☐ กดปุ่ม C ที่ต่อกับ Node32 – ให้ส่งข้อความ “Intruders Alarm”

☐ SMS ☐ LINE ☐ Facebook ☐ Twitter ☐ FB Messenger

- ต่อ DHT-11 เข้ากับ ESP32 ทดสอบการส่งข้อมูลอุณหภูมิไปยัง Google Spreadsheet ของตัวเอง

- จากข้อ 3 เพิ่มเติม คือ

- ส่งข้อมูลอุณหภูมิไปยัง Google Spreadsheet (ทำแล้วในข้อ 3)
- หากอุณหภูมิที่อ่านได้เกิน 28°C ให้แจ้งเตือนผ่าน SMS หรือ LINE หรือ Facebook หรือ twitter หรือ Facebook Messenger

☐ SMS ☐ LINE ☐ Facebook ☐ Twitter ☐ FB Messenger

- จากข้อ 3 เพิ่มเติม คือ

- ส่งข้อมูลอุณหภูมิไปยัง Google Spreadsheet (ทำแล้วในข้อ 3)
- หากอุณหภูมิที่อ่านได้เกิน 28°C ให้แจ้งเตือนผ่าน SMS หรือ LINE หรือ Facebook หรือ twitter หรือ Facebook Messenger (ทำแล้วในข้อ 4)

☐ SMS ☐ LINE ☐ Facebook ☐ Twitter ☐ FB Messenger

- แสดงอุณหภูมิที่ 7_Segment Display

