Assignment - 4

Wowki & IBM Cloud

Assignment Date	13 November 2022
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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:

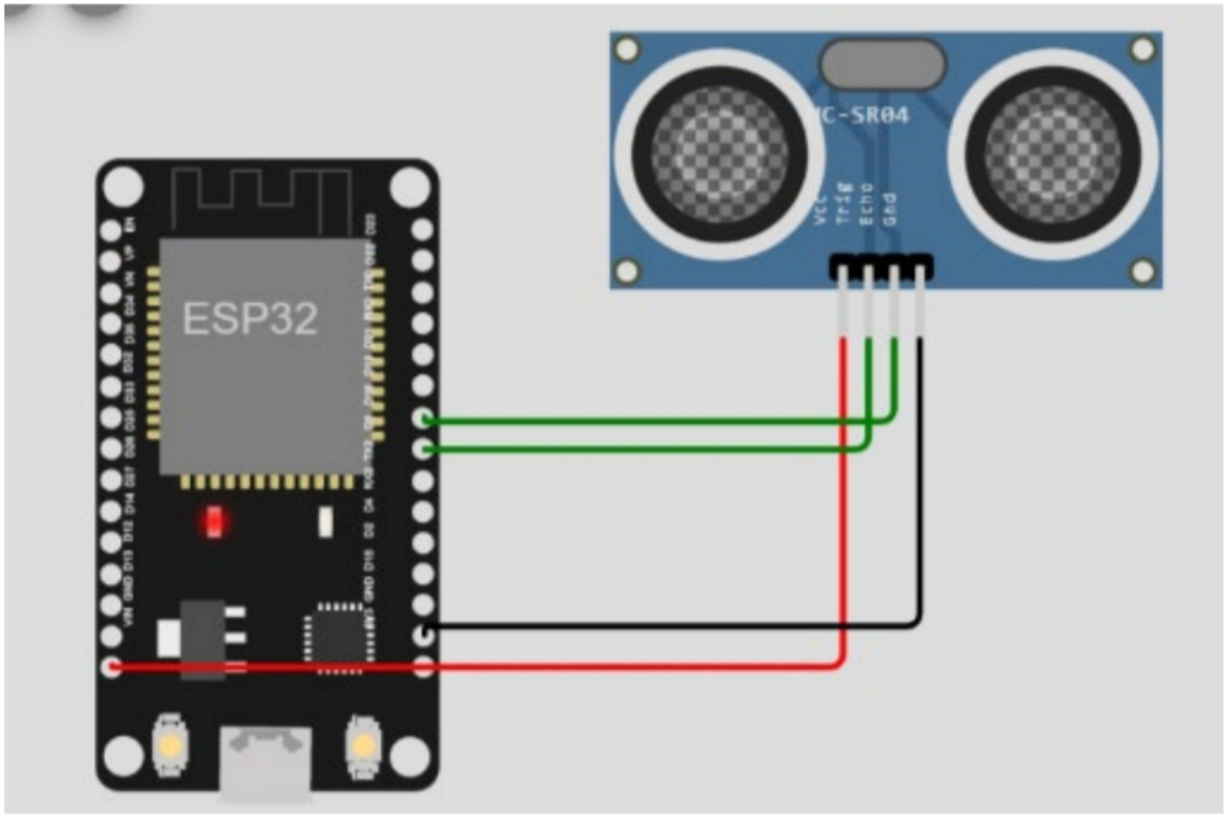
```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>

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-token-
auth"; 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());
}
```

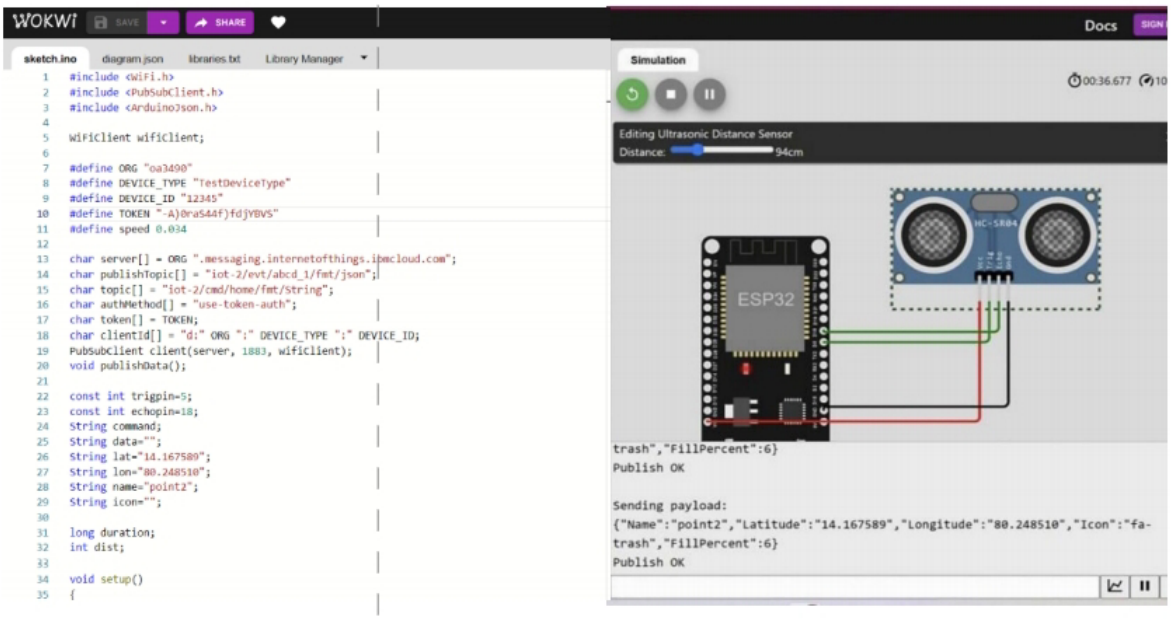
```
void mqttConnect() {
  if (! client.connected()) {
    Serial.print("Reconnecting MQTT client to ") ;
Serial.println( server); while (!client.connect(clientId,
    authMethod, token)) { Serial.print(".") ;
     delay(1000) ;
     }
     initManagedDevice();
     Serial.println() ;
  }
}

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="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") ;
  }
}
```

Connections:



Output:



Output :(IBM Cloud)