Assignment-4

Assignment Date	**25 October 2022**
Student Name	**Nagaraj K**
Student Roll Number	**731719106010**
Maximum Marks	**2 Marks**

Question-4:

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

PROGRAM:

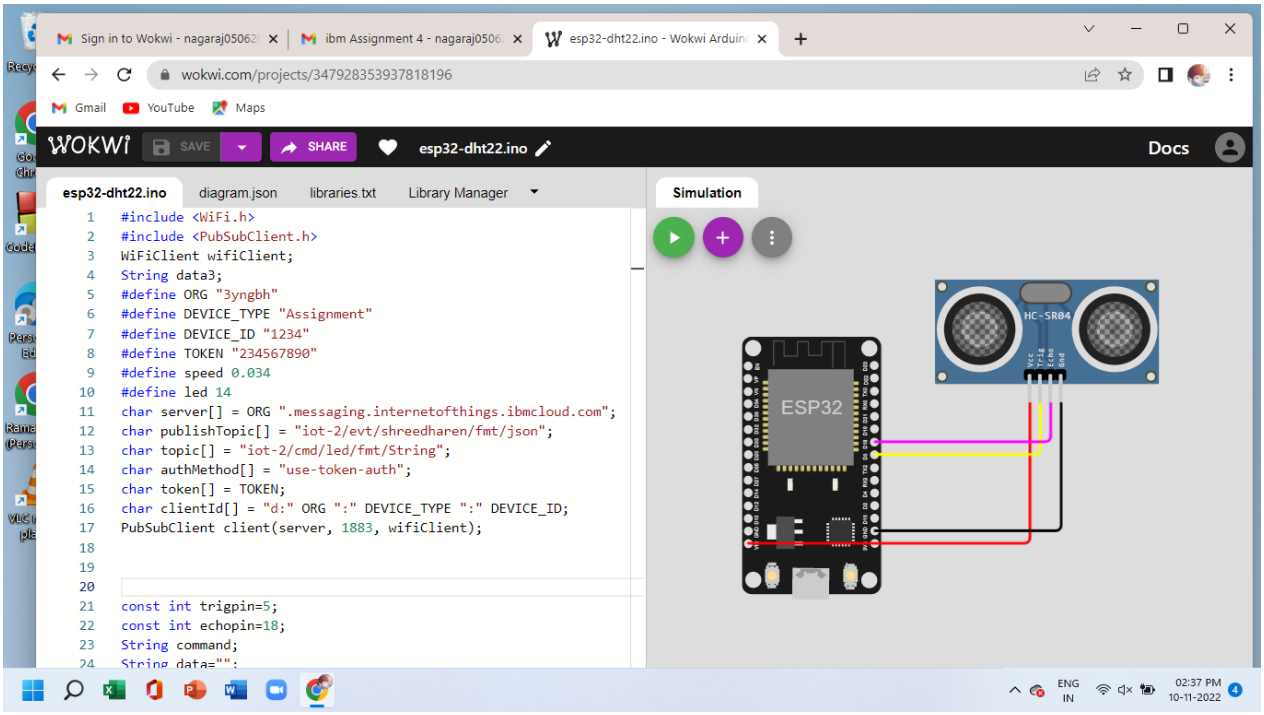
```
#include  <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "948e13"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "502645"
#define TOKEN "F1eqrGOoNLaTFjk?Sz"
#define speed 0.034
  #defineled 14
  char server[] = ORG
  ".messaging.internetofthings.ibmcloud.com"; 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;
Stringcommand;
String data="";

long duration;
floatdist;



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,LO
 W);
 digitalWrite(trigpin,HIG
 H);
 delayMicroseconds(10);
```

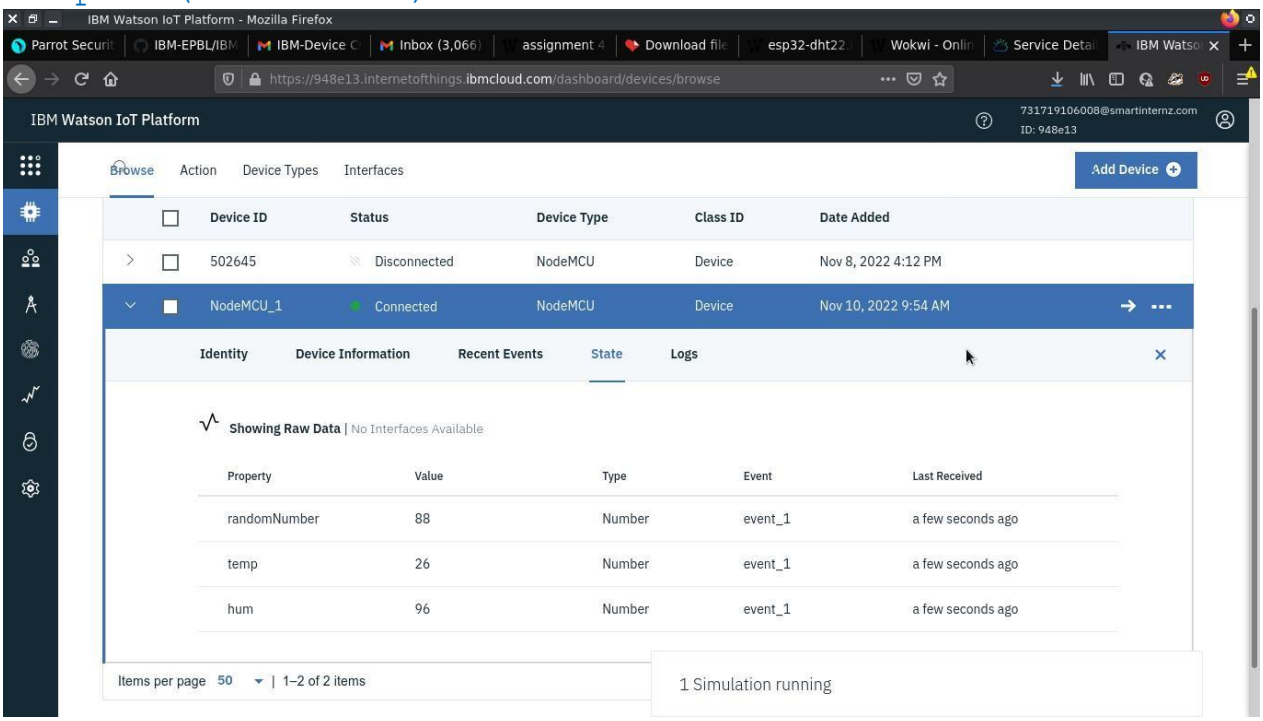
```
 digitalWrite(trigpin,LOW);
duration=pulseIn(echopin,HIGH);
dist=duration*speed/2; if(dist<100){
  String payload = "{\"Alert
Distance\":";payload += dist;
                    payload += "}";

  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(publishT
opic,(char*) payload.c_str())) {
   Serial.println("Publish OK");
  }else {
   Serial.println("Publish FAILED");
  }

 }

 }
```

Connection:


Sign in to Wokwi - nagaraj0506
ibm Assignment 4 - nagaraj0506
esp32-dht22.ino - Wokwi Arduino
wokwi.com/projects/347928353937818196
Gmail
YouTube
Maps
WOKWI
SAVE
SHARE
esp32-dht22.ino
Docs
esp32-dht22.ino
diagram.json
libraries.txt
Library Manager
Simulation
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "3yngbh"
#define DEVICE_TYPE "Assignment"
#define DEVICE_ID "1234"
#define TOKEN "234567890"
#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="";
ESP32
HC-SR04
ENG
IN
02:37 PM
10-11-2022

Output:

Output:(IBM Cloud)



Link: https://wokwi.com/projects/347928353937818196