DEVELOP A PYTHON SCRIPT TO PUBLISH AND SUBSCRIBE TO IBM PLATFOR

TITLE	**Smart Farmer-IOT Enabled Smart Farming Application**
DOMAIN NAME	INTERNET OF THINGS
TEAM ID	PNT2022TMID30597

```
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>
#include "DHT.h"

const char* ssid = "SMART-G";
const char* password = "10112019";

#define DHTPIN D6
#define G D0
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);

#define ID "y13urg"
#define DEVICE_TYPE "ESP8266"
#define DEVICE_ID "TEST"
#define TOKEN "TEST-12345"

char server[] = ID ".messaging.internetofthings.ibmcloud.com";
char publish_Topic1[] = "iot-2/evt/Data1/fmt/json";
char publish_Topic2[] = "iot-2/evt/Data2/fmt/json";
char publish_Topic3[] = "iot-2/evt/Data2/fmt/json";
char publish_Topic4[] = "iot-2/evt/Data2/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
```

```
char clientId[] = "d:" ID ":" DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);

void setup() {
  pinMode(D0,OUTPUT);
  digitalWrite(D0,HIGH);
    Serial.begin(115200);
    dht.begin();
    Serial.println();
    WiFi.begin(ssid, password);
    while (WiFi.status() != WL_CONNECTED) {
      delay(500);
      Serial.print(".");
    }
    Serial.println("");
    Serial.println(WiFi.localIP());

    if (!client.connected()) {
        Serial.print("Reconnecting client to ");
        Serial.println(server);
        while (!client.connect(clientId, authMethod, token)) {
            Serial.print(".");
            delay(500);
        }
        Serial.println("Connected TO IBM IoT cloud!");
    }
}

long previous_message = 0;
```

```
void loop() {
   client.loop();
   long current = millis();
   if (current - previous_message > 3000) {
      previous_message = current;
       float hum = dht.readHumidity();
       float temp = dht.readTemperature();
       float MOI =  map(analogRead(A0), 0, 1023, 100, 0);
       float bi = map(digitalRead(D1), 0, 1, 100, 0);
       if (isnan(hum) || isnan(temp)  ){
   Serial.println(F("Failed to read from DHT sensor!"));
   return;
  }

  Serial.print("Temperature: ");
  Serial.print(temp);
  Serial.print("°C");
  Serial.print(" Humidity: ");
  Serial.print(hum);
  Serial.print("%");
  Serial.print("SOIL MOITURE: ");
  Serial.print(MOI);
  Serial.print("ANIMAL AND BIRD: ");
  Serial.print(bi);
  if(MOI<=10)
  {
     digitalWrite(D0,LOW);
     delay(100);
     digitalWrite(D0,HIGH);
   }
   else
```

```
{
  digitalWrite(D0,HIGH);
}



   String payload = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
         payload += ",\"Temperature\":";
         payload += temp;
         payload += "}}";

    Serial.print("Sending payload: ");
    Serial.println(payload);

    if (client.publish(publish_Topic1, (char*) payload.c_str())) {
       Serial.println("Published successfully");
    } else {
       Serial.println("Failed");
    }
    String payload1 = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
         payload1 += ",\"Humidity\":";
         payload1 += hum;
         payload1 += "}}";
         Serial.print("Sending payload: ");
         Serial.println(payload1);
         Serial.println('\n');

     if (client.publish(publish_Topic2, (char*) payload1.c_str())) {
       Serial.println("Published successfully");
    } else {
       Serial.println("Failed");
    }
```

```
String payload3 = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
      payload3 += ",\"Moiture\":";
      payload3 += MOI;
      payload3 += "}}";

 Serial.print("Sending payload: ");
 Serial.println(payload3);

 if (client.publish(publish_Topic3, (char*) payload3.c_str())) {
   Serial.println("Published successfully");
 } else {
   Serial.println("Failed");
 }
```

```
String payload4 = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
      payload4 += ",\"Animal&Bird\":";
      payload4 += bi;
      payload4 += "}}";

 Serial.print("Sending payload: ");
 Serial.println(payload4);

 if (client.publish(publish_Topic4, (char*) payload4.c_str())) {
   Serial.println("Published successfully");
 } else {
   Serial.println("Failed");
 }
```

```
    }
}
```