

SPRINT 2

Team ID	PNT2022TMID30534
Project Name	Real – time River Water Quality Monitoring and Control System

CODE:

```
#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 "9u87rn"
```

```
#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 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);
    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("WATER PH: ");
Serial.print(MOI);
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 += ",\"WATER PH\":";
    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");
```

```
}
```

```
}
```

```
}
```