NALAIYA THIRAN

ASSIGNMENT-4

USER CASE: PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF RELIANT BY

TEAM LEAD: TEAM MEMBER 1(ABINAYA V)

Write a code and connection in wokwi for the Ultrasonic sensor. Whenever the distance is less than 100cm send an "Alert" to the IBM cloud and display in the device recent events.

CODE:

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "3eqctu"
#define DEVICE_TYPE "ESP32"
#define DEVICE_ID "0000"
#define TOKEN "123456789"
#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()
{
```

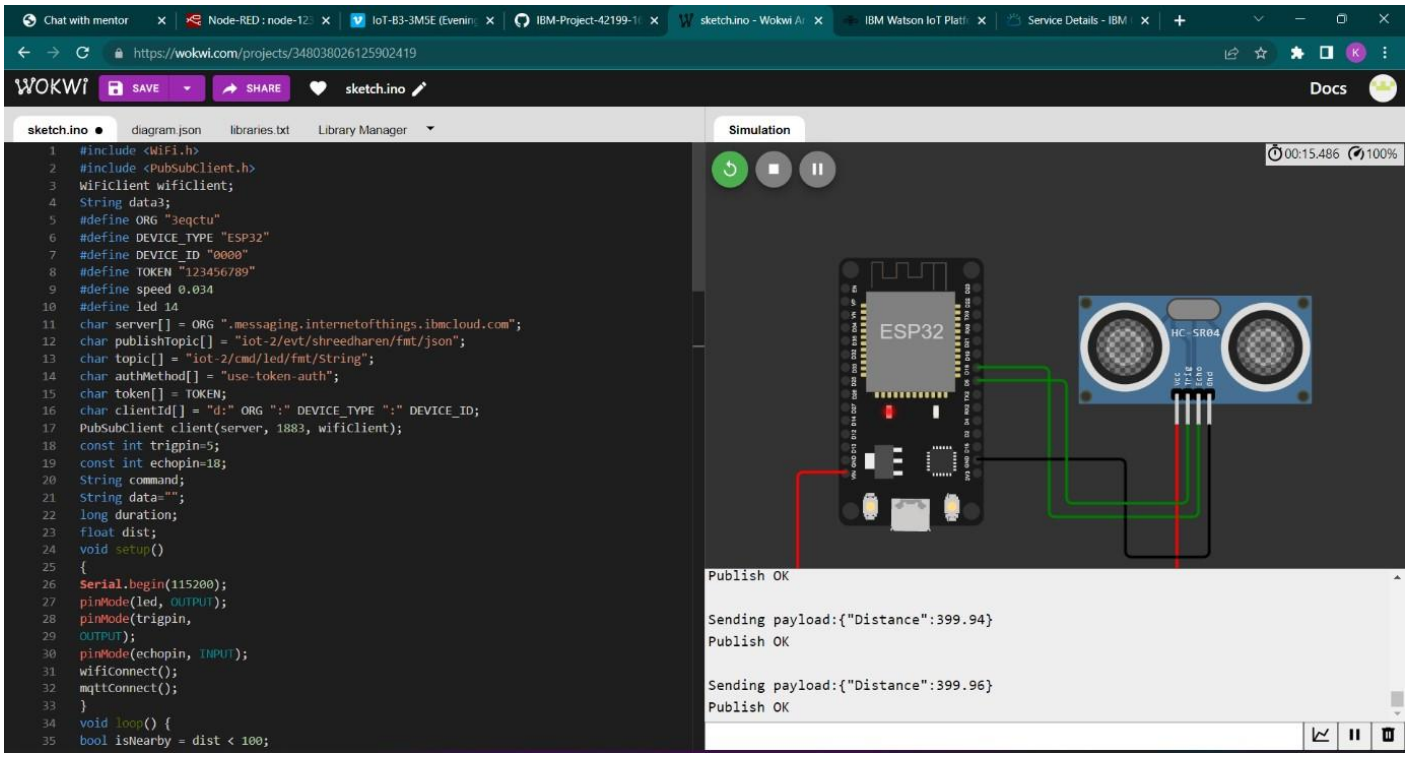
```
Serial.begin(115200);
pinMode(led, OUTPUT);
pinMode(trigpin,OUTPUT);
pinMode(echopin, INPUT);
wifiConnect();
mqttConnect(); } void loop()
{ bool isNearby = dist <
100; digitalWrite(led,
isNearby); publishData();
delay(500); if
(!client.loop())
{mqttConnect();
} }
void wifiConnect() {
Serial.print("Connecting 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("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:

LINK: https://wokwi.com/projects/348038026125902419


Chat with mentor
Node-RED : node-12
IoT-B3-3M5E (Evening
IBM-Project-42199-1
sketch.ino - Wokwi A
IBM Watson IoT Platf
Service Details - IBM
https://wokwi.com/projects/348038026125902419
WOKWI
SAVE
SHARE
sketch.ino
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
#include <WiFi.h>
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String data3;
#define ORG "3eqctu"
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#define DEVICE_ID "0000"
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#define led 14
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char topic[] = "iot-2/cmd/led/fmt/String";
char authMethod[] = "use-token-auth";
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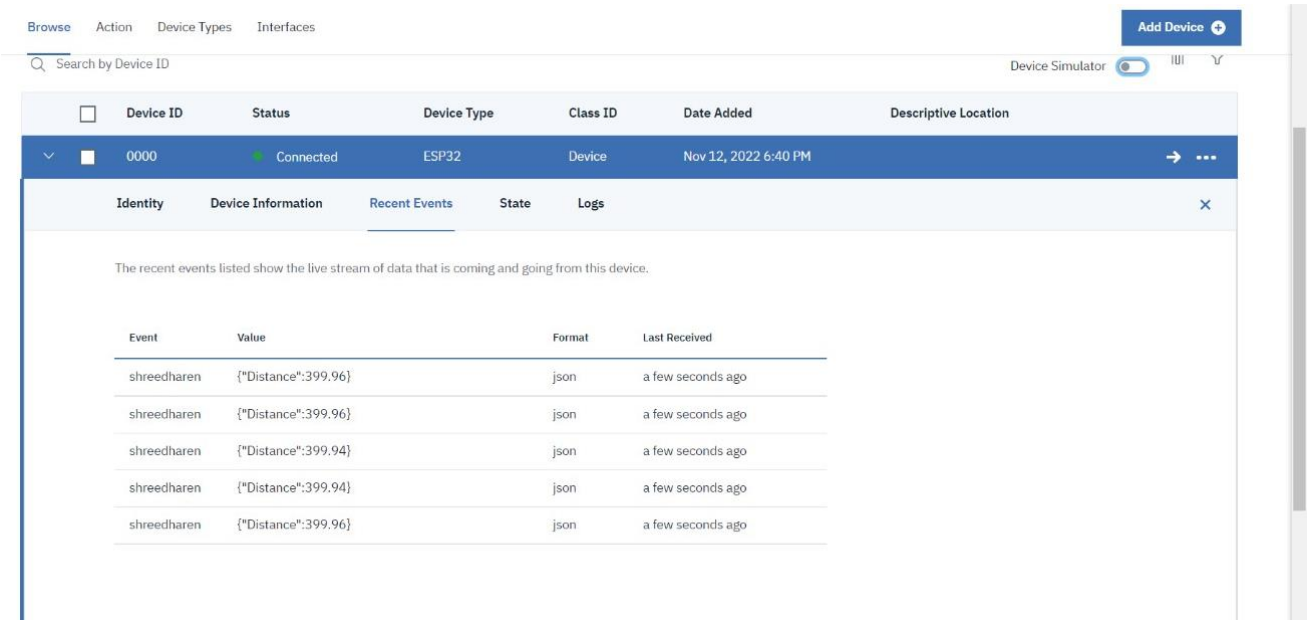
PubSubClient client(server, 1883, wifiClient);
const int trigpin=5;
const int echopin=18;
String command;
String data="";
long duration;
float dist;
void setup()
{
Serial.begin(115200);
pinMode(led, OUTPUT);
pinMode(trigpin,
OUTPUT);
pinMode(echopin, INPUT);
wifiConnect();
mqttConnect();
}
void loop() {
bool isNearby = dist < 100;
Simulation
00:15.486
100%
ESP32
HC-SR04
Publish OK
Sending payload:{"Distance":399.94}
Publish OK
Sending payload:{"Distance":399.96}
Publish OK


Browse
Action
Device Types
Interfaces
Add Device
Search by Device ID
Device Simulator
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
0000
Connected
ESP32
Device
Nov 12, 2022 6:40 PM
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
shreedharen
{"Distance":399.96}
json
a few seconds ago
shreedharen
{"Distance":399.96}
json
a few seconds ago
shreedharen
{"Distance":399.94}
json
a few seconds ago
shreedharen
{"Distance":399.94}
json
a few seconds ago
shreedharen
{"Distance":399.96}
json
a few seconds ago