# Assignme
# nt 4

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|---|---|
| Date | 2 Nov 2022 |
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| Team ID | PNT2022TMID33963 |
| Project Name | Signs with Smart Connectivity for Better Road Safety |

**Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send alert to ibm cloud and display in device recent events. Upload document with wokwi share link and images of ibmcloud**

## Code

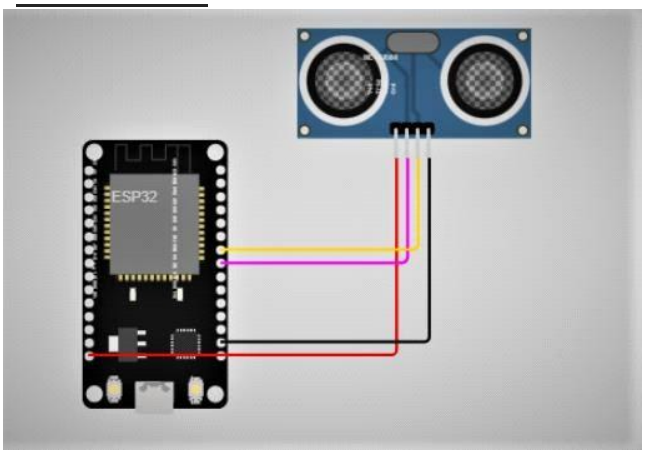
```
#include <WiFi.h>
#include
<PubSubClient.h>
WiFiClient
wifiClient; String
data3;
#define ORG "kghjg6"
#define DEVICE_TYPE
"BrijiESP"#define
DEVICE_ID "Briji123"
#define TOKEN
"12345678"
#define speed 0.034
#define led 14
char server[] = ORG
".messaging.internetofthings.ibmcloud.com";char
publishTopic[] = "iot-2/evt/shreedharen/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(115
  200);
  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: ");
```

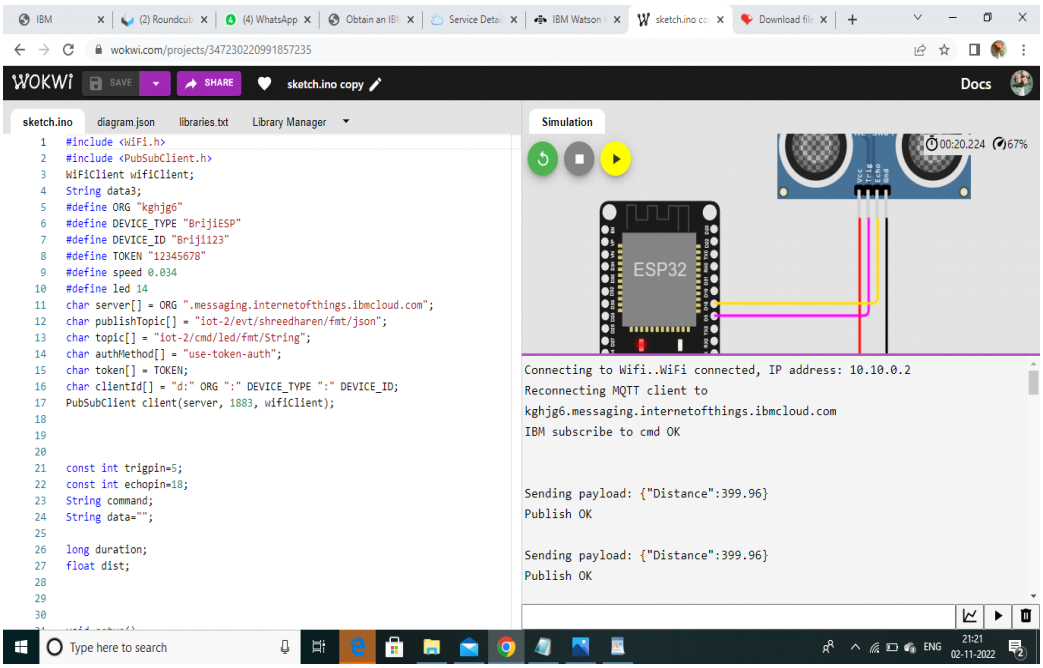
```
Serial.println(WiFi.localIP());
}

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,H
  IGH);
  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");
   }
  }
 }
```

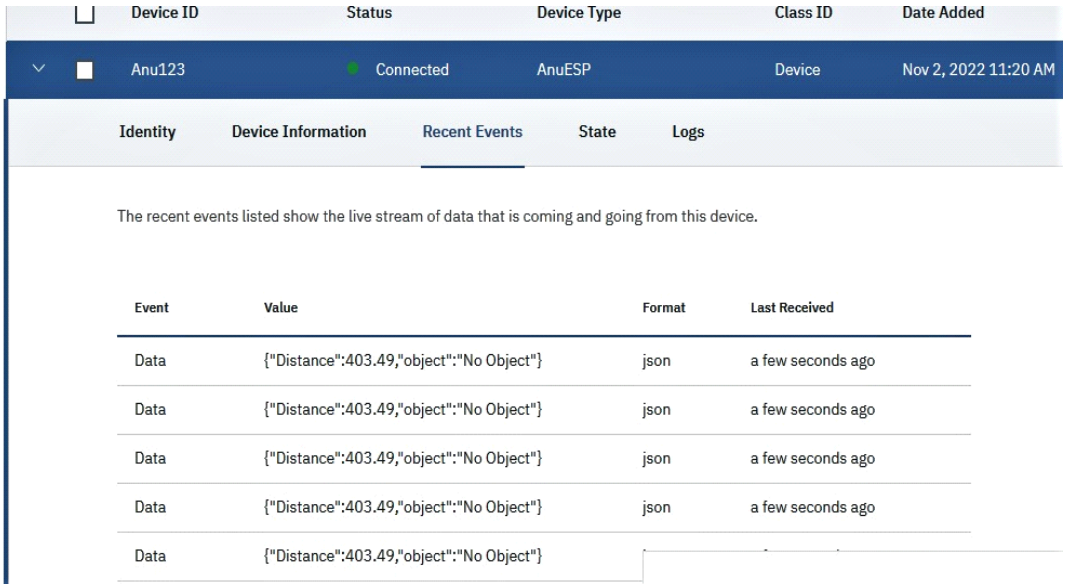
**Connections**




**Output:**




## Cloud image:



| Device ID | Status | Device Type | Class ID | Date Added |
|---|---|---|---|---|
| Anu123 | Connected | AnuESP | Device | Nov 2, 2022 11:20 AM |

Identity | Device Information | Recent Events | State | Logs

The recent events listed show the live stream of data that is coming and going from this device.

| Event | Value | Format | Last Received |
|---|---|---|---|
| Data | {"Distance":403.49,"object":"No Object"} | json | a few seconds ago |
| Data | {"Distance":403.49,"object":"No Object"} | json | a few seconds ago |
| Data | {"Distance":403.49,"object":"No Object"} | json | a few seconds ago |
| Data | {"Distance":403.49,"object":"No Object"} | json | a few seconds ago |
| Data | {"Distance":403.49,"object":"No Object"} | | |

## Wokwi link:

https://wokwi.com/projects/347231803475493458