ASSIGNMENT - 4

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ROLL NO: 737819ECR200

Program:

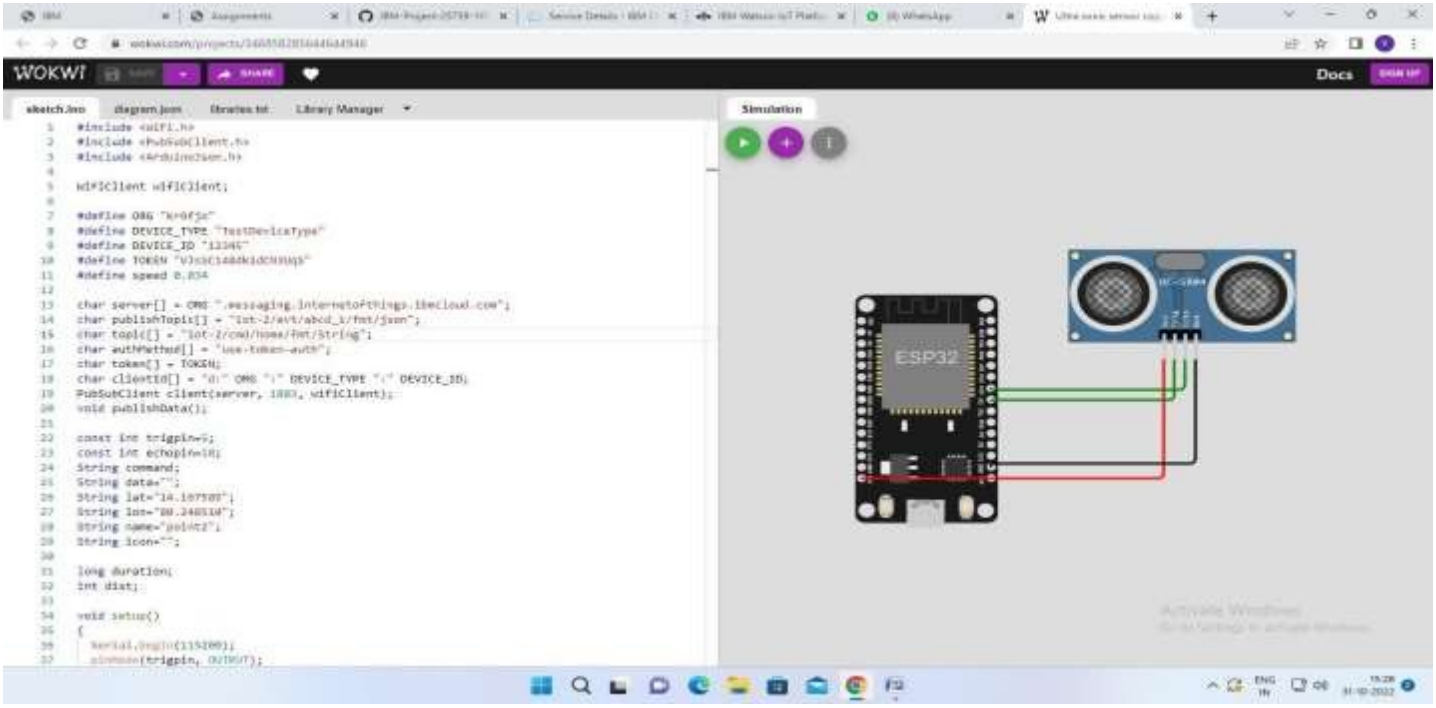
```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "kr9fjo"
#define DEVICE_TYPE "TestDeviceType"
#define DEVICE_ID "12345"
#define TOKEN "VJsSC148dk1dCN3UqS"
#define speed 0.034
char server[] = ORG
".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/abcd_1/fmt/json";
 char topic[] = "iot-
2/cmd/home/fmt/String";   char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient); void publishData();
 const int trigpin=5;
const int echopin=18;
String command;
String data="";
String lat="14.167589";
String lon="80.248510";
String name="point2";
String icon="";
  long duration;
int dist;
void setup()
 {    Serial.begin(115200);
pinMode(trigpin, OUTPUT);
pinMode(echopin, INPUT);
wifiConnect();
mqttConnect();
}
void loop()
{
   publishData();
delay(500);
   if (!client.loop())
{
 mqttConnect();
  }
}
void wifiConnect() {
  Serial.print("Connecting to ");
```

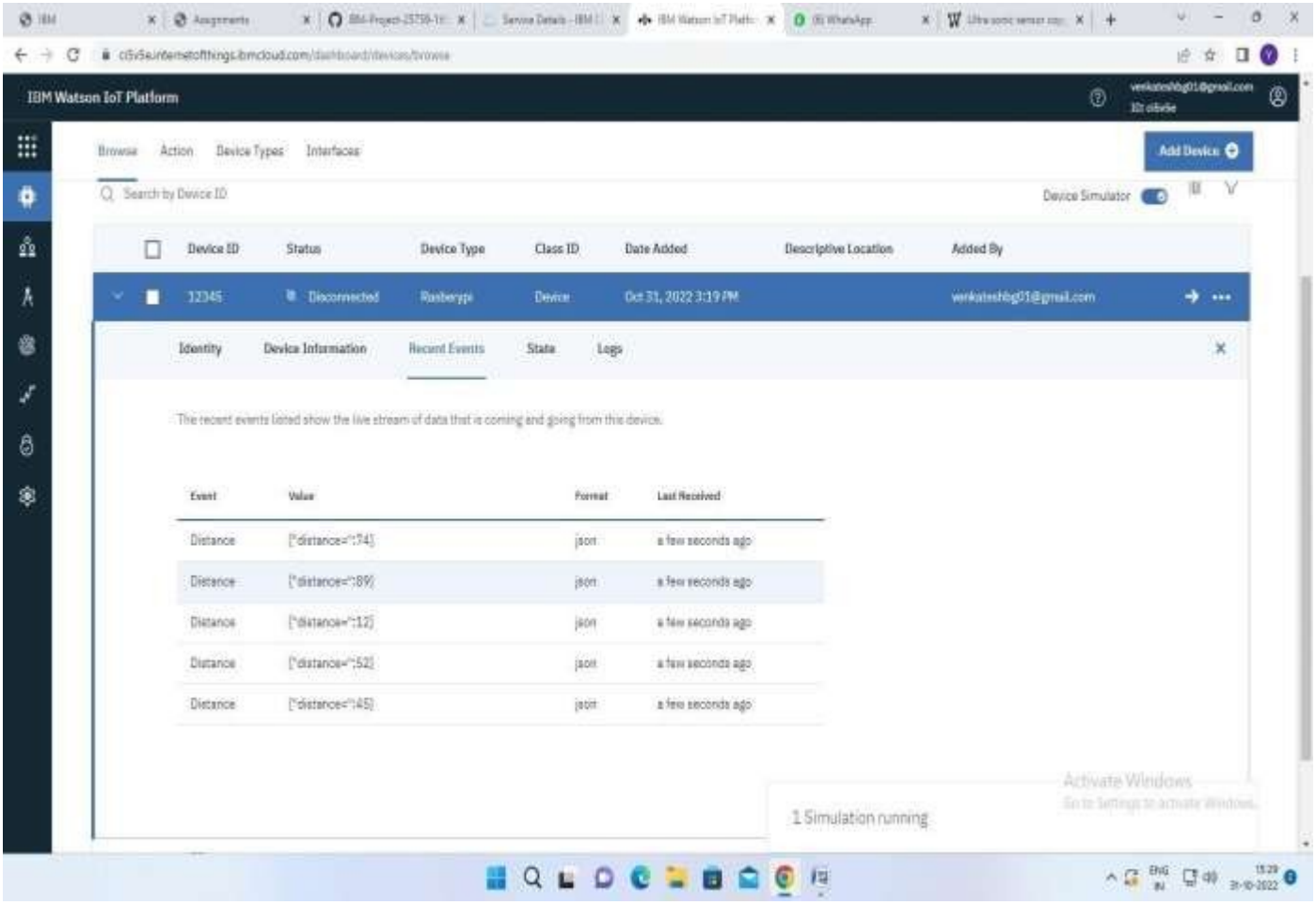
```
Serial.print("Wifi");
WiFi.begin("Wokwi-GUEST", "", 6);
While
(WiFi.status() != WL_CONNECTED)
 {
delay(500);
    Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: ");
Serial.println(WiFi.localIP());
}
void mqttConnect()
{
if (!client.connected())
{
    Serial.print("Reconnecting MQTT client to ");
Serial.println(server);
while (!client.connect(clientId, authMethod, token))
{
Serial.print(".");
       delay(1000);
    }
initManagedDevice();
Serial.println();
  }  }   void
initManagedDevice() {
if (client.subscribe(topic))
{
     Serial.println(client.subscribe(topic));
    Serial.println("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){
dist=100-dist;
icon="fa-trash";
}
Else
{
 dist=0;
```

```
icon="fa-trash-o";
  }
  DynamicJsonDocument doc(1024);
String payload;
doc["Name"]=name;
doc["Latitude"]=lat;
doc["Longitude"]=lon;
doc["Icon"]=icon;
doc["FillPercent"]=dist;
serializeJson(doc, payload);
delay(3000);
  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:0


WOKWI
Docs
Simulation
ESP32


IBM Watson IoT Platform
Browse
Action
Device Types
Interfaces
Add Device
Search by Device ID
Device Simulator
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
Added By
12345
Disconnected
Raspberypi
Device
Oct 31, 2022 3:19 PM
venkateshbg01@gmail.com
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
Distance
{"distance":74}
json
a few seconds ago
Distance
{"distance":89}
json
a few seconds ago
Distance
{"distance":12}
json
a few seconds ago
Distance
{"distance":52}
json
a few seconds ago
Distance
{"distance":45}
json
a few seconds ago
1 Simulation running