Sprint-2

Team ID : PNT2022TMID06928
Project Title : Industry-specific intelligent fire management system

Project Development

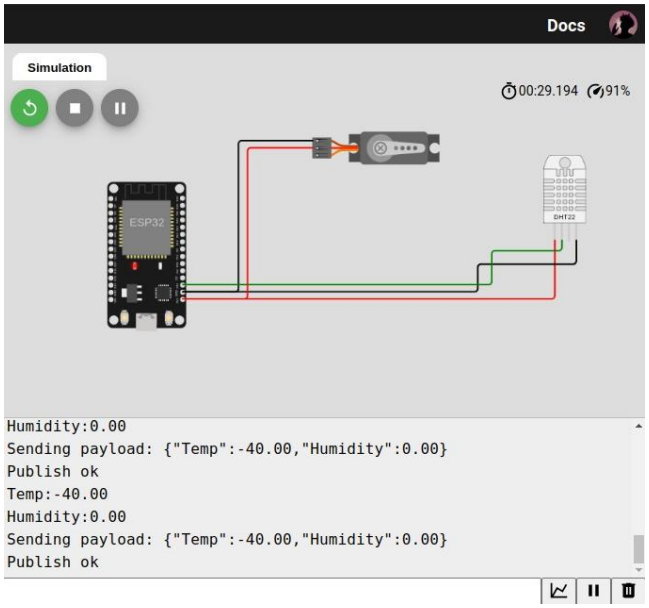
CODE:

```
#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 "gh6uoi"//IBM ORGANITION ID
#define DEVICE_TYPE "1234abcd"//Device type mentioned in ibm watson IOT Platform
 #define DEVICE_ID "trial1"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "0123456789" //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);
```

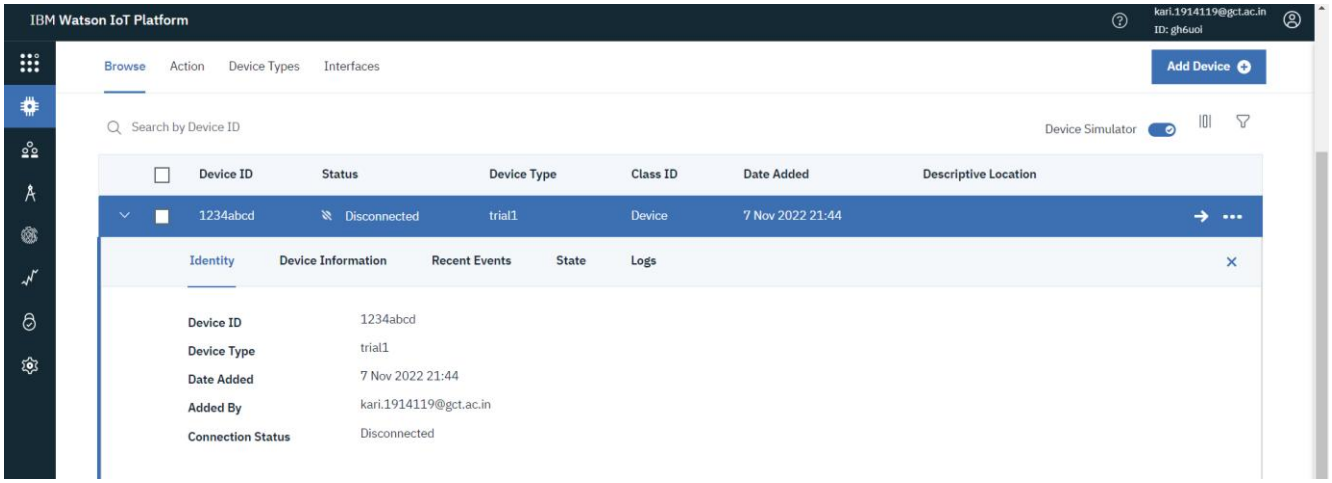
```
dht.begin();
delay(10);
Serial.println();
wificonnect();
mqttconnect();
}

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()) {
```

```
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: