CODING

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| **Date** | **21 November 2022** |
| **TEAM ID** | **PNT2022TMID40963** |
| **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");

}

}

}