Assignment-4

BATCH	B12-6A2E
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PROJECT	IOT Based Safety Gadget for Child Safety Monitoring and Notification

ASSIGNMENT 4

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cm send "alert" to IBM cloud and display in device recent events.

Upload document with wokwi share link and images of IBM cloud.

CODE

```
#include <WiFi.h>

#include <PubSubClient.h>
#include <ArduinoJson.h>

WiFiClient wifiClient;

#define ORG "mz6rat"
#define DEVICE_TYPE "arduino"
#define DEVICE_ID "54321"
#define TOKEN "26072002"
#define speed 0.034

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/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="";
```

```
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 {
```

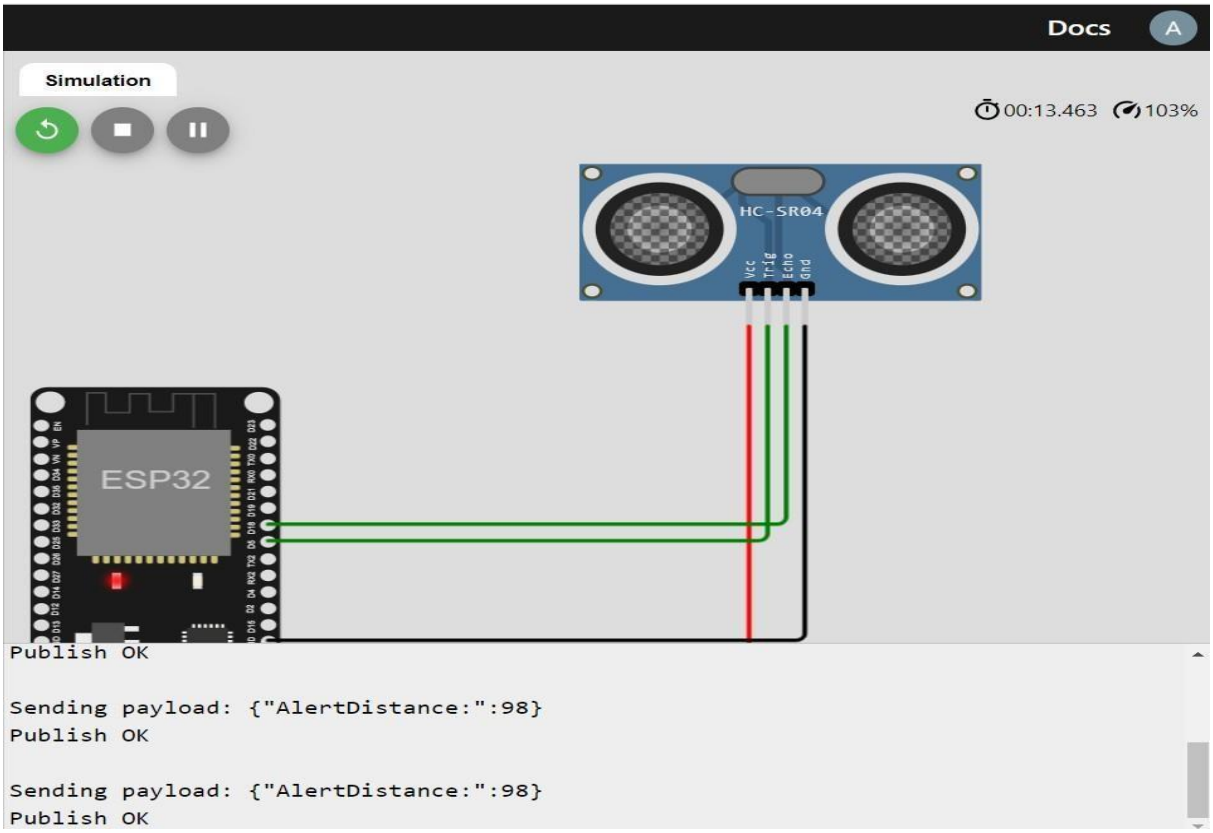
```
    Serial.println("subscribe to cmd FAILED");
  }
}
void publishData()
{
  digitalWrite(trigpin,LOW);
  digitalWrite(trigpin,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigpin,LOW);
```

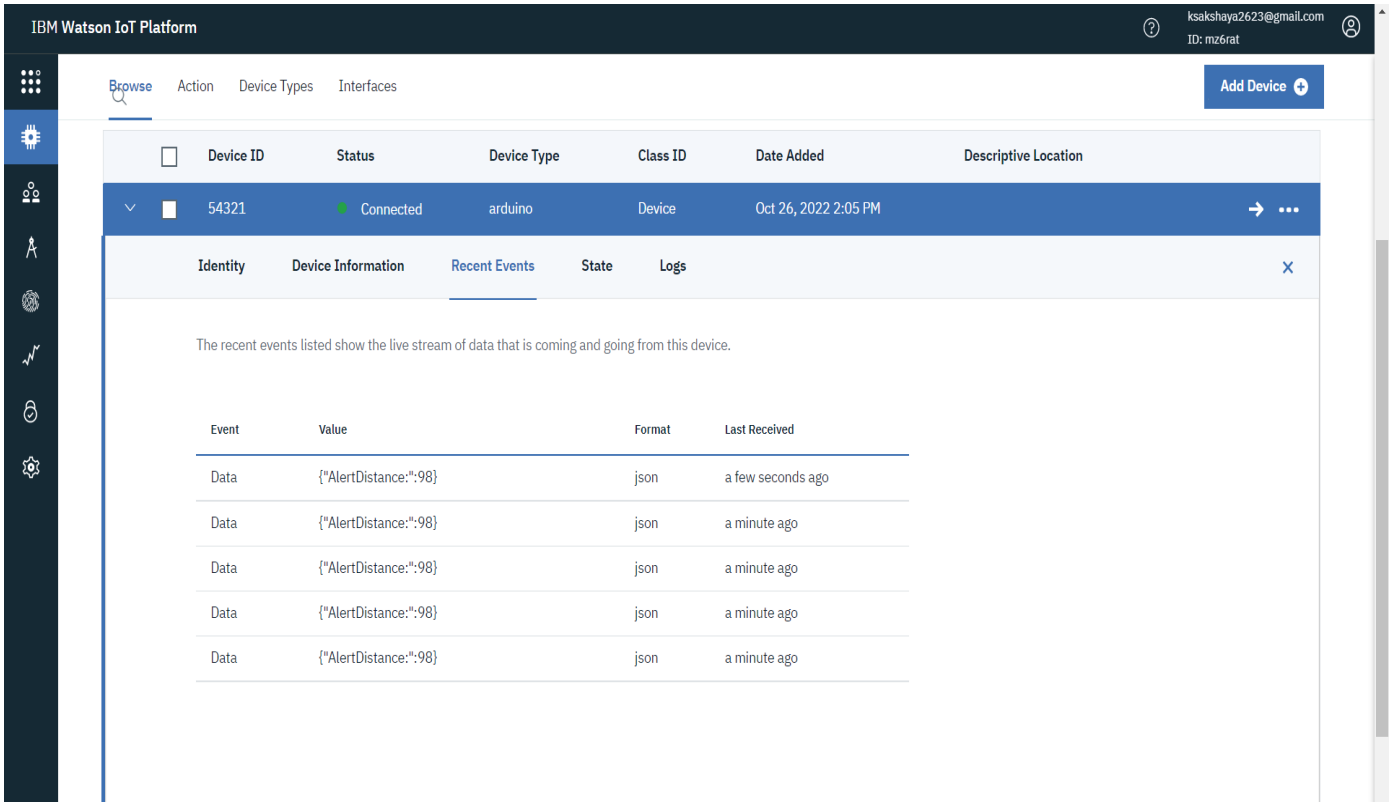
```
  duration=pulseIn(echopin,HIGH);
  dist=duration*speed/2;

  if(dist<100){
    DynamicJsonDocument doc(1024);
    String payload;
    doc["AlertDistance:"]=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");
    }
  }
}
```

WOKWI LINK:

https://wokwi.com/projects/346571307833360979

OUTPUT:




IBM Watson IoT Platform
ksakshaya2623@gmail.com
ID: mz6rat
Browse
Action
Device Types
Interfaces
Add Device
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
54321
Connected
arduino
Device
Oct 26, 2022 2:05 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
Data
{"AlertDistance:":98}
json
a few seconds ago
Data
{"AlertDistance:":98}
json
a minute ago
Data
{"AlertDistance:":98}
json
a minute ago
Data
{"AlertDistance:":98}
json
a minute ago
Data
{"AlertDistance:":98}
json
a minute ago