DEVELOP A PYTHON SCRIPT

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Project Name	IOT-BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

CODE:

```
#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 "ryup3j"
#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");
        }
    }
}
```