

## SPRINT 1

Date	29 October 2022
Team ID	PNT2022TMID42568
Project Name	Smart Farmer-IoT Enabled smartFarming Application

### Connecting Sensors with ESP32\_RASP using C++ code

```
#include <WiFi.h>
#include <PubSubClient.h>
#include "DHT.h"
#define DHTPIN 4
#define DHTTYPE DHT22
#define LED 5
DHT dht (DHTPIN, DHTTYPE);

void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
#define ORG "0jjsl2"
#define DEVICE_TYPE "esp32_rasp"
#define DEVICE_ID "123456789"
#define TOKEN "k+Ir8X7YQyVKy@WuXl"
String data3;
float h, t;

//----- Customise the above values -----
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char subscribetopic[] = "iot-2/cmd/test/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client(server, 1883, callback ,wifiClient);
void setup()
{
    Serial.begin(115200);
    dht.begin();
    pinMode(LED,OUTPUT);
    delay(10);
    Serial.println();
    wifiConnect();
    mqttconnect();
}
void loop()
{
    h = dht.readHumidity();
    t = dht.readTemperature();
    Serial.print("temperature:");
    Serial.println(t);
    Serial.print("Humidity:");
```

```

    Serial.println(h);

    PublishData(t,h);
    delay(1000);
    if (!client.loop()) {
        mqttconnect();
    }
}

void PublishData(float temp, float humid) {
    mqttconnect();
    String payload = "{\"temperature\":\"";
    payload += temp;
    payload += "," "\"humidity\":\"";
    payload += humid;
    payload += "\"}";

    Serial.print("Sending payload: ");
    Serial.println(payload);

    if (client.publish(publishTopic, (char*) payload.c_str())) {
        Serial.println("Publish ok");
    } else {
        Serial.println("Publish failed");
    }
}

void mqttconnect() {
    if (!client.connected()) {
        Serial.print("Reconnecting client to ");
        Serial.println(server);
        while (!!!client.connect(clientId, authMethod, token)) {
            Serial.print(".");
            delay(500);
        }

        initManagedDevice();
        Serial.println();
    }
}

void wificonnect()
{
    Serial.println();
    Serial.print("Connecting to ");

    WiFi.begin("Wokwi-GUEST", "", 6);
    while (WiFi.status() != WL_CONNECTED) {
        delay(500);
        Serial.print(".");
    }
    Serial.println("");
}

```

```

    Serial.println("WiFi connected");
    Serial.println("IP address: ");
    Serial.println(WiFi.localIP());
}

void initManagedDevice() {
    if (client.subscribe(subscribetopic)) {
        Serial.println((subscribetopic));
        Serial.println("subscribe to cmd OK");
    } else {
        Serial.println("subscribe to cmd FAILED");
    }
}

void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
{
    Serial.print("callback invoked for topic: ");
    Serial.println(subscribetopic);
    for (int i = 0; i < payloadLength; i++) {
        //Serial.print((char)payload[i]);
        data3 += (char)payload[i];
    }

    Serial.println("data: "+ data3);
    if(data3=="lighton")
    {
        Serial.println(data3);
        digitalWrite(LED,HIGH);

    }

    else
    {
        Serial.println(data3);
        digitalWrite(LED,LOW);

    }
    data3="";
}

```

## Circuit Diagram

