

## FINAL CODE

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"
```

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```
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("");
}
```

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```
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) ){
```

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```
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);  
}
```

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```
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())) {
```

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```
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\":\"";
```

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```
    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");
    }

}

}
```