

ASSIGNMENT4

WOKWI PROGRAM

ASSIGNMNET DATE	23 OCTOBER 2022
STUDENT NAME	SRI RAJAM M
STUDENT ROLL NUMBER	110519106029
MAXIMUM NUMBER	2 MARKS
TEAM ID	PNT2022TMID36201

CODE :

```
#include <WiFi.h>

#include <PubSubClient.h>

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

#define ORG "wzdjmr"

#define DEVICE_TYPE "srirajam29"

#define DEVICE_ID "6029"

#define TOKEN "JuumcCh6v&As9SK5K1"

String data3;


char server[]= ORG ".messaging.internetofthings.ibmcloud.com";

char publishTopic[]="iot-2/evt/srirajam29/fmt/json";

char subscribeTopic[]="iot-2/cmd/test/fmt/String";

char authMethod[]="use-token-auth";

char token[]=TOKEN;

char clientID[]="d:"ORG":DEVICE_TYPE":DEVICE_ID;
```

```
WiFiClient wifiClient;  
PubSubClient client(server,1883,callback,wifiClient);
```

```
#define ECHO_PIN 12  
#define TRIG_PIN 13  
#define led 14
```

```
void setup() {  
  // put your setup code here, to run once:  
  Serial.begin(115200);  
  pinMode(led, OUTPUT);  
  pinMode(TRIG_PIN, OUTPUT);  
  pinMode(ECHO_PIN, INPUT);  
  wificonnect();  
  mqttconnect();  
}  
  
float readDistanceCM() {  
  digitalWrite(TRIG_PIN, LOW);  
  delayMicroseconds(2);  
  digitalWrite(TRIG_PIN, HIGH);  
  delayMicroseconds(10);  
  digitalWrite(TRIG_PIN, LOW);  
  int duration=random(1,200);
```

```
//Serial.println(duration);  
//duration = pulseIn(ECHO_PIN, HIGH);  
return duration ;  
//Serial.println(duration);  
  
}
```

```
void loop() {  
    float distance = readDistanceCM();  
    //Serial.println(distance);
```

```
    bool isNearby = distance < 100;  
    digitalWrite(led, isNearby);
```

```
    Serial.print("Measured distance: ");  
    Serial.println(distance);  
    if(distance<100){  
        PublishData2(distance);
```

```
    }else{  
        PublishData1(distance);  
  
    }
```

```
    //PublishData(distance);
```

```
delay(1000);
  if(!client.loop()){
mqttconnect();
  }

  //delay(2000);
}
void PublishData1(float dist){
mqttconnect();

  String payload= "{\"distance\":\"";
  payload += dist;
  payload+="}";

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

  if(client.publish(publishTopic,(char*)payload.c_str())){
Serial.println("publish ok");
  } else{
Serial.println("publish failed");
  }
}

void PublishData2(float dist){
mqttconnect();
```

```
String payload= "{\\\"ALERT\\\":\":";
```

```
payload += dist;
```

```
payload+="}";
```

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

```
Serial.println(payload);
```

```
if(client.publish(publishTopic,(char*)payload.c_str())){
```

```
Serial.println("publish ok");
```

```
  } else{
```

```
Serial.println("publish failed");
```

```
  }
```

```
}
```

```
void mqttconnect(){
```

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

```
Serial.print("Reconnecting to");
```

```
Serial.println(server);
```

```
while(!!!client.connect(clientID, authMethod, token)){
```

```
Serial.print(".");
```

```
delay(500);
```

```
  }
```

```
initManagedDevice();
```

```
Serial.println();
```

```
}
```

```
}
```

```
void wificonnect(){
```

```
Serial.println();
```

```
Serial.print("Connecting to");
```

```
WiFi.begin("Wokwi-GUEST","",6);
```

```
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++){  
    data3 += (char)payload[i];  
  }  
  Serial.println("data:" + data3);  
  if(data3=="lighton"){  
    Serial.println(data3);  
    digitalWrite(led,HIGH);  
  }else{  
    Serial.println(data3);  
    digitalWrite(led,LOW);  
  }  
  data3="";  
}
```

OUTPUT :

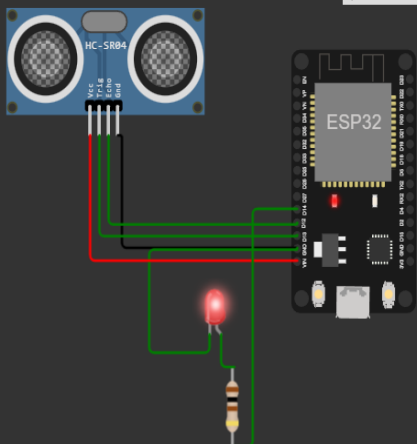
WOKWI SAVE SHARE sketch.ino copy Docs SIGN UP

sketch.ino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 void callback(char* subscribtopic,byte* payload,unsigned int payloadLength);
4 #define ORG "wzdjmr"
5 #define DEVICE_TYPE "srirajam29"
6 #define DEVICE_ID "6029"
7 #define TOKEN "JuumcCh6v&As9SK5K1"
8 String data3;
9
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt/srirajam29/fmt/json";
12 char subscribeTopic[] = "iot-2/cmd/test/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientID[] = "d:"ORG":"DEVICE_TYPE":"DEVICE_ID";
16
17 WiFiClient wifiClient;
18 PubSubClient client(server,1883,callback,wifiClient);
19
20 #define ECHO_PIN 12
21 #define TRIG_PIN 13
22 #define led 14
23
24 void setup() {
25   // put your setup code here, to run once:
26   Serial.begin(115200);
27   pinMode(led, OUTPUT);
28   pinMode(TRIG_PIN, OUTPUT);
29   pinMode(ECHO_PIN, INPUT);
```

Simulation

00:20.017 85%



Measured distance: 11.00
Sending payload:{"ALERT":11.00}
publish ok

Connecting to.
WIFI CONNECTED
IP address:
10.10.0.2
Reconnecting towzdjmr.messaging.internetofthings.ibmcloud.com
iot-2/cmd/test/fmt/String
subscribe to cmd ok

Measured distance: 43.00
Sending payload:{"ALERT":43.00}
publish ok
Measured distance: 41.00
Sending payload:{"ALERT":41.00}
publish ok
Measured distance: 137.00
Sending payload:{"distance":137.00}
publish ok
Measured distance: 78.00
Sending payload:{"ALERT":78.00}
publish ok
Measured distance: 130.00

IBM CLOUD OUTPUT:

The screenshot displays the IBM Watson IoT Platform interface. At the top, the header shows 'IBM Watson IoT Platform' on the left and user information '110519106029@smartinternz.com' and 'ID: wzdjmr' on the right. A left sidebar contains navigation icons. The main content area is titled 'Device Drilldown - 6029' and features a 'Back' link. Below the title is a sidebar menu with options: 'Connection Information' (selected), 'Recent Events', 'State', 'Device Information', 'Metadata', 'Diagnostics', 'Connection Logs', and 'Device Actions'. The main panel displays 'Connection Information' with a sub-header 'Basic connection information about this device.' and a table of details.

Device ID	6029
Device Type	srirajam29
Date Added	Nov 6, 2022 1:53 PM
Added By	110519106029@smartinternz.com
Connection Status	Disconnected
	Last Connected: Nov 11, 2022 5:23 PM
	Client Address: 50.31.197.64 Insecure
	Duration: a minute
	Data Transferred: 2.6 KB

← Back

Device Drilldown - 6029

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Recent Events

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
srirajam29	{"distance":167}	json	a few seconds ago
srirajam29	{"ALERT":86}	json	a few seconds ago
srirajam29	{"distance":175}	json	a few seconds ago
srirajam29	{"distance":141}	json	a few seconds ago
srirajam29	{"distance":160}	json	a few seconds ago