Assignment - 4
Wowki & IBM Cloud

Assignment Date	31 October 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:

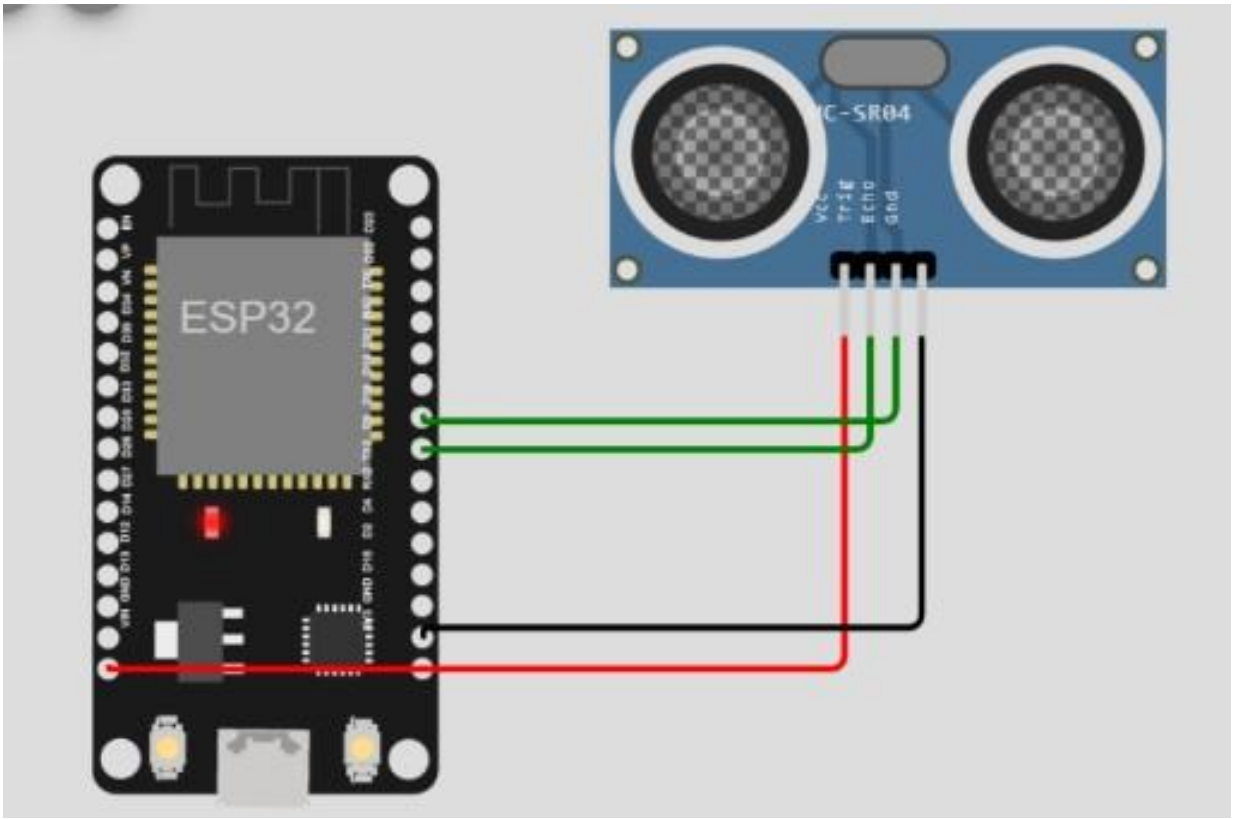
```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>

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())  {
```

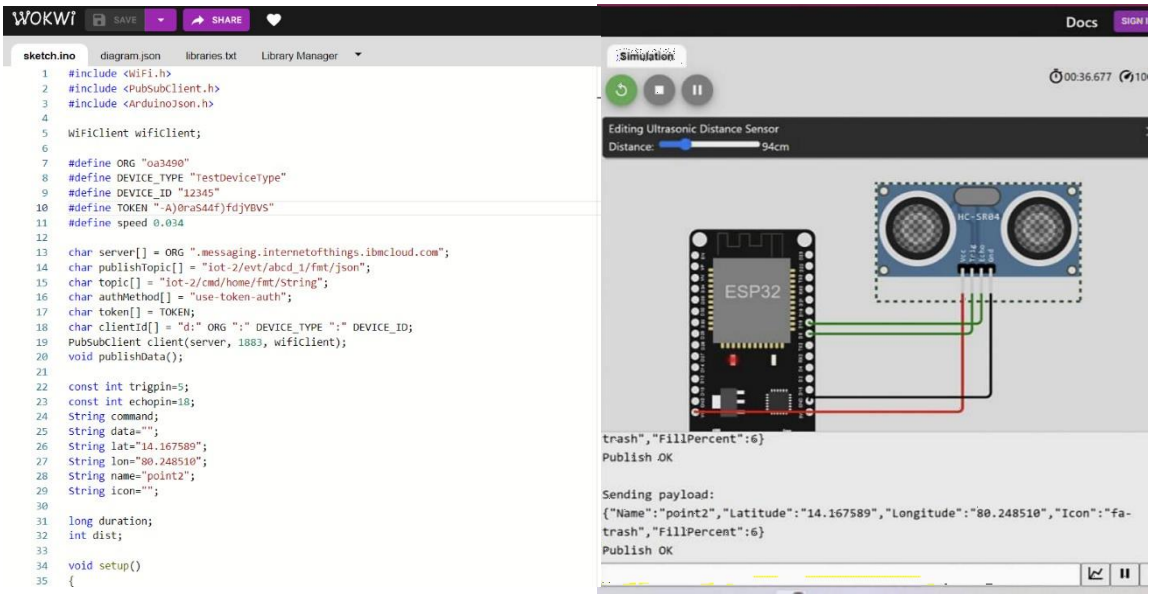
```
    Serial.print("Reconnecting MQTT client to ") ;
Serial.println( server); while (!client.connect(clientId,
    authMethod, token)) { Serial.print(".") ; delay(1000)
    ;
    }
    initManagedDevice(); Serial.println()
    ;
  }
}


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)