

# 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");  
    }  
  
}  
  
}
```