

## ASSIGNMENT 4

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Project Name	Smart Solution For Railways

### Code:

```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "w85yph"
#define DEVICE_TYPE "b11m33e2devicetype"
#define DEVICE_ID "b11m33e2deviceid"
#define TOKEN "FK7jB&z3TSuS97sJ57"
#define speed 0.034
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/abcd_1/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();
const int trigpin=18;
const int echopin=19;
String command;
String data="";
String lat="14.167589";
String lon="80.248510";
String name="point2";
String icon="";
long duration;
int dist;
void setup()
{
  Serial.begin(115200);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
```

```

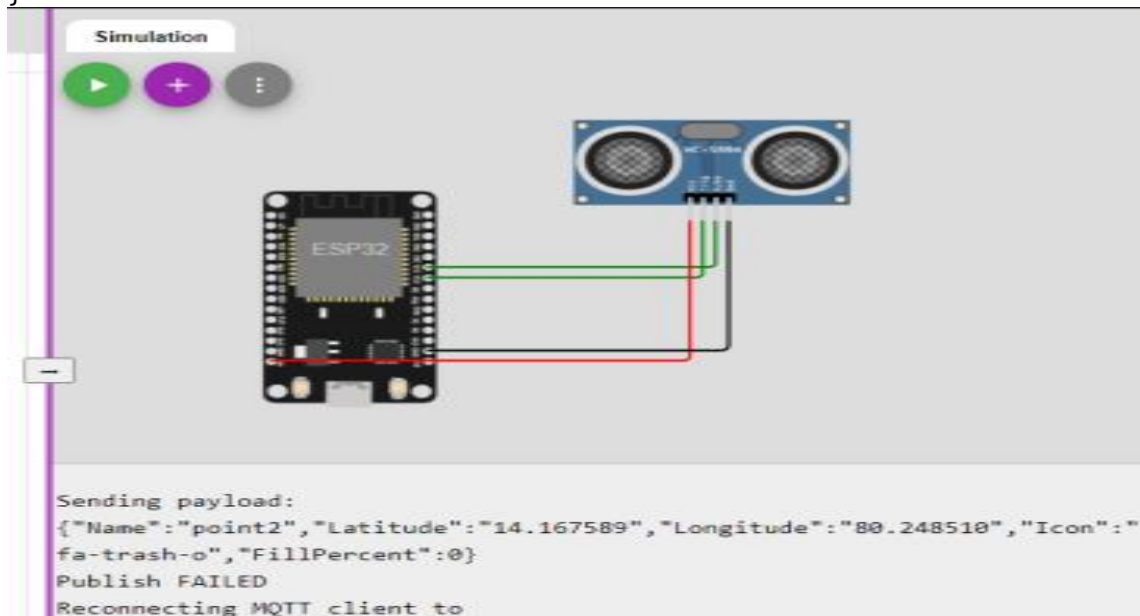
mqttConnect();
}
void loop() {
publishData();
delay(500);
if (!client.loop()) {
mqttConnect();
}
}
void wifiConnect() {
Serial.print("Connecting to "); Serial.print("Wifi");
WiFi.begin("Wokwi-GUEST", "", 6);
while (WiFi.status() != WL_CONNECTED) {
delay(500);
Serial.print(".");
}
Serial.print("WiFi connected, IP address: ");
Serial.println(WiFi.localIP());
}
void mqttConnect() {
if (!client.connected()) {
Serial.print("Reconnecting MQTT client to "); Serial.println(server);
while (!client.connect(clientId, authMethod, token)) {
Serial.print(".");
delay(1000);
}
}
initManagedDevice();
Serial.println();
}
}
void initManagedDevice() {
if (client.subscribe(topic)) {
Serial.println(client.subscribe(topic));
Serial.println("subscribe to cmd OK");
} else {
Serial.println("subscribe to cmd FAILED");
}
}
}
void publishData()
{
digitalWrite(trigpin, LOW);
digitalWrite(trigpin, HIGH);
delayMicroseconds(10);
digitalWrite(trigpin, LOW);
duration=pulseIn(echopin, HIGH);
}

```

```

dist=duration*speed/2;
if(dist<100){
dist=100-dist;
icon="fa-trash";
}else{
dist=0;
icon="fa-trash-o";
}
DynamicJsonDocument doc(1024);
String payload;
doc["Name"]=name;
doc["Latitude"]=lat;
doc["Longitude"]=lon;
doc["Icon"]=icon;
doc["FillPercent"]=dist;
serializeJson(doc, payload);
delay(3000);
Serial.print("\n");
Serial.print("Sending payload: ");
Serial.println(payload);
if (client.publish(publishTopic, (char*) payload.c_str())) {
Serial.println("Publish OK");
} else {
Serial.println("Publish FAILED");
}
}
}

```



## IBM ALERT:

The screenshot displays the IBM Watson IoT Platform web interface. At the top, the header shows the platform name, a search icon, and user information: 91761914043@smartinternz.com and ID: w85yph. Below the header, a navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces', along with an 'Add Device' button. The main content area shows details for a device with ID 'b11m33e2deviceid', which is 'Disconnected'. The 'Recent Events' tab is selected, showing a table of live data events. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. Five events are listed, each with a JSON value containing temperature and humidity data. The bottom of the image shows a Windows taskbar with various application icons and system status information: 22°C Cloudy, 10:16 AM, and 11/12/2022.

Event	Value	Format	Last Received
event_1	{"Temperature":30,"Humidity":54}	json	a few seconds ago
event_1	{"Temperature":59,"Humidity":46}	json	a few seconds ago
event_1	{"Temperature":80,"Humidity":54}	json	a few seconds ago
event_1	{"Temperature":80,"Humidity":94}	json	a few seconds ago
event_1	{"Temperature":34,"Humidity":10}	json	a few seconds ago

## LINK:

<https://wokwi.com/projects/348050348744639059>