ASSINGNMENT-IV

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CODE:

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "co65hn"
#define DEVICE_TYPE "ManiMD"
#define DEVICE_ID "manimd07"
#define TOKEN "0708012359"
#define speed 0.034 #define led 14 char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char publishTopic[]
= "iot-2/evt/manimd/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() {
```

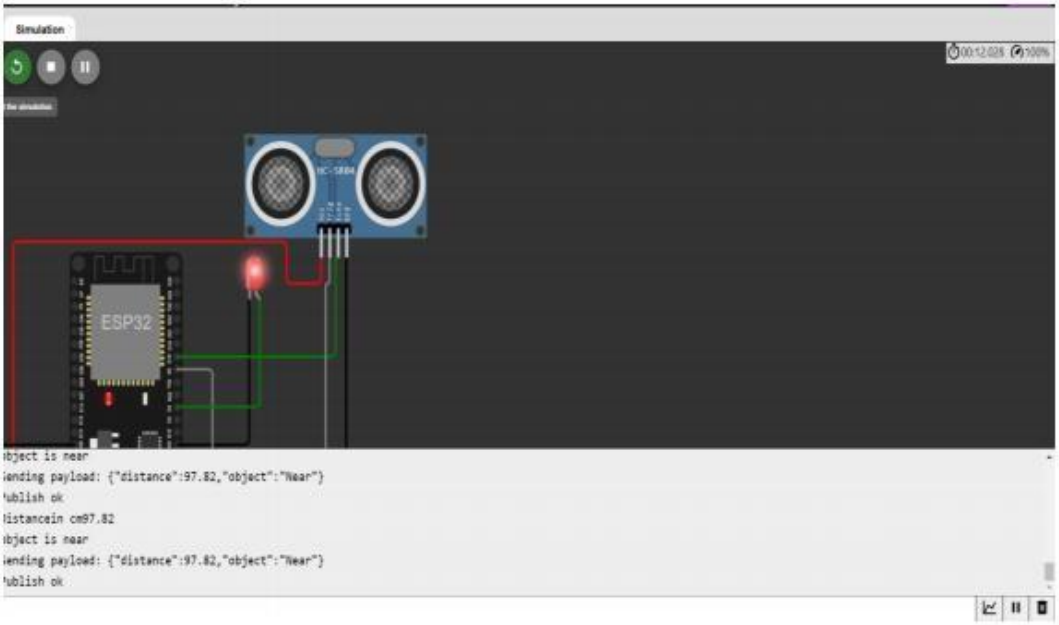
```
        Serial.begin(115200);
                pinMode(led, OUTPUT);
                pinMode(trigpin, OUTPUT);
        wifiConnect();
                mqttConnect();
} void loop() { bool isNearby =
dist < 100; digitalWrite(led,
isNearby);

        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()) {
```

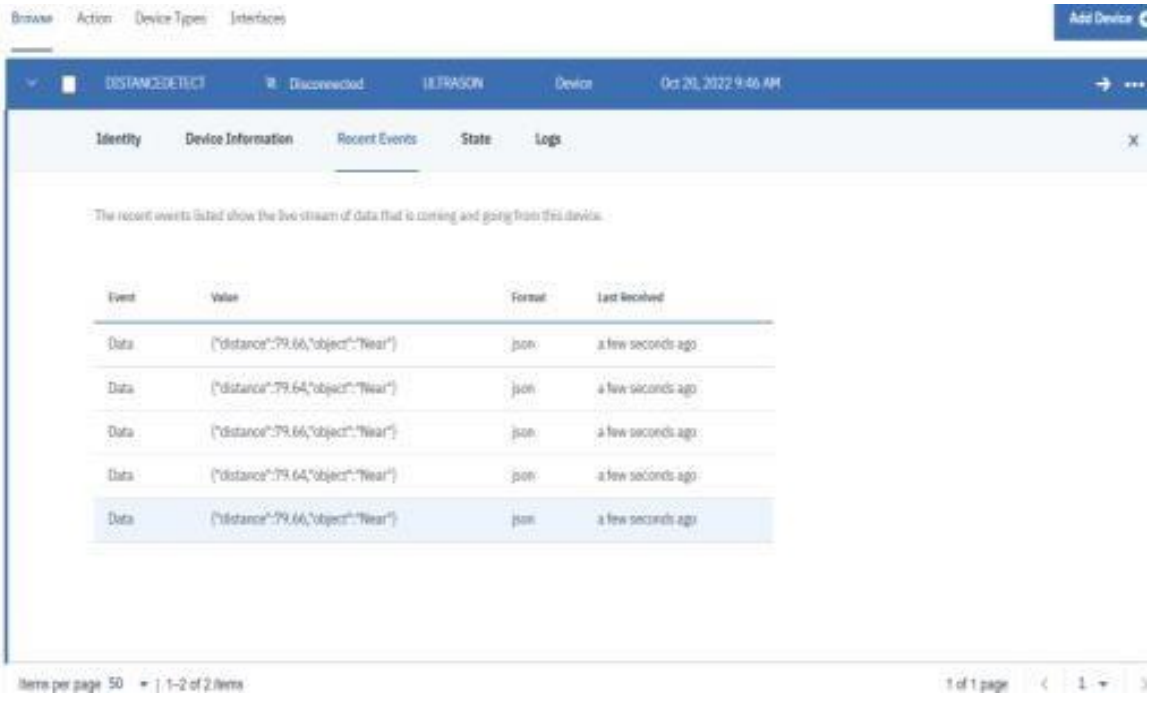
```
        Serial.print("Reconnecting MQTT client to ");
        Serial.println(server); while (!client.connect(clientId, authMethod,
        token)) { Serial.print("."); delay(500);
        }
    }
    initManagedDevice();
    Serial.println();
  }
}

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

when object is near to the ultrasonic sensor




Browse
Action
Device Types
Interfaces
Add Device
DISTANCEDETECT
Disconnected
ULTRASON
Device
Oct 20, 2022 9:46 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":79.66,"object":"Near"}
json
a few seconds ago
Data
{"distance":79.64,"object":"Near"}
json
a few seconds ago
Data
{"distance":79.66,"object":"Near"}
json
a few seconds ago
Data
{"distance":79.64,"object":"Near"}
json
a few seconds ago
Data
{"distance":79.66,"object":"Near"}
json
a few seconds ago
Items per page: 50
1–2 of 2 items
1 of 1 page
1