CODING

Date	**10 November 2022**
TEAM ID	**PNT2022TMID07804**
Project name	**IOT Based Smart Crop protection System for Agriculture**

SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

```
#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 "3t3j6q"
```

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