ASSIGNMENT 04

WOKWI STIMULATOR

Date	24 October 2022
Student Name	GURUTHEEP
Student Roll Number	713319EC035
Team ID	PNT2022TMID17583
Project Name	GAS LEAKAGE MONITORING AND ALERTING SYSTEM

QUESTION:

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms 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 "wt19pm"
```

```
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "12345"
#define TOKEN "12345678"
#define speed 0.034

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/status1/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 name="Alert";
```

```
String icon="";

long duration;
int dist;

void setup()
{
  Serial.begin(115200);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}

void loop() {

  publishData();
  delay(500);
```

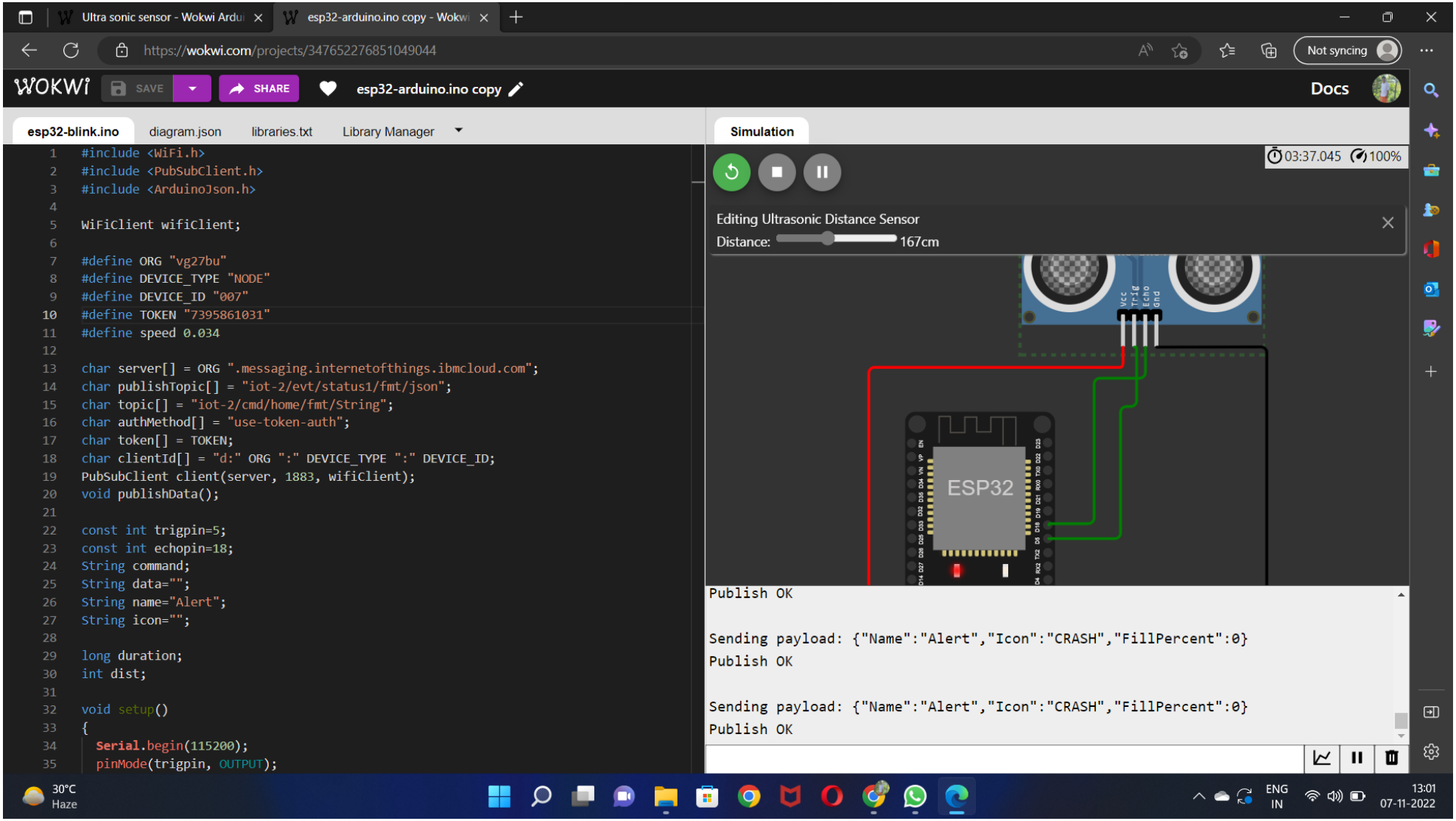
```
  if (!client.loop()) {
    mqttConnect();
  }
}

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(".");
      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="no-trash";
}else{
  dist=0;
  icon="trash";
}
DynamicJsonDocument doc(1024);
String payload;
doc["Name"]=name;
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");
  }
}
```

CONNECTOINS :


Ultra sonic sensor - Wokwi Ardui
esp32-arduino.ino copy - Wokwi
https://wokwi.com/projects/347652276851049044
Not syncing
WOKWI
SAVE
SHARE
esp32-arduino.ino copy
Docs
esp32-blink.ino
diagram.json
libraries.txt
Library Manager
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "vg27bu"
#define DEVICE_TYPE "NODE"
#define DEVICE_ID "007"
#define TOKEN "7395861031"
#define speed 0.034
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int dist;
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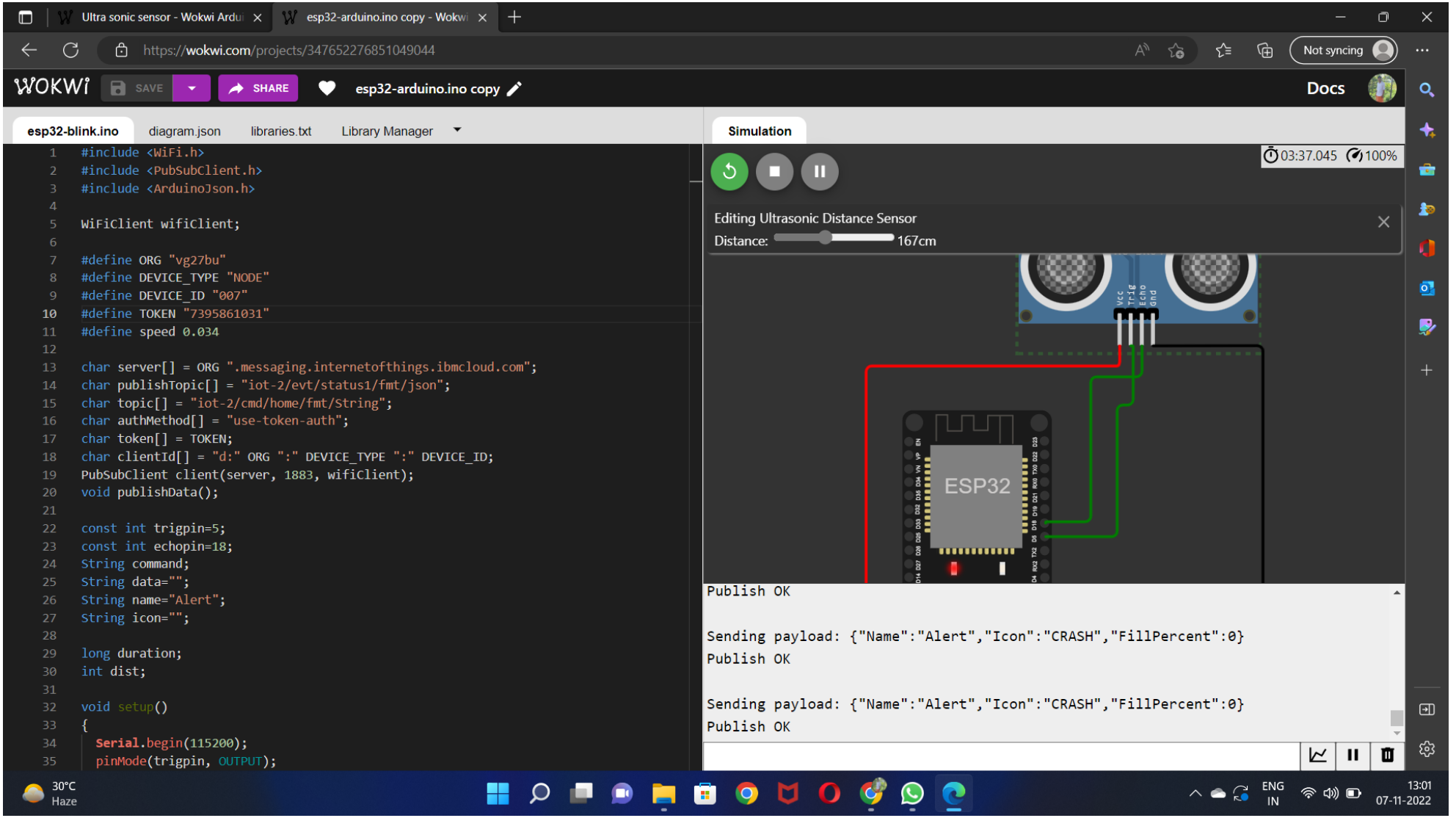
{
Serial.begin(115200);
pinMode(trigpin, OUTPUT);
Simulation
03:37.045
100%
Editing Ultrasonic Distance Sensor
Distance:
167cm
Vcc
Trig
Echo
Gnd
ESP32
Publish OK
Sending payload: {"Name":"Alert","Icon":"CRASH","FillPercent":0}
Publish OK
Sending payload: {"Name":"Alert","Icon":"CRASH","FillPercent":0}
Publish OK
30°C
Haze
ENG
IN
13:01
07-11-2022

WOKWI LINK:

esp32-arduino.ino copy - Wokwi Arduino and ESP32 Simulator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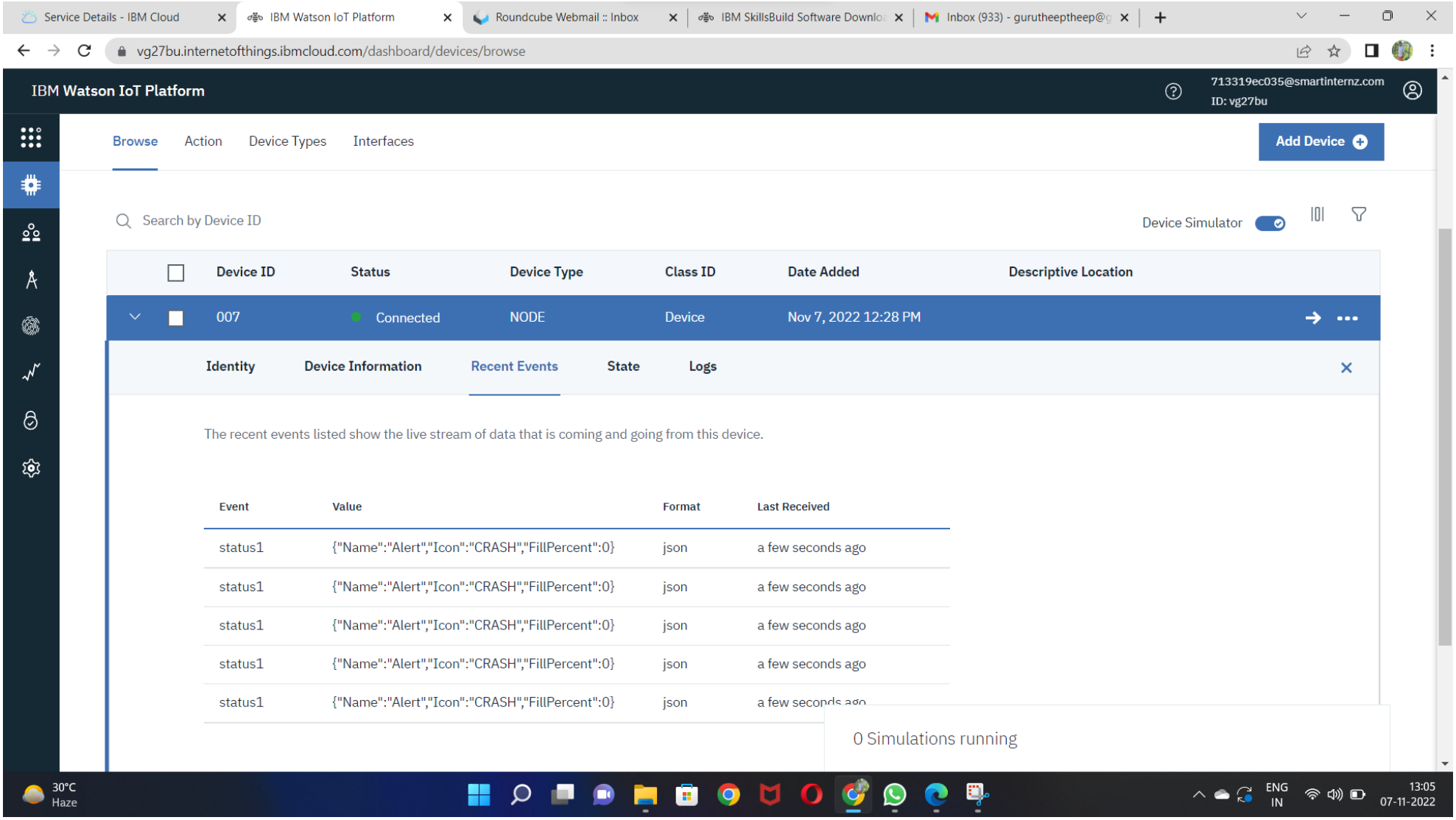
Service Details - IBM Cloud
IBM Watson IoT Platform
Roundcube Webmail :: Inbox
IBM SkillsBuild Software Downlo
Inbox (933) - gurutheeptheep@g
vg27bu.internetofthings.ibmcloud.com/dashboard/devices/browse
IBM Watson IoT Platform
713319ec035@smartinternz.com
ID: vg27bu
Browse
Action
Device Types
Interfaces
Add Device
Search by Device ID
Device Simulator
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
007
Connected
NODE
Device
Nov 7, 2022 12:28 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
status1
{"Name":"Alert","Icon":"CRASH","FillPercent":0}
json
a few seconds ago
0 Simulations running
30°C
Haze
ENG
IN
13:05
07-11-2022