Assignment -4

WOWKI SIMULATION

Assignment Date	5th 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

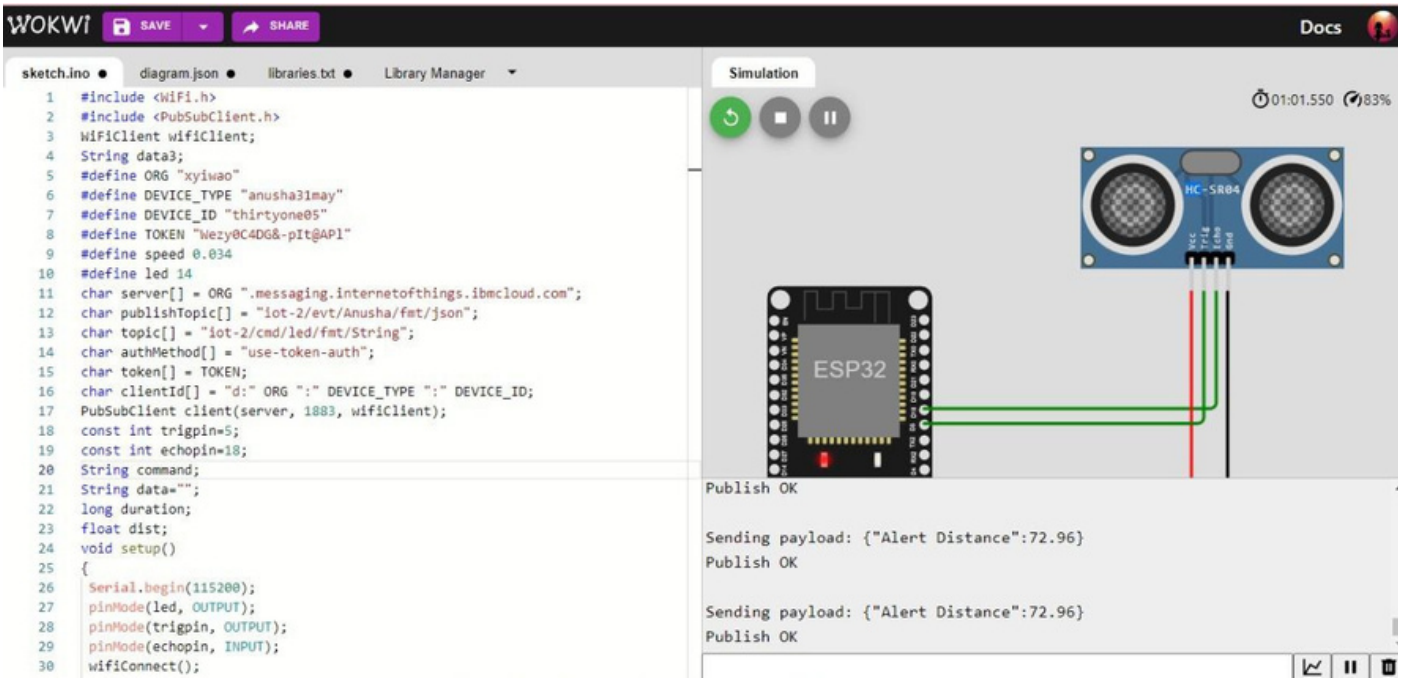
```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "xyiwao "
#define DEVICE_TYPE "anusha31may"
#define DEVICE_ID "thirtyone05"
#define TOKEN "Wezy0C4DG&-pIt@AP1"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Anusha/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)) {
```

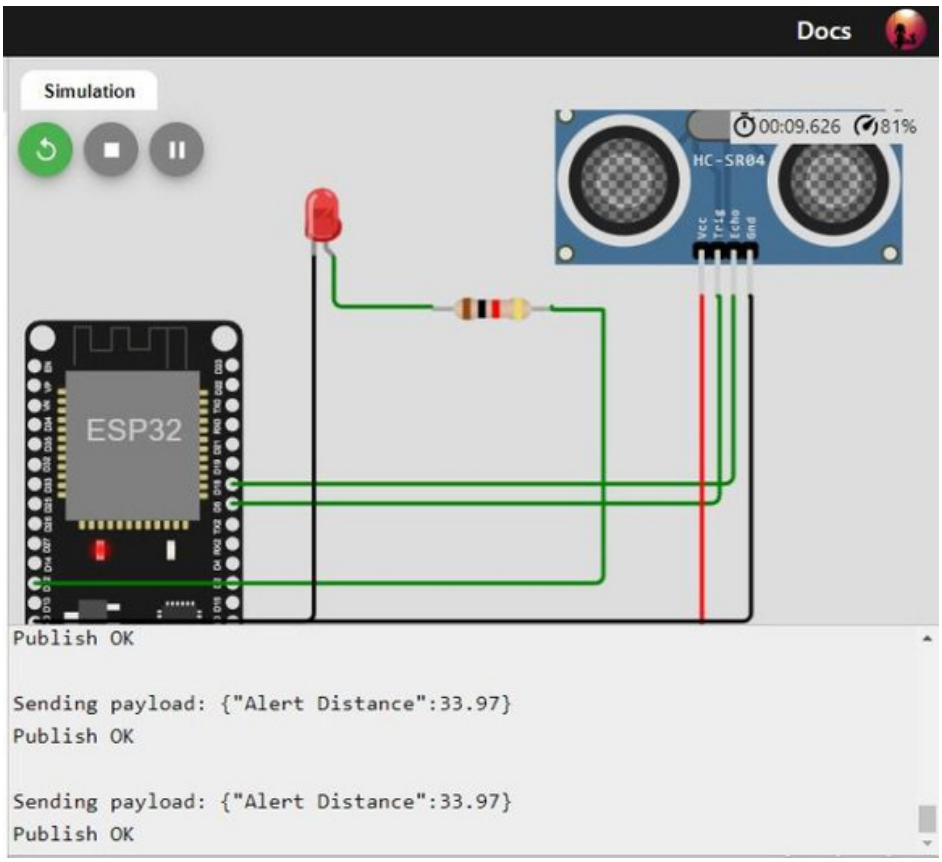
```
      // Serial.println(client.subscribe(topic));
       Serial.println("IBM subscribe to cmd OK");
} else {
       Serial.println("subscribe to cmd FAILED");
    }
}
void publishData()
{
digitalWrite(trigpin,LOW);
digitalWrite(trigpin,HIGH);
delayMicroseconds(10);
digitalWrite(trigpin,LOW);
duration=pulseIn(echopin,HIGH);
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:

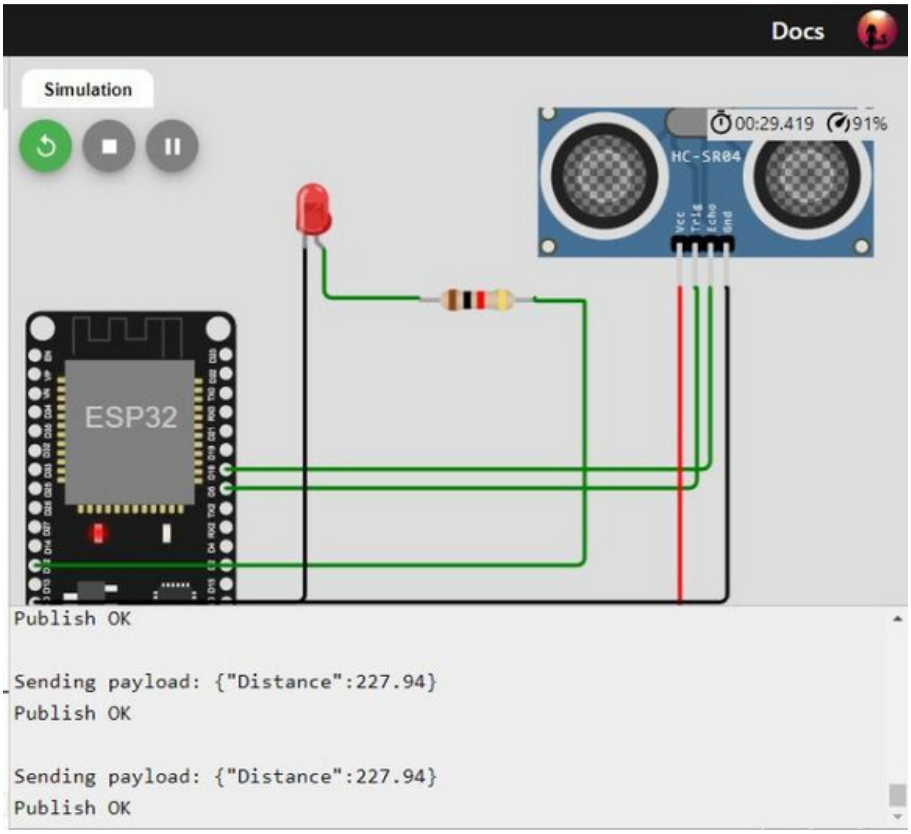
WOKWI SIMULATION



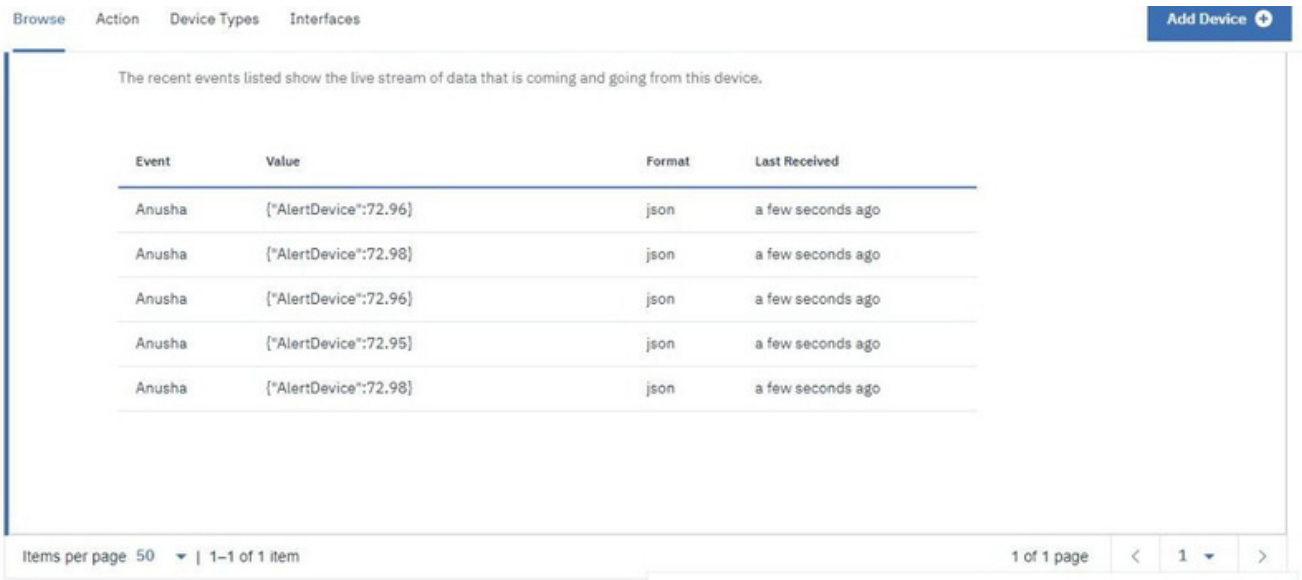
When distance<100:



When distance>100:



IBM CLOUD OUTPUT



WOKWI LINK:

https://wowki.com/projects/347478433291305554