PROJECT DEVELOPMENT DELIVERY OF SPRINT-1

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PROJECT NAME	IoT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

SPRINT-1

```
#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");
        }









    }
}
```