

Assignment - 4

Wowki & IBM Cloud

Assignment Date	31 October 2022
Student Name	BHARATH KUMAR S
Student Roll Number	310819106016
Maximum Marks	2 Marks

Question-1:

Write code and connections in wowki for the ultrasonic sensor. Whenever the distance is less than 100cms sent "alert" to IBM cloud and display in device recent events.

Code:

```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>

WiFiClient wifiClient;

#define ORG "oa3490"
#define DEVICE_TYPE "TestDeviceType"
#define DEVICE_ID "12345"
#define TOKEN "-A)0raS44f)fdjYBVS"
#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-
tokenauth"; char token[] = TOKEN;

char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient); void
publishData();

const int trigpin=5;
const int echopin=18; 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()
  ;
} }

```

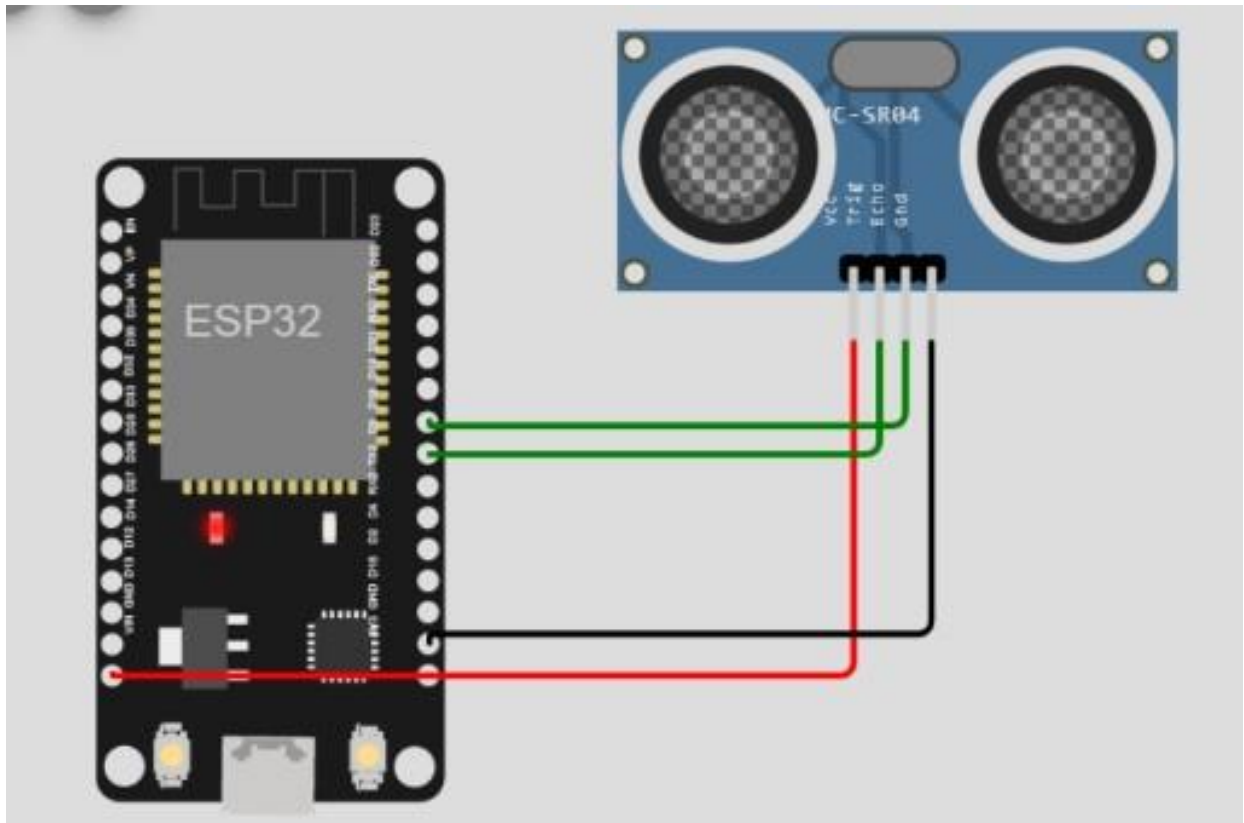
```

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="fatrash";
  }else{ dist=0;
    icon="fa-trasho";
  }
  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" ) ;
  }
}

```

Connections:



Output:

WOKWI SAVE SHARE ♥

sketch.ino diagram.json libraries.txt Library Manager

```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4
5 WiFiClient wificlient;
6
7 #define ORG "oa3490"
8 #define DEVICE_TYPE "TestDeviceType"
9 #define DEVICE_ID "12345"
10 #define TOKEN "-A)0ra544fdjyBvs"
11 #define speed 0.034
12
13 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
14 char publishTopic[] = "iot-2/evt/abcd_1/fmt/json";
15 char topic[] = "iot-2/cmd/home/fmt/String";
16 char authMethod[] = "use-token-auth";
17 char token[] = TOKEN;
18 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
19 PubSubClient client(server, 1883, wificlient);
20 void publishData();
21
22 const int trigpin=5;
23 const int echopin=18;
24 String command;
25 String data="";
26 String lat="14.167589";
27 String lon="80.248510";
28 String name="point2";
29 String icon="";
30
31 long duration;
32 int dist;
33
34 void setup()
35 {

```

Simulation Docs SIGN IN

00:36.677 10

Editing Ultrasonic Distance Sensor
Distance: 94cm

trash,"FillPercent":6}
Publish OK

Sending payload:
{ "Name": "point2", "Latitude": "14.167589", "Longitude": "80.248510", "Icon": "fa-trash", "FillPercent": 6 }
Publish OK

Output :(IBM Cloud)

