Sprint-3

Team ID : PNT2022TMID12350
IBM ID : IBM-Project-16775-1659621855
Project Title : Industry-specific intelligent fire management system
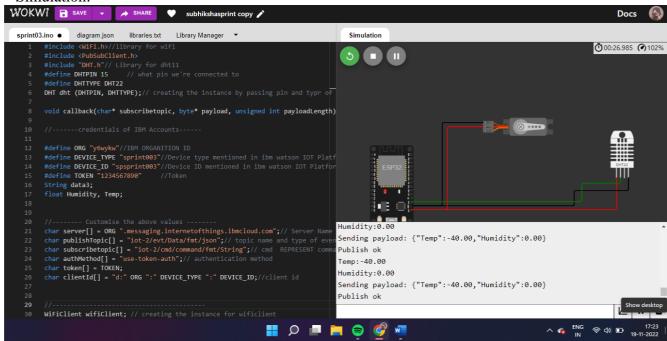
Project Development

CODE:

```cpp
#include <WiFi.h>//library for wifi
#include  <PubSubClient.h>
#include "DHT.h"// Library for dht11
#define DHTPIN 15 // what pin we're connected to
#define DHTTYPE DHT22
DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr of dht
connected

void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);

//-------credentials of IBM Accounts------

#define ORG " y6wykw"//IBM ORGANITION ID
#define DEVICE_TYPE "sprint003"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "spsprint003"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "1234567890" //Token
String data3;
float Humidity, Temp;



//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform and
format in which data to be send
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT command
type AND COMMAND IS TEST OF FORMAT STRING
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id


//.................................................................
WiFiClient wifiClient; // creating the instance for wificlient
PubSubClient client(server, 1883, callback ,wifiClient); //calling the predefined client id by
passing parameter like server id,portand wificredential


void setup()// configureing the ESP32
{
Serial.begin(115200);
```
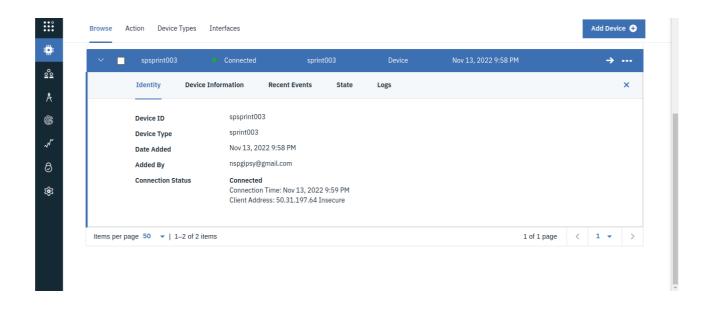
```
dht.begin();
delay(10);
Serial.println();
wificonnect();
mqttconnect();
}

void loop()// Recursive Function
{
Humidity = dht.readHumidity();
Temp = dht.readTemperature();
Serial.print("Temp:");
Serial.println(Temp);
Serial.print("Humidity:");
Serial.println(Humidity);
PublishData(Temp,Humidity);
delay(1000);
if (!client.loop()) {
mqttconnect();
}
}




/*.................................retrieving to Cloud ................................. */

void PublishData(float Temp, float Humidity) {
mqttconnect();//function call for connecting to ibm
/*
creating the String in in form JSon to update the data to ibm cloud
*/
String payload = "{\"Temp\":";
payload += Temp;
payload += "," "\"Humidity\":";
payload += Humidity;
payload += "}";

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

if (client.publish(publishTopic, (char*) payload.c_str())) {
Serial.println("Publish ok");// if it sucessfully upload data on the cloud then it will print
publish ok in Serial monitor or else it will print publish failed
} else {
Serial.println("Publish failed");
}
}


void mqttconnect() {
if (!client.connected()) {
```

```cpp
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!!!client.connect(clientId, authMethod, token)) {
    Serial.print(".");
    delay(500);
    }
    initManagedDevice();
    Serial.println();
    }
    }
    void wificonnect() //function defination for wificonnect
    {
    Serial.println();
    Serial.print("Connecting to ");

    WiFi.begin("Wokwi-GUEST", "", 6);//passing the wifi credentials to establish the connection
    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];
    }
    }
```

Simulation:

Ibm cloud connection:

Output in ibm cloud:

Event	Value	Format	Last Received
Data	{"Temp":-40,"Humidity":0}	json	a few seconds ago
Data	{"Temp":-40,"Humidity":0}	json	a few seconds ago
Data	{"Temp":-40,"Humidity":0}	json	a few seconds ago
Data	{"Temp":-40,"Humidity":0}	json	a few seconds ago
Data	{"Temp":-40,"Humidity":0}	json	a few seconds ago

Browse   Action   Device Types   Interfaces

Add Device

Items per page 50 ▾ | 1–2 of 2 items

1 of 1 page   1 ▾