

ASSIGNMENT4

WOKWI PROGRAM

ASSIGNMENT DATE	23 OCTOBER 2022
STUDENT NAME	MANIKANDAN S
STUDENT ROLL NUMBER	110519106009
MAXIMUM NUMBER	2 MARKS
TEAM ID	PNT2022TMID36194

CODE :

```
#include <WiFi.h>

#include <PubSubClient.h>

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

#define ORG "9q9raj"

#define DEVICE_TYPE "manikandan"

#define DEVICE_ID "6009"

#define TOKEN "a-9q9raj-a1n1rmedqm"

String data3;


char server[]= ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[]="iot-2/evt/manikandan/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

Docs

sketch.ino

diagram.json

libraries.txt

Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 void callback(char* subscribetopic,byte* payload,unsigned int payloadLength);
4 #define ORG "9q9raj"
5 #define DEVICE_TYPE "manikandan"
6 #define DEVICE_ID "6009"
7 #define TOKEN "a-9q9raj-ainlrmedqm"
8 String data3;
9
10 char server[]= ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[]="iot-2/evt/manikandan/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);
30 wifiConnect();
```

Simulation

02:18.858 58%

publish ok
Measured distance: 74.00
Sending payload:{"ALERT":74.00}

▶

+

⋮

Connecting to...

WIFI CONNECTED

IP address:

10.10.0.2

Reconnecting to9q9raj.messaging.internetofthings.ibmcloud.com

iot-2/cmd/test/fmt/String

subscribe to cmd ok

Measured distance: 131.00

Sending payload:{"distance":131.00}

publish ok

Measured distance: 166.00

Sending payload:{"distance":166.00}

publish ok

Measured distance: 140.00

Sending payload:{"distance":140.00}

publish ok

Measured distance: 173.00

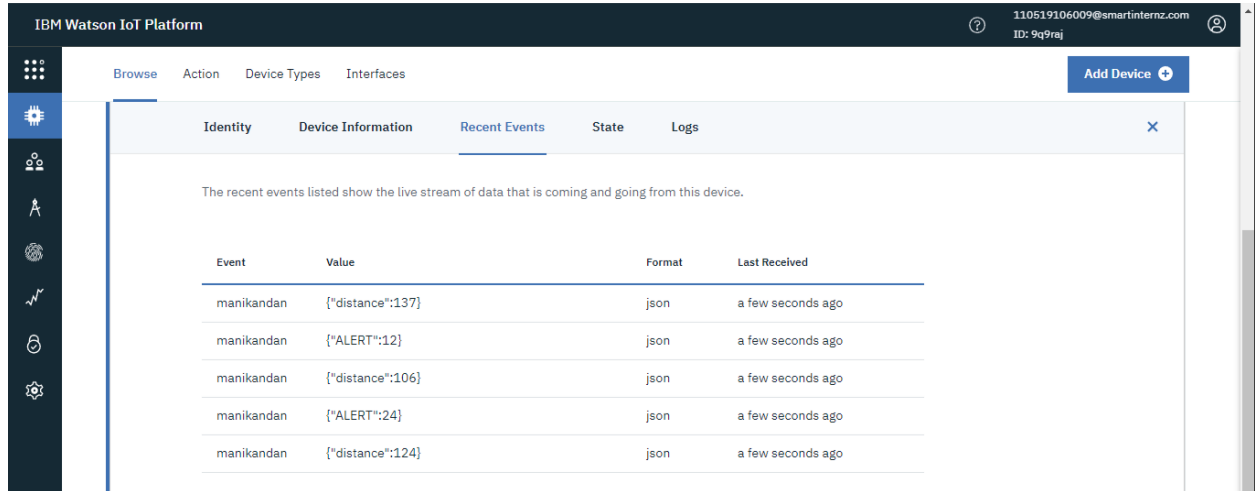
Sending payload:{"distance":173.00}

publish ok

Measured distance: 127.00

Sending payload:{"distance":127.00}

IBM CLOUD OUTPUT :



IBM Watson IoT Platform

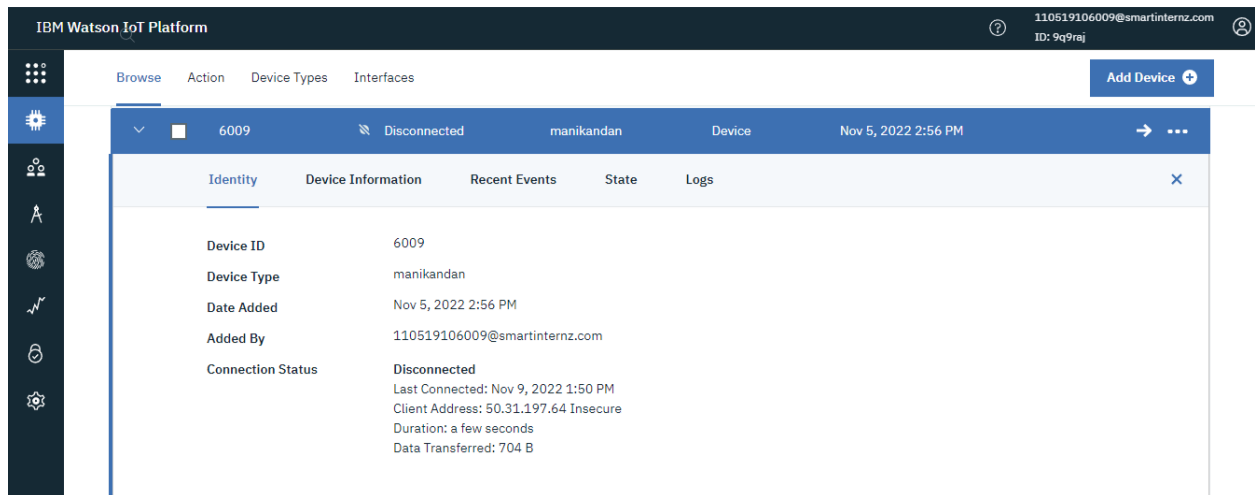
110519106009@smartinternz.com
ID: 9q9raj

Browse Action Device Types Interfaces Add Device +

Identity Device Information **Recent Events** State Logs

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

Event	Value	Format	Last Received
manikandan	{"distance":137}	json	a few seconds ago
manikandan	{"ALERT":12}	json	a few seconds ago
manikandan	{"distance":106}	json	a few seconds ago
manikandan	{"ALERT":24}	json	a few seconds ago
manikandan	{"distance":124}	json	a few seconds ago



IBM Watson IoT Platform

110519106009@smartinternz.com
ID: 9q9raj

Browse Action Device Types Interfaces Add Device +

6009 Disconnected manikandan Device Nov 5, 2022 2:56 PM → ...

Identity Device Information Recent Events State Logs

Device ID 6009

Device Type manikandan

Date Added Nov 5, 2022 2:56 PM

Added By 110519106009@smartinternz.com

Connection Status **Disconnected**
Last Connected: Nov 9, 2022 1:50 PM
Client Address: 50.31.197.64 Insecure
Duration: a few seconds
Data Transferred: 704 B