Sprint-3

Project Development

Date	16 November 2022
Team ID	PNT2022TMID00837
Project Name	INDUSTRY - SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM

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 "vg9s67"//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())            {
Serial.print("Reconnecting
client              to               ");
Serial.println(server);
while (!!!client.connect(clientId, authMethod, token)) {
Serial.print(".");
delay(500); }
initManagedDevice();
```

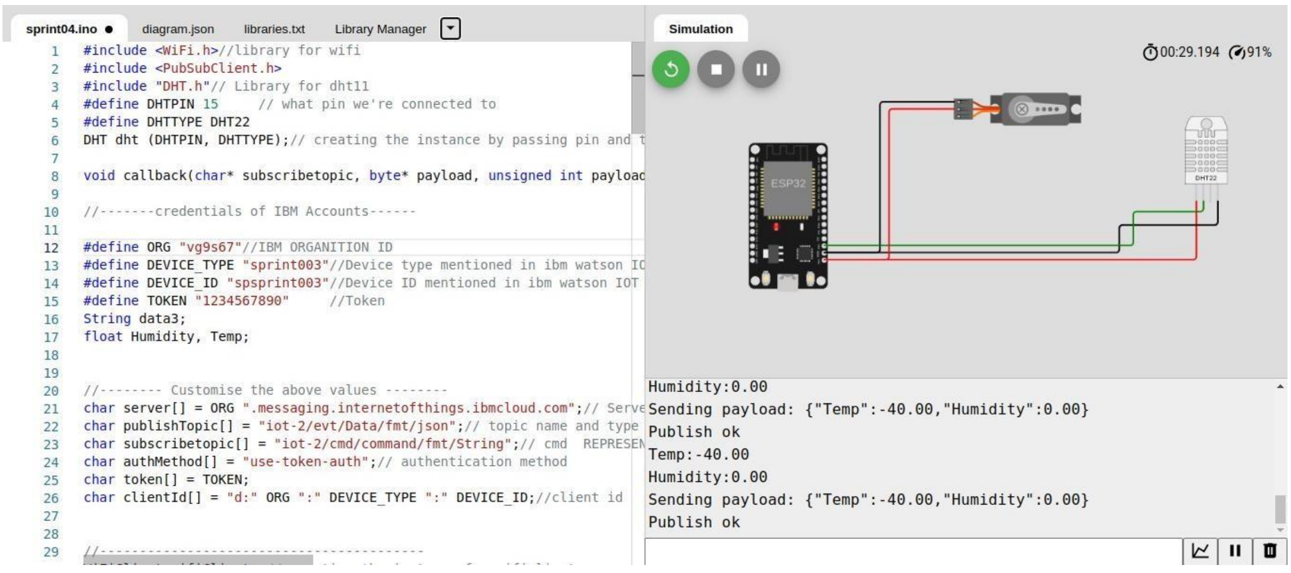
Serial.println();
}
}
void wificonnect() //function defination for wificonnect
{
Serial.println();
Serial.print("Connecting to ");

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:



```
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#define DHTPIN 15     // what pin we're connected to
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DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and t

void callback(char* subscribetopic, byte* payload, unsigned int payload

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#define ORG "vg9s67"//IBM ORGANITION ID
#define DEVICE_TYPE "sprint003"//Device type mentioned in ibm watson IO
#define DEVICE_ID "spsprint003"//Device ID mentioned in ibm watson IOT
#define TOKEN "1234567890"     //Token
String data3;
float Humidity, Temp;


//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Serve
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd  REPRESEN
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id


//-----------------------------------------
```
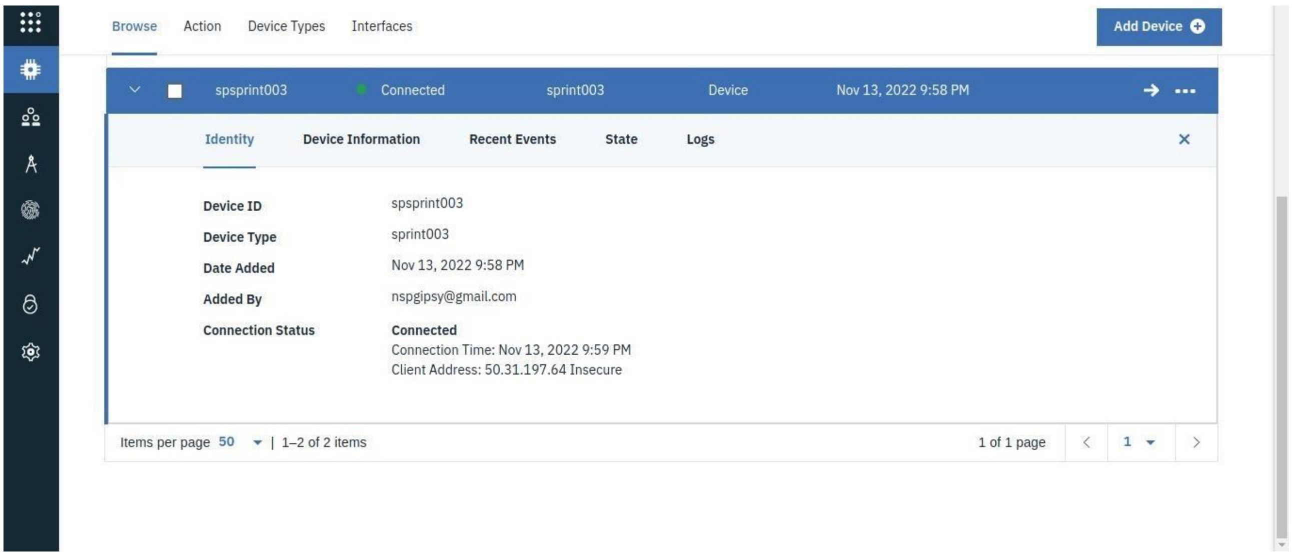

```
Humidity:0.00
Sending payload: {"Temp":-40.00,"Humidity":0.00}
Publish ok
Temp:-40.00
Humidity:0.00
Sending payload: {"Temp":-40.00,"Humidity":0.00}
Publish ok
```

ibm cloud connection:



spsprint003 Connected sprint003 Device Nov 13, 2022 9:58 PM

Device ID	spsprint003
Device Type	sprint003
Date Added	Nov 13, 2022 9:58 PM
Added By	nspgipsy@gmail.com
Connection Status	Connected Connection Time: Nov 13, 2022 9:59 PM Client Address: 50.31.197.64 Insecure

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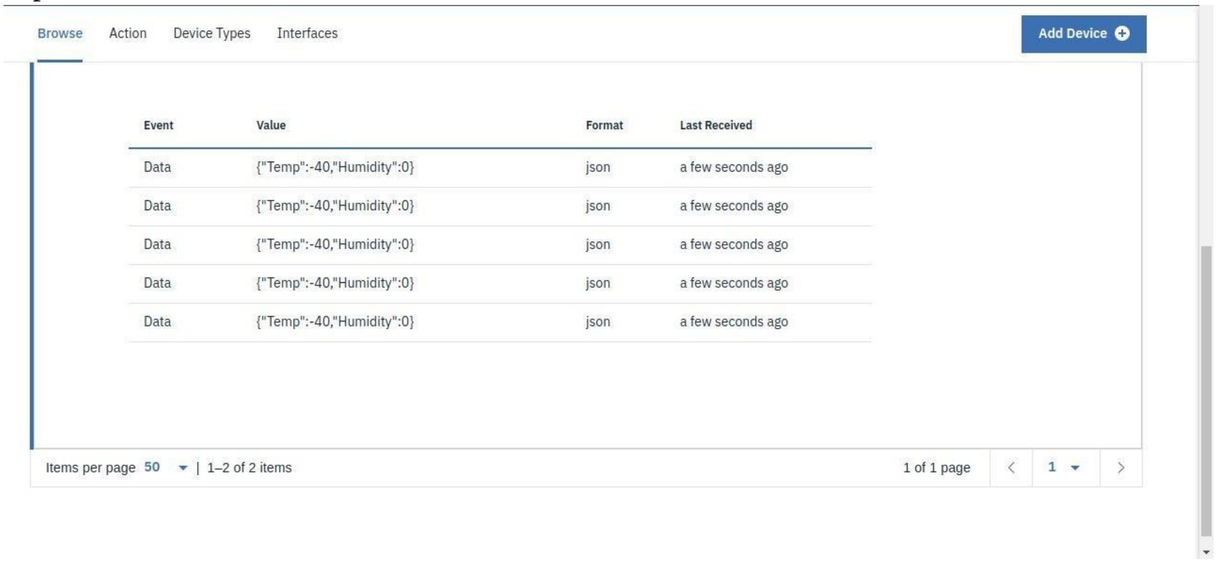
output in ibm cloud:



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

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