Assignment -4

WOWKI SIMULATION

Assignment Date	2nd NOVEMBER 2022
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Maximum Marks	2 Marks

Question-1:

Write a code and make a connection in WOKWI for ultrasonic sensor. Whenever distance is less than 100 , send “alert” to IBM cloud and display in device recent events.

PROGRAM

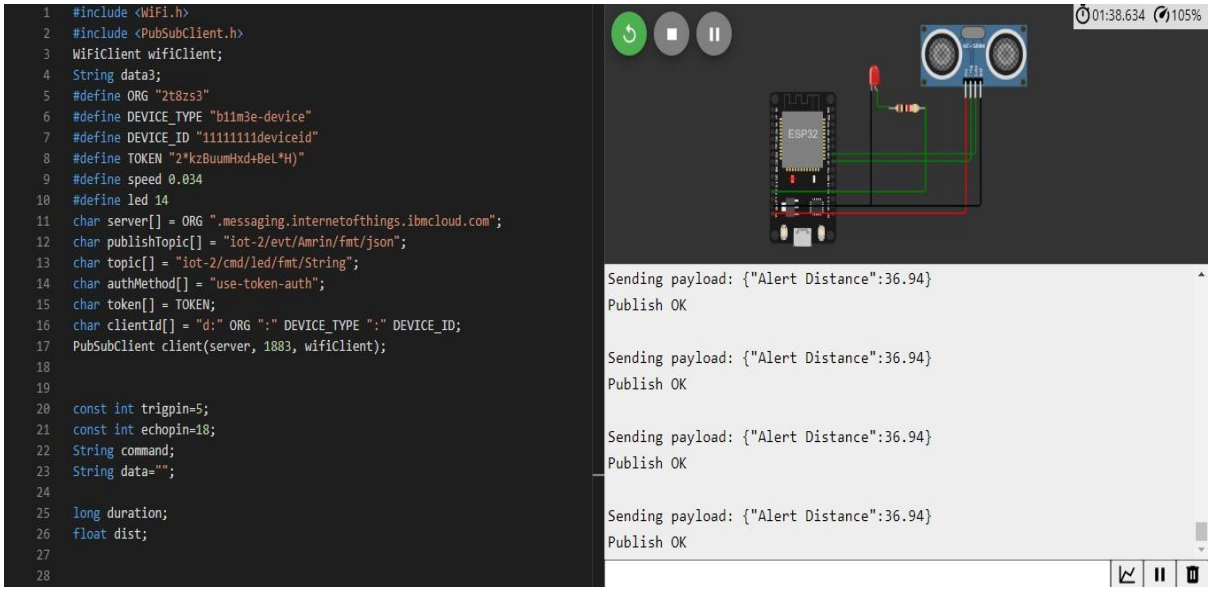
```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "2t8zs3"
#define DEVICE_TYPE "b11m3e-device"
#define DEVICE_ID "11111111deviceid"
#define TOKEN "2*kzBuumHxd+BeL*H)"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Amrin/fmt/json";
char topic[] = "iot-2/cmd/led/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);


const int trigpin=5;
const int echopin=18;
String command;
String data="";

long duration;
float dist;
```

```
void setup()
{
 Serial.begin(115200);
 pinMode(led, OUTPUT);
 pinMode(trigpin, OUTPUT);
 pinMode(echopin, INPUT);
 wifiConnect();
 mqttConnect();
}

void loop() {
 bool isNearby = dist < 100;
 digitalWrite(led, isNearby);

 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(500);
  }
  initManagedDevice();
  Serial.println();
 }
}

void initManagedDevice() {
 if (client.subscribe(topic)) {
```

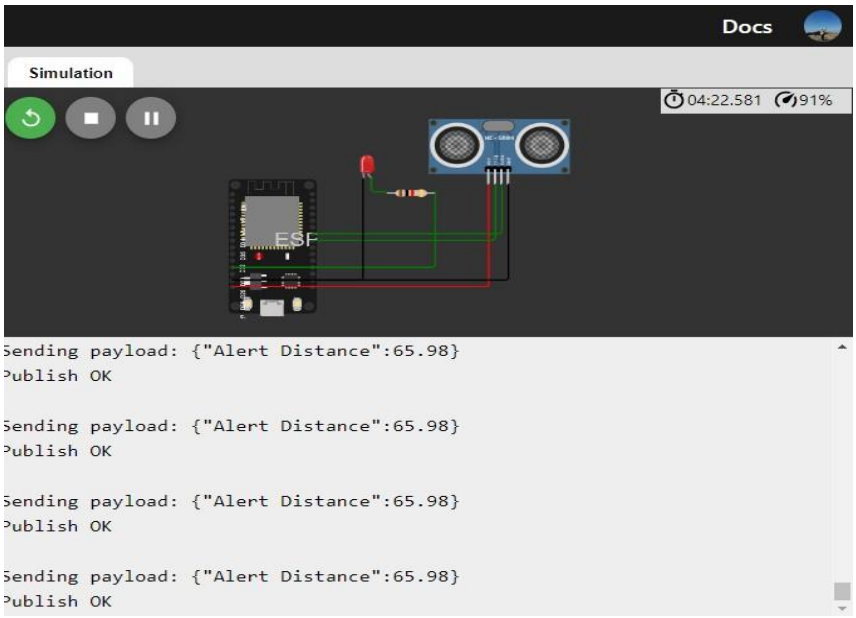
```
   // Serial.println(client.subscribe(topic));
   Serial.println("IBM subscribe to cmd OK");
  } else {
   Serial.println("subscribe to cmd FAILED");
  }
}
void publishData()
{
  digitalWrite(trigpin,LOW);
  digitalWrite(trigpin,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigpin,LOW);
  duration=pulseIn(echopin,HIGH);
  dist=duration*speed/2;
  if(dist<100){
   String payload = "{\"Alert Distance\":";
   payload += dist;
   payload += "}";

   Serial.print("\n");
   Serial.print("Sending payload: ");
   Serial.println(payload);
   if (client.publish(publishTopic, (char*) payload.c_str())) {
    Serial.println("Publish OK");
   }

  }
   if(dist>100){
   String payload = "{\"Distance\":";
   payload += dist;
   payload += "}";

   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");
   }

  }


  }
```

OUTPUT:

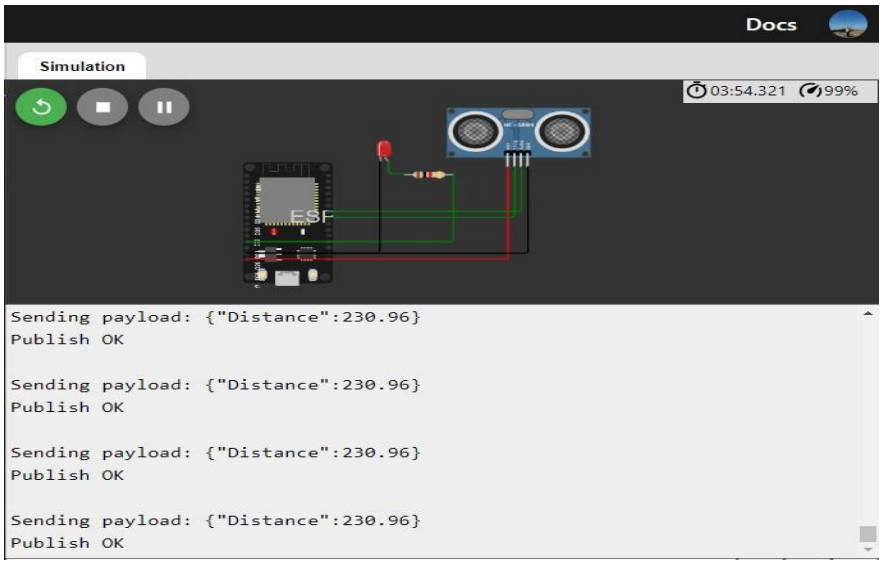
WOKWI SIMULATION



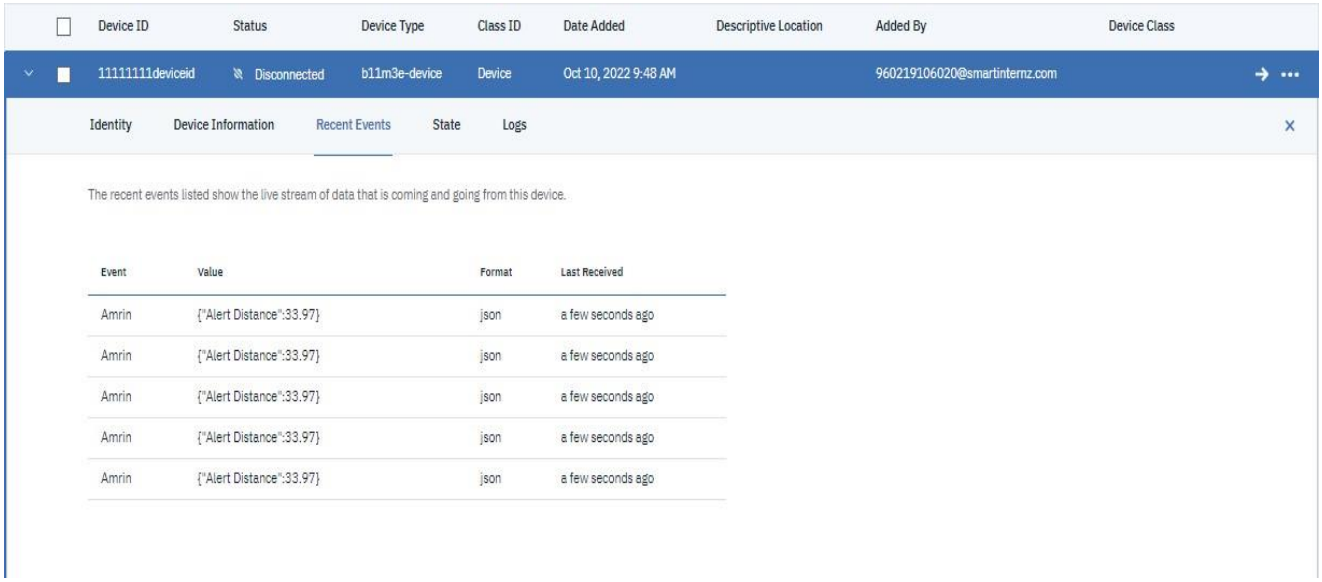
When distance<100:



When distance>100:



IBM CLOUD OUTPUT



WOKWI LINK:

https://wokwi.com/projects/347264373844083284