

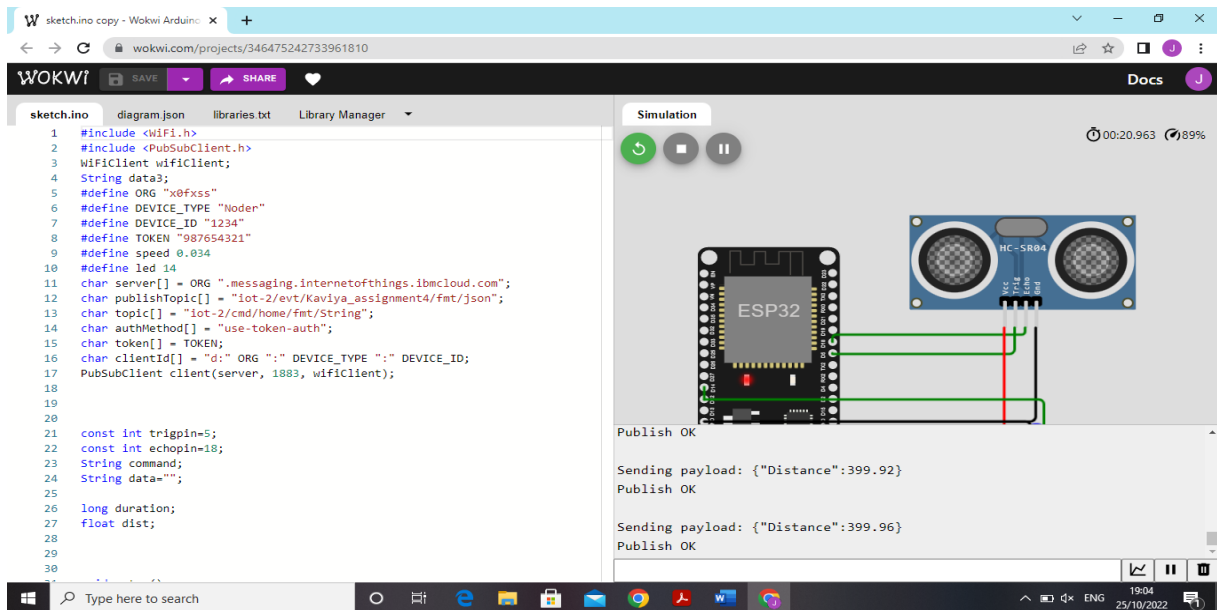
ASSIGNMENT 4

TEAM ID: PNT2022TMID05133

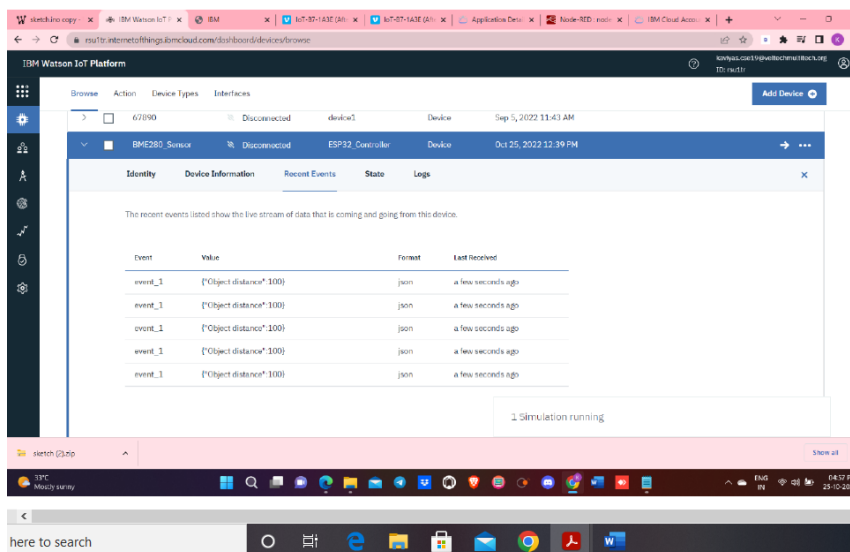
TEAM LEADER: K AHAMED APSARKHAN
(921319106006)

OUTPUT SCREENSHOTS:

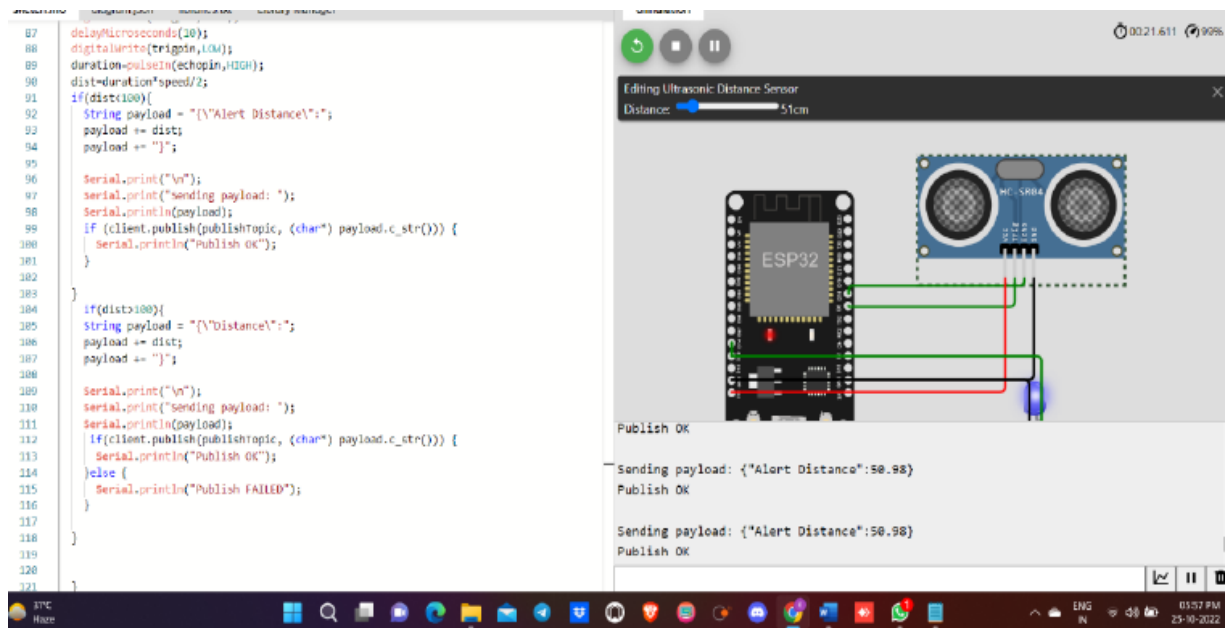
A) When distance greater than 100 ,



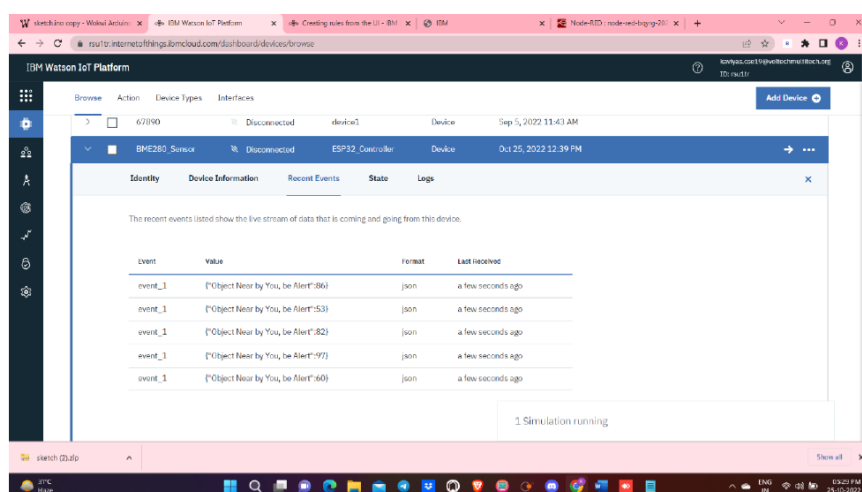
Recent events:



B) When distance less than 100 ,



Recent events:



WOKWI LINK: <https://wokwi.com/projects/346475242733961810>

CODE:

```
#include <WiFi.h>

#include <PubSubClient.h>

WiFiClient wifiClient;

String data3;

#define ORG "x0fxss"

#define DEVICE_TYPE "Noder"

#define DEVICE_ID "1234"

#define TOKEN "987654321"

#define speed 0.034

#define led 14

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";

char publishTopic[] = "iot-2/evt/Kaviya_assignment4/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);

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(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");  
}  
}  
}
```