

Sprint-3

Team ID : PNT2022TMID25198

IBM ID : IBM-Project-55549-1669130850

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 "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:

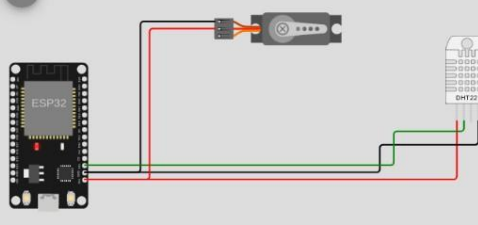
WOKWI SAVE SHARE prabussprint004.ino Docs

sprint04.ino • diagram.json libraries.txt Library Manager

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2 #include <PubSubClient.h>
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4 #define DHTPIN 15 // what pin we're connected to
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6 DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing pin and t
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8 void callback(char* subscribetopic, byte* payload, unsigned int payload
9
10 //-----credentials of IBM Accounts-----
11
12 #define ORG "vg9s67" //IBM ORGANITION ID
13 #define DEVICE_TYPE "sprint003" //Device type mentioned in ibm watson IoT
14 #define DEVICE_ID "spsprint003" //Device ID mentioned in ibm watson IoT
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16 String data3;
17 float Humidity, Temp;
18
19 //----- Customise the above values -----
20
21 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Serve
22 char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type
23 char subscribetopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT
24 char authMethod[] = "use-token-auth"; // authentication method
25 char token[] = TOKEN;
26 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
27
28
29
```

Simulation

00:29.194 91%



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:

IBM Watson IoT Platform nsppipsy@gmail.com ID: vg9s67

Browse Action Device Types Interfaces Add Device +

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

Identity	Device Information	Recent Events	State	Logs
Device ID	spsprint003			
Device Type	sprint003			
Date Added	Nov 13, 2022 9:58 PM			
Added By	nsppipsy@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:

IBM Watson IoT Platform

nsppipsy@gmail.com
ID: vg9s67

Browse

Action

Device Types

Interfaces

Add Device +

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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