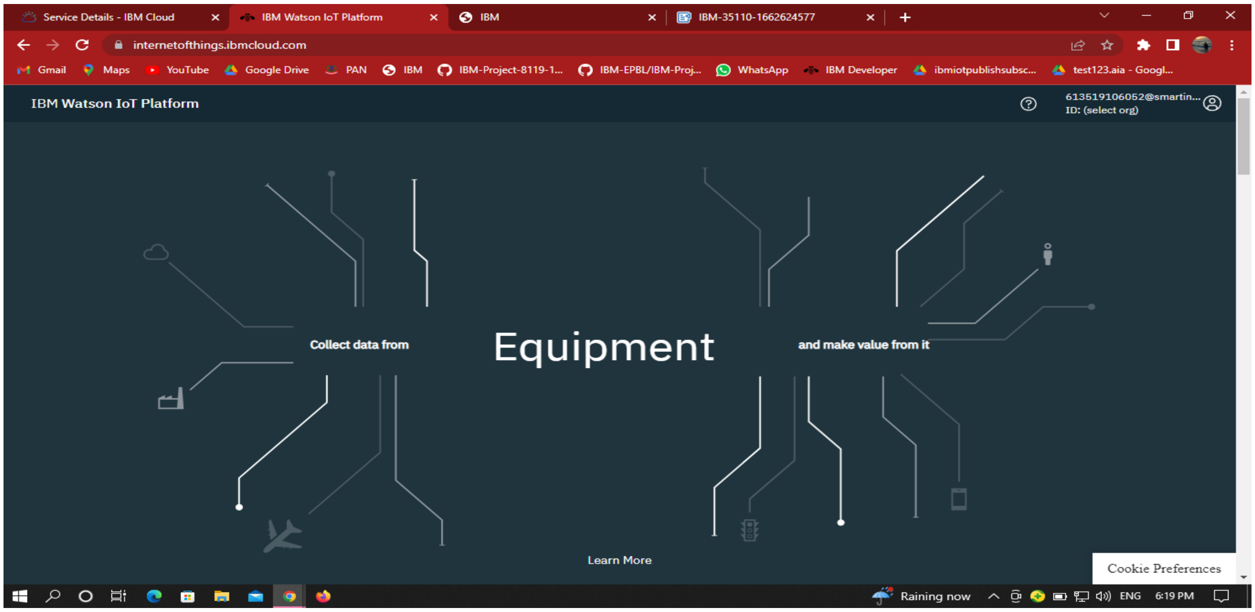
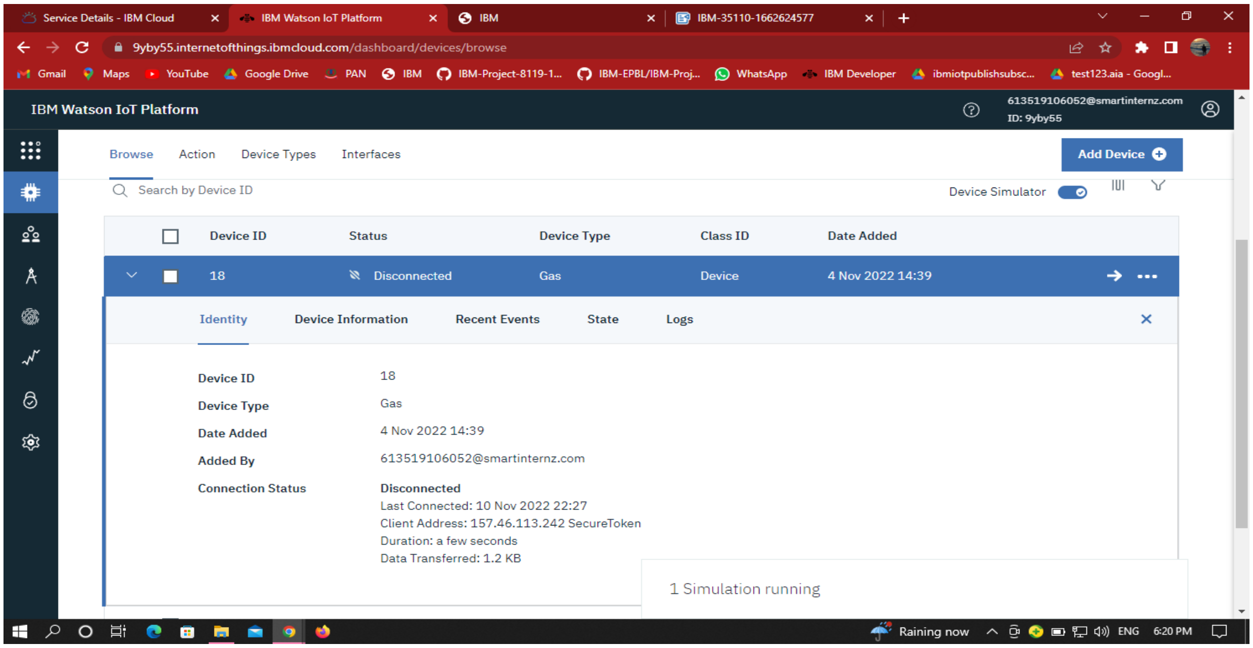
Project Development -Delivery of Sprint 4

Team ID	PNT2022TMID41307
Project Name	Gas Leakage Monitoring and Alerting System for Industries

Creating And Connecting IBM cloud to Python Code:

IBM Cloud:





Device ID	Status	Device Type	Class ID	Date Added
18	Disconnected	Gas	Device	4 Nov 2022 14:39

Device ID 18

Device Type Gas

Date Added 4 Nov 2022 14:39

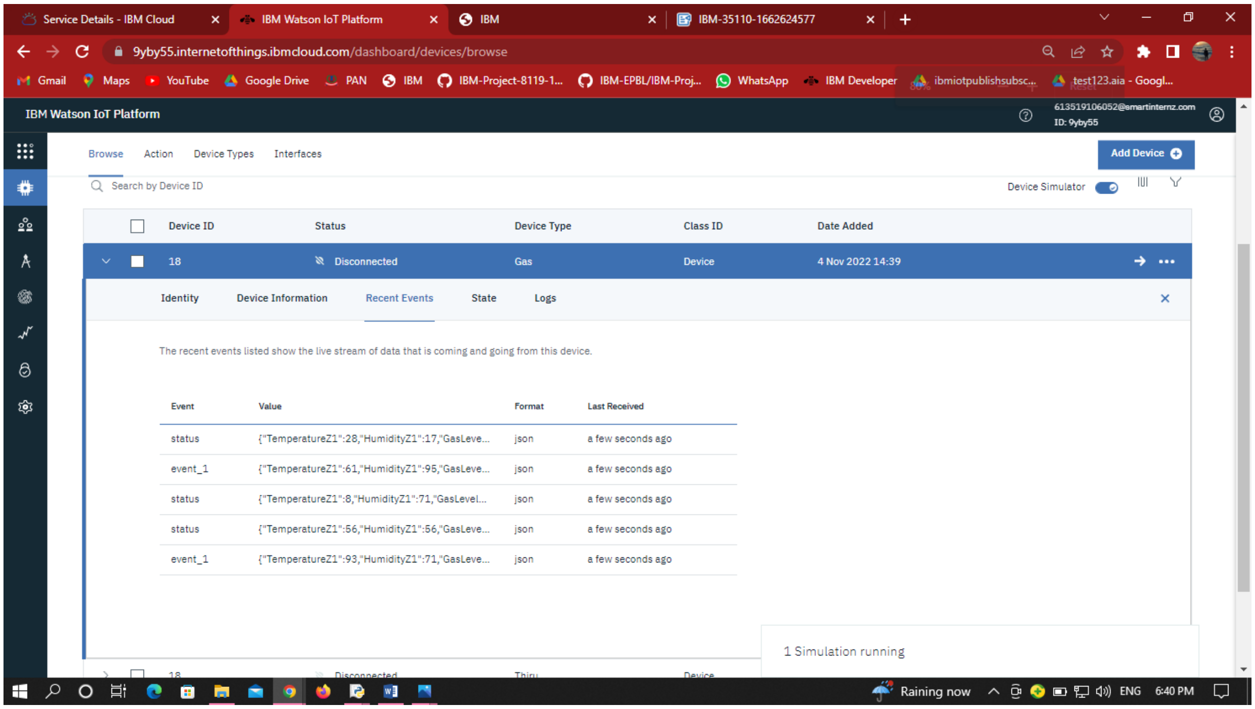
Added By 613519106052@smartinternz.com

Connection Status Disconnected
Last Connected: 10 Nov 2022 22:27
Client Address: 157.46.113.242 SecureToken
Duration: a few seconds
Data Transferred: 1.2 KB

Python Code:

```
#IBM Watson IOT Platform
#pip install wiotp-sdk
import wiotp.sdk.device
import time
import random
myConfig = {
    "identity":
    {
        "orgId": "9yby55",
        "typeId": "Gas",
        "deviceId":"18"
    },
    "auth":
    {
        "token": "zIbdsvljWkP@1S34*&"
    }
}
def myCommandCallback(cmd):
   print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="sprinkleron":
        print (" Rainwater sprinkler is ON")
    elif status=="sprinkleroff":
        print (" Rainwater sprinkler is OFF")
    else:
        print ("please send proper command")


client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
    TemperatureZ1=random.randint(0,100)
    HumidityZ1=random.randint(0,100)
    GasLevelZ1=random.randint(0,100)
    PressureZ1=random.randint(0,100)
    TemperatureZ2=random.randint(0,100)
    HumidityZ2=random.randint(0,100)
    GasLevelZ2=random.randint(0,100)
    PressureZ2=random.randint(0,100)
    myData={'TemperatureZ1':TemperatureZ1,'HumidityZ1':HumidityZ1,'GasLevelZ1':GasLevelZ1,
    'PressureZ1':PressureZ1,'TemperatureZ2':TemperatureZ2
    'HumidityZ2':HumidityZ2,'GasLevelZ2':GasLevelZ2,'PressureZ2':PressureZ2}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,

    onPublish=None)
    print("Published data Successfully: %s", myData ,"to the IBM Platform")
    client.commandCallback = myCommandCallback
    time.sleep(2)
client.disconnect()
```

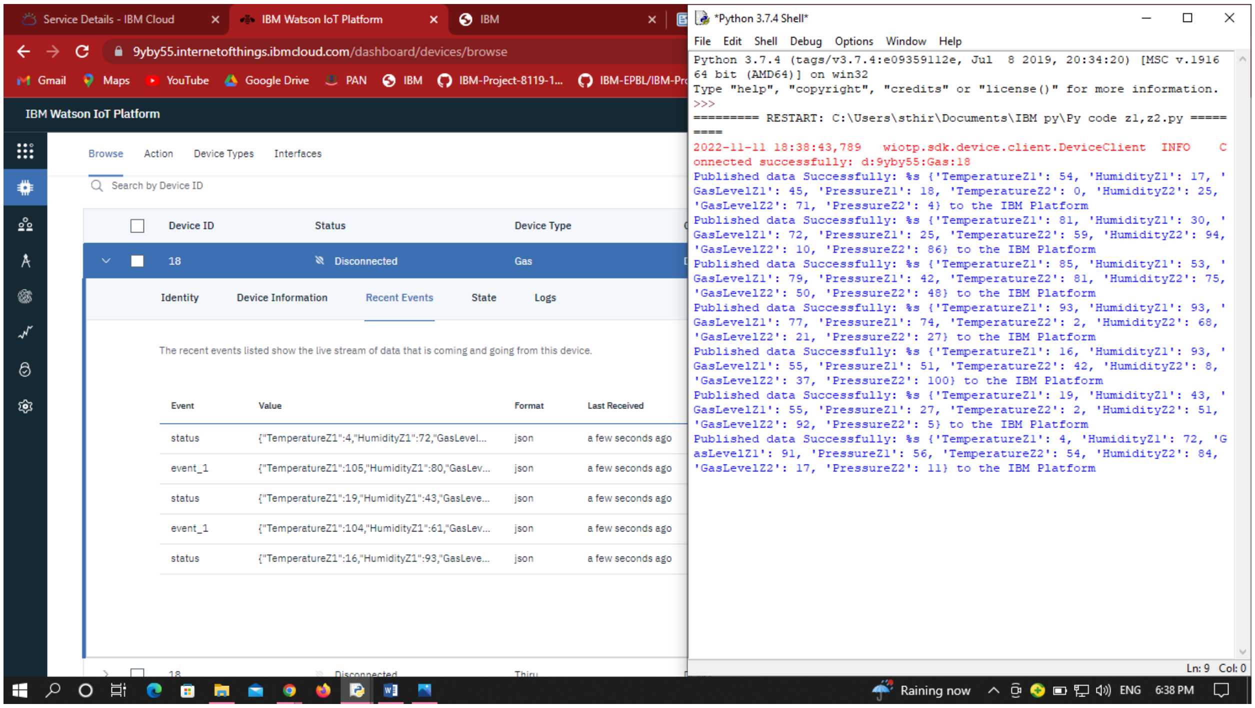
Connecting IBM Cloud and Python Code:



Device ID	Status	Device Type	Class ID	Date Added
18	Disconnected	Gas	Device	4 Nov 2022 14:39
18	Disconnected	Thiru	Device	

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status	{"TemperatureZ1":28,"HumidityZ1":17,"GasLeve...	json	a few seconds ago
event_1	{"TemperatureZ1":61,"HumidityZ1":95,"GasLeve...	json	a few seconds ago
status	{"TemperatureZ1":8,"HumidityZ1":71,"GasLevel...	json	a few seconds ago
status	{"TemperatureZ1":56,"HumidityZ1":56,"GasLeve...	json	a few seconds ago
event_1	{"TemperatureZ1":93,"HumidityZ1":71,"GasLeve...	json	a few seconds ago



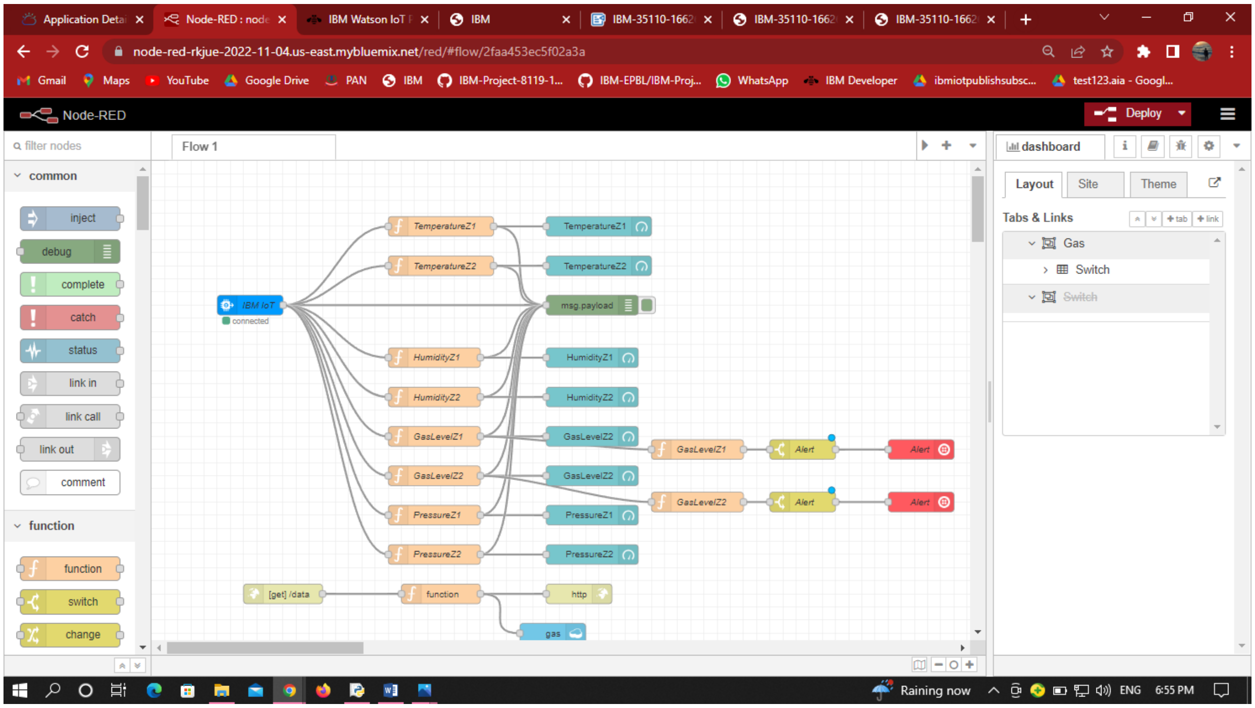
Device ID	Status	Device Type
18	Disconnected	Gas

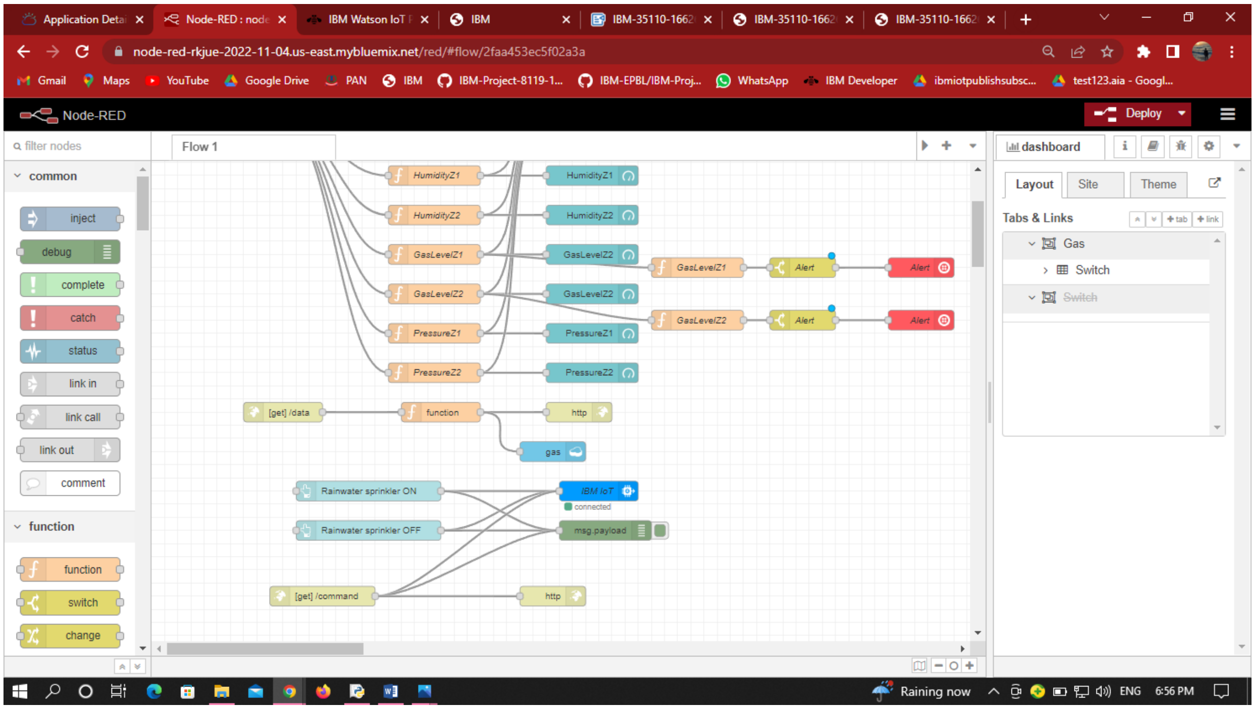
The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status	{"TemperatureZ1":4,"HumidityZ1":72,"GasLevel...	json	a few seconds ago
event_1	{"TemperatureZ1":105,"HumidityZ1":80,"GasLev...	json	a few seconds ago
status	{"TemperatureZ1":19,"HumidityZ1":43,"GasLeve...	json	a few seconds ago
event_1	{"TemperatureZ1":104,"HumidityZ1":61,"GasLev...	json	a few seconds ago
status	{"TemperatureZ1":16,"HumidityZ1":93,"GasLeve...	json	a few seconds ago

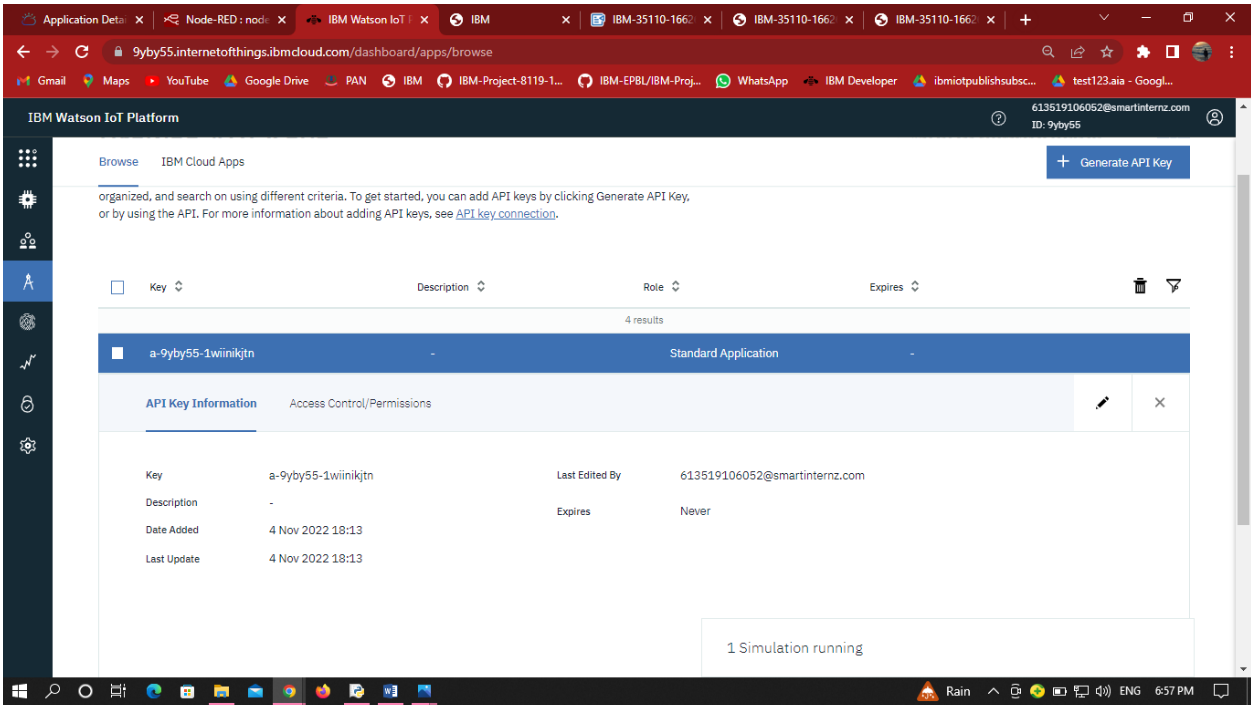
```
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 20:34:20) [MSC v.1916
64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========= RESTART: C:\Users\sthir\Documents\IBM py\Py code z1,z2.py =====
====
2022-11-11 18:38:43,789  wiotp.sdk.device.client.DeviceClient  INFO    C
onnected successfully: d:9yby55:Gas:18
Published data Successfully: %s {'TemperatureZ1': 54, 'HumidityZ1': 17, '
GasLevelZ1': 45, 'PressureZ1': 18, 'TemperatureZ2': 0, 'HumidityZ2': 25,
'GasLevelZ2': 71, 'PressureZ2': 4} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 81, 'HumidityZ1': 30, '
GasLevelZ1': 72, 'PressureZ1': 25, 'TemperatureZ2': 59, 'HumidityZ2': 94,
'GasLevelZ2': 10, 'PressureZ2': 86} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 85, 'HumidityZ1': 53, '
GasLevelZ1': 79, 'PressureZ1': 42, 'TemperatureZ2': 81, 'HumidityZ2': 75,
'GasLevelZ2': 50, 'PressureZ2': 48} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 93, 'HumidityZ1': 93, '
GasLevelZ1': 77, 'PressureZ1': 74, 'TemperatureZ2': 2, 'HumidityZ2': 68,
'GasLevelZ2': 21, 'PressureZ2': 27} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 16, 'HumidityZ1': 93, '
GasLevelZ1': 55, 'PressureZ1': 51, 'TemperatureZ2': 42, 'HumidityZ2': 8,
'GasLevelZ2': 37, 'PressureZ2': 100} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 19, 'HumidityZ1': 43, '
GasLevelZ1': 55, 'PressureZ1': 27, 'TemperatureZ2': 2, 'HumidityZ2': 51,
'GasLevelZ2': 92, 'PressureZ2': 5} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 4, 'HumidityZ1': 72, 'G
asLevelZ1': 91, 'PressureZ1': 56, 'TemperatureZ2': 54, 'HumidityZ2': 84,
'GasLevelZ2': 17, 'PressureZ2': 11} to the IBM Platform
```

Creating And Connecting IBM cloud to Python Code:
Node-Red service:





Connecting With IBM Cloud using IBM IoT node through API key:



organized, and search on using different criteria. To get started, you can add API keys by clicking Generate API Key, or by using the API. For more information about adding API keys, see API key connection.

Key	Description	Role	Expires
a-9yby55-1wiinikjtn	-	Standard Application	-

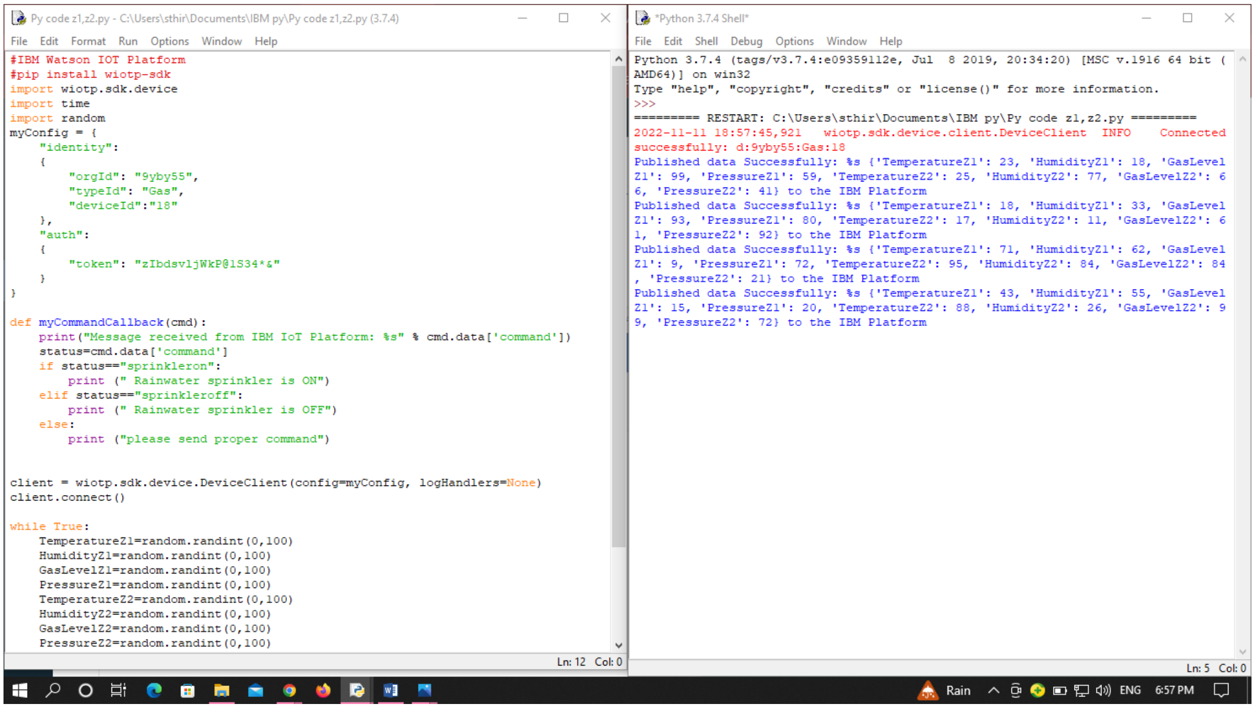
4 results

API Key Information | Access Control/Permissions

Key	a-9yby55-1wiinikjtn	Last Edited By	613519106052@smartinternz.com
Description	-	Expires	Never
Date Added	4 Nov 2022 18:13		
Last Update	4 Nov 2022 18:13		

1 Simulation running

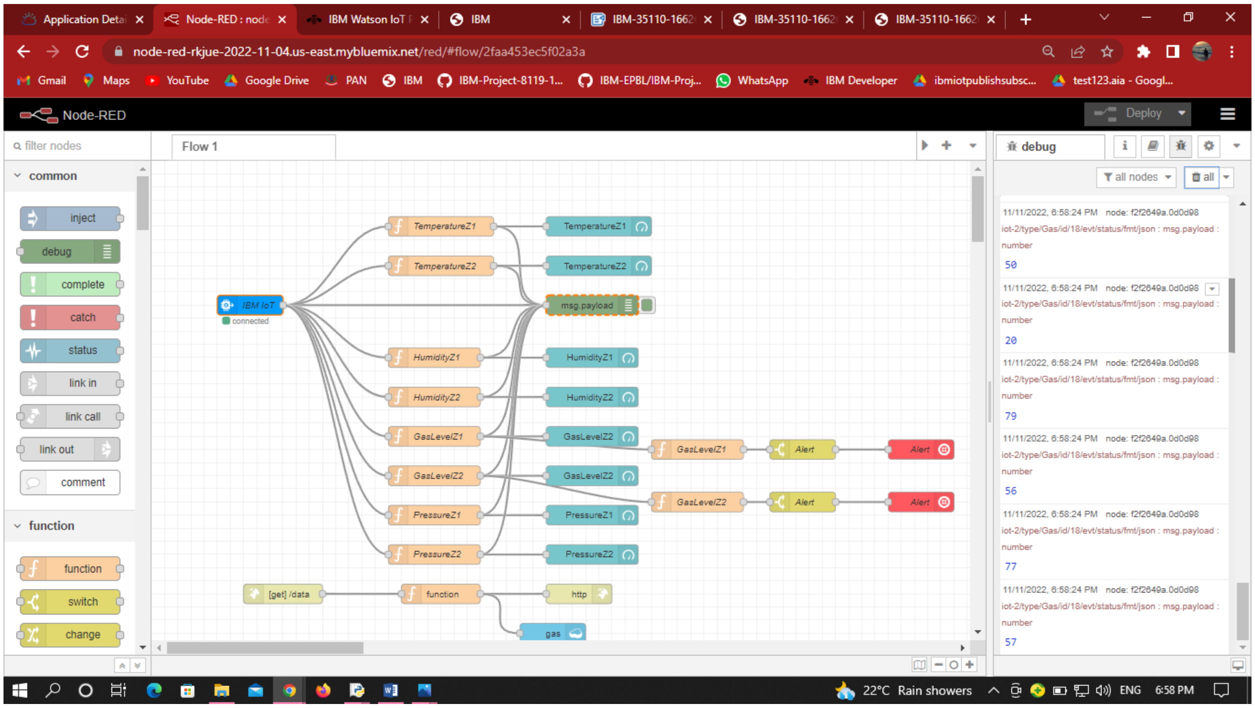
Values from Python:


Py code z1,z2.py - C:\Users\sthir\Documents\IBM py\Py code z1,z2.py (3.7.4)
File Edit Format Run Options Window Help
Ln: 12 Col: 0
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Ln: 5 Col: 0
Rain
ENG
6:57 PM

```
#IBM Watson IOT Platform
#pip install wiotp-sdk
import wiotp.sdk.device
import time
import random
myConfig = {
    "identity":
    {
        "orgId": "9yby55",
        "typeId": "Gas",
        "deviceId":"18"
    },
    "auth":
    {
        "token": "zIbdsvljWkP@1S34*&"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="sprinkleron":
        print (" Rainwater sprinkler is ON")
    elif status=="sprinkleroff":
        print (" Rainwater sprinkler is OFF")
    else:
        print ("please send proper command")


client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
    TemperatureZ1=random.randint(0,100)
    HumidityZ1=random.randint(0,100)
    GasLevelZ1=random.randint(0,100)
    PressureZ1=random.randint(0,100)
    TemperatureZ2=random.randint(0,100)
    HumidityZ2=random.randint(0,100)
    GasLevelZ2=random.randint(0,100)
    PressureZ2=random.randint(0,100)
```

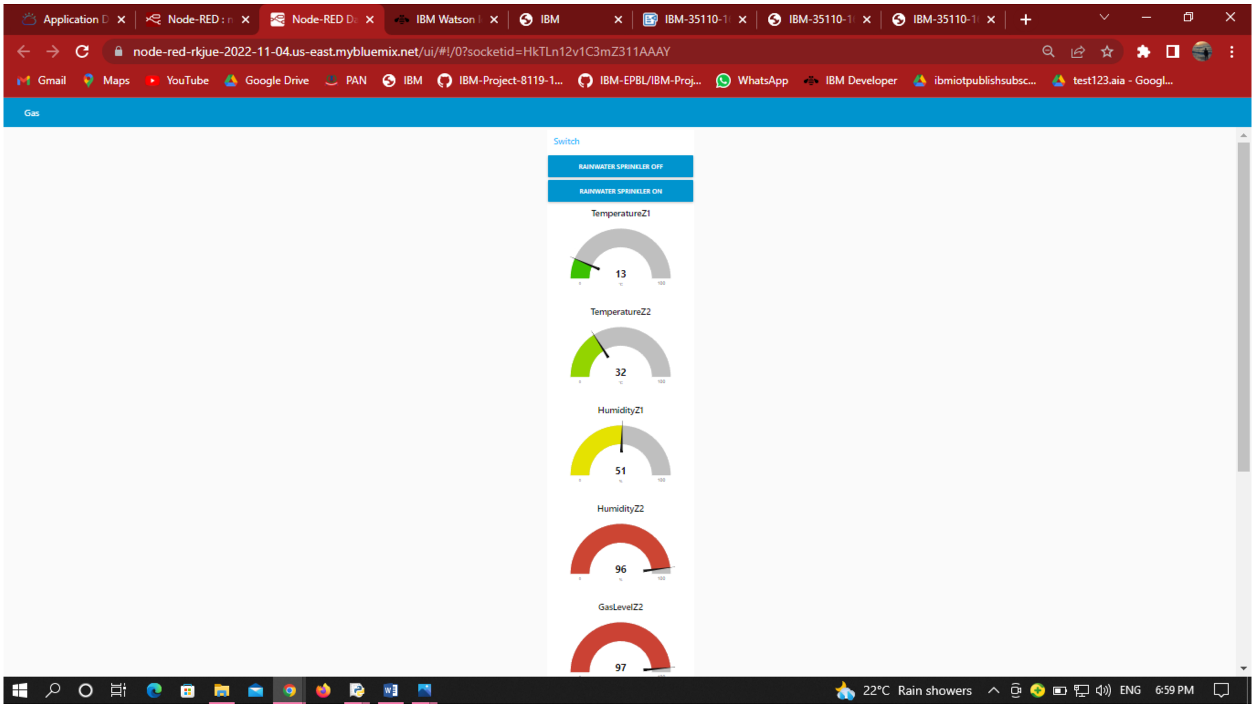
```
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 20:34:20) [MSC v.1916 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========= RESTART: C:\Users\sthir\Documents\IBM py\Py code z1,z2.py =========
2022-11-11 18:57:45,921   wiotp.sdk.device.client.DeviceClient  INFO    Connected
successfully: d:9yby55:Gas:18
Published data Successfully: %s {'TemperatureZ1': 23, 'HumidityZ1': 18, 'GasLevel
Z1': 99, 'PressureZ1': 59, 'TemperatureZ2': 25, 'HumidityZ2': 77, 'GasLevelZ2': 6
6, 'PressureZ2': 41} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 18, 'HumidityZ1': 33, 'GasLevel
Z1': 93, 'PressureZ1': 80, 'TemperatureZ2': 17, 'HumidityZ2': 11, 'GasLevelZ2': 6
1, 'PressureZ2': 92} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 71, 'HumidityZ1': 62, 'GasLevel
Z1': 9, 'PressureZ1': 72, 'TemperatureZ2': 95, 'HumidityZ2': 84, 'GasLevelZ2': 84
, 'PressureZ2': 21} to the IBM Platform
Published data Successfully: %s {'TemperatureZ1': 43, 'HumidityZ1': 55, 'GasLevel
Z1': 15, 'PressureZ1': 20, 'TemperatureZ2': 88, 'HumidityZ2': 26, 'GasLevelZ2': 9
9, 'PressureZ2': 72} to the IBM Platform
```

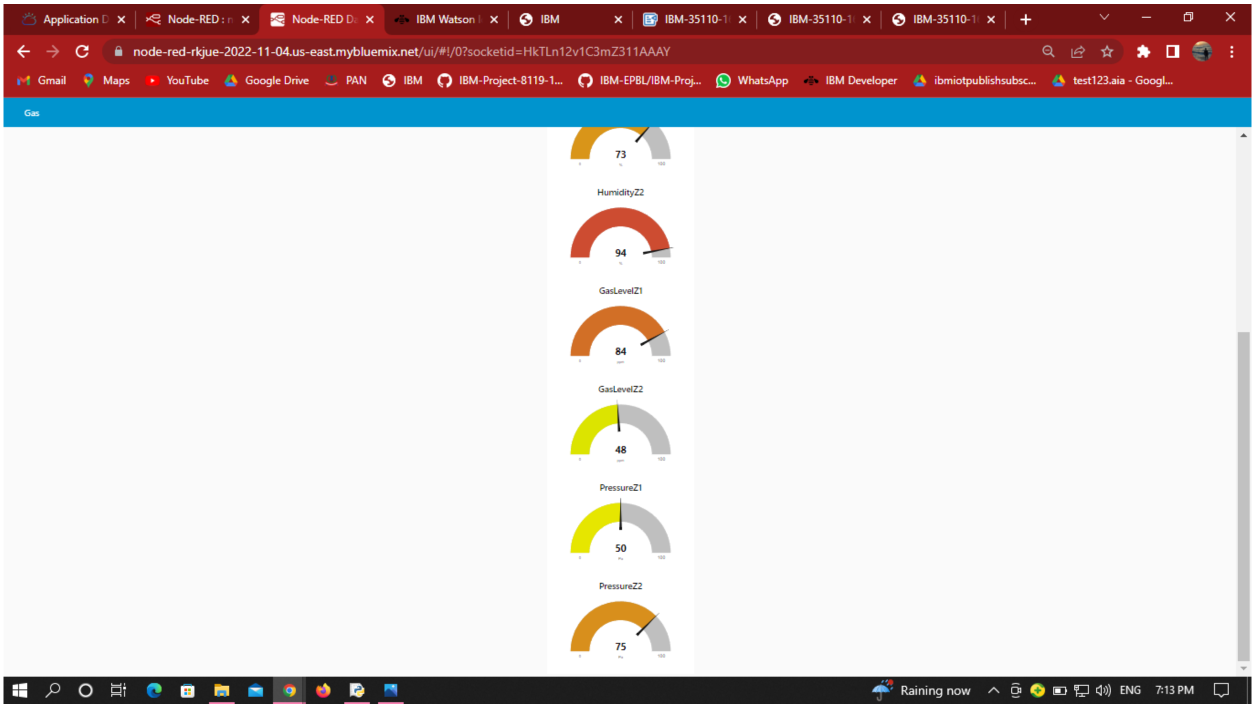
Node-Red:



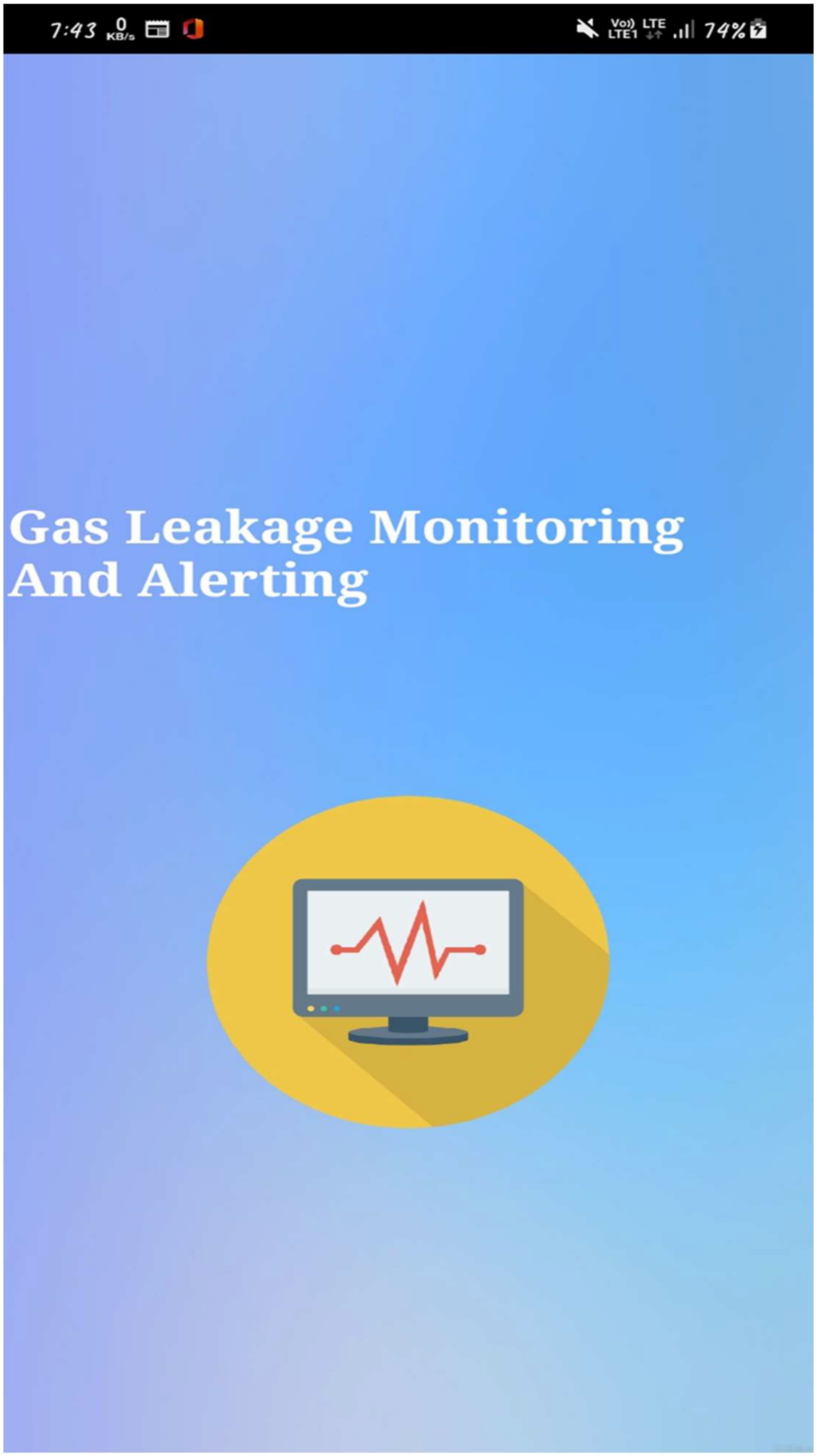
```
11/11/2022, 6:58:24 PM   node: f2f2649a.0d0d98
iot-2/type/Gas/id/18/evt/status/fmt/json : msg.payload :
number
50
11/11/2022, 6:58:24 PM   node: f2f2649a.0d0d98
iot-2/type/Gas/id/18/evt/status/fmt/json : msg.payload :
number
20
11/11/2022, 6:58:24 PM   node: f2f2649a.0d0d98
iot-2/type/Gas/id/18/evt/status/fmt/json : msg.payload :
number
79
11/11/2022, 6:58:24 PM   node: f2f2649a.0d0d98
iot-2/type/Gas/id/18/evt/status/fmt/json : msg.payload :
number
56
11/11/2022, 6:58:24 PM   node: f2f2649a.0d0d98
iot-2/type/Gas/id/18/evt/status/fmt/json : msg.payload :
number
77
11/11/2022, 6:58:24 PM   node: f2f2649a.0d0d98
iot-2/type/Gas/id/18/evt/status/fmt/json : msg.payload :
number
57
```

Node-Red Dashboard:



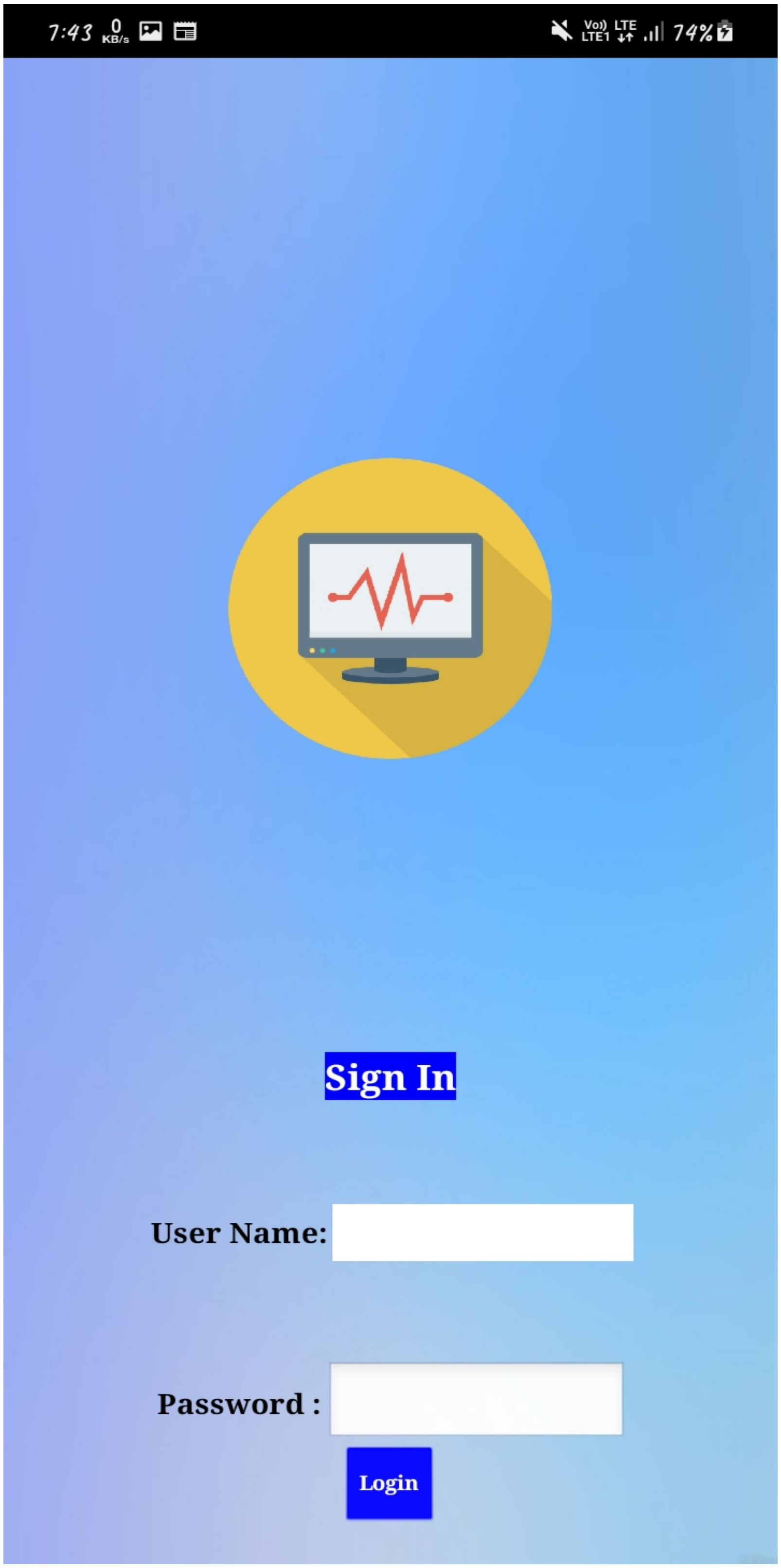

node-red-rkjue-2022-11-04.us-east.mybluemix.net/ui/#!/0?socketid=HkTLn12v1C3mZ311AAAY
Gas
73
HumidityZ2
94
GasLevelZ1
84
GasLevelZ2
48
PressureZ1
50
PressureZ2
75
Raining now
7:13 PM

MIT App Inventor:

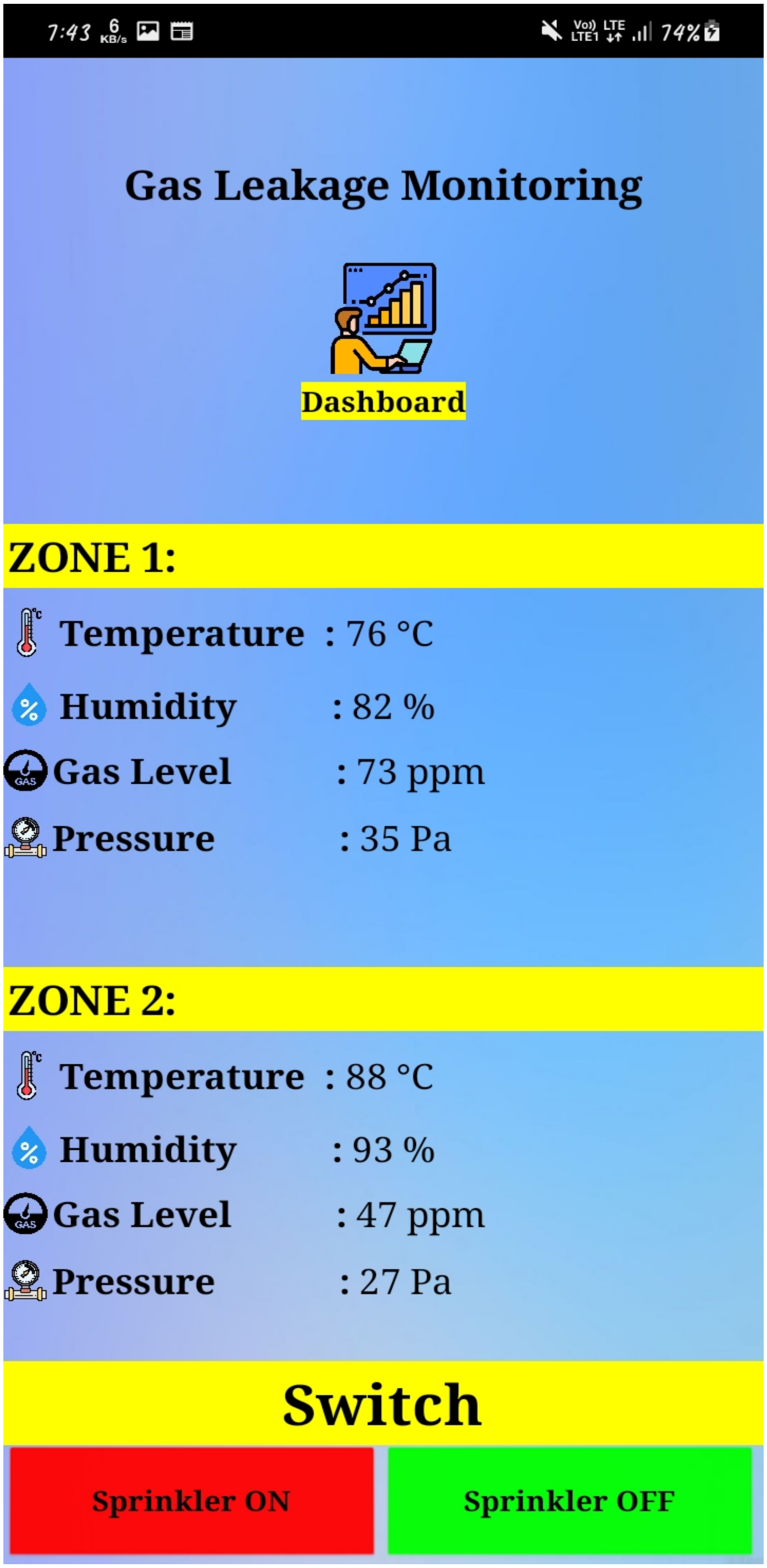


Gas Leakage Monitoring And Alerting

Login Screen:



Home Screen:



Gas Leakage Monitoring

Dashboard

ZONE 1:

Temperature : 76 °C

Humidity : 82 %

Gas Level : 73 ppm

Pressure : 35 Pa

ZONE 2:

Temperature : 88 °C

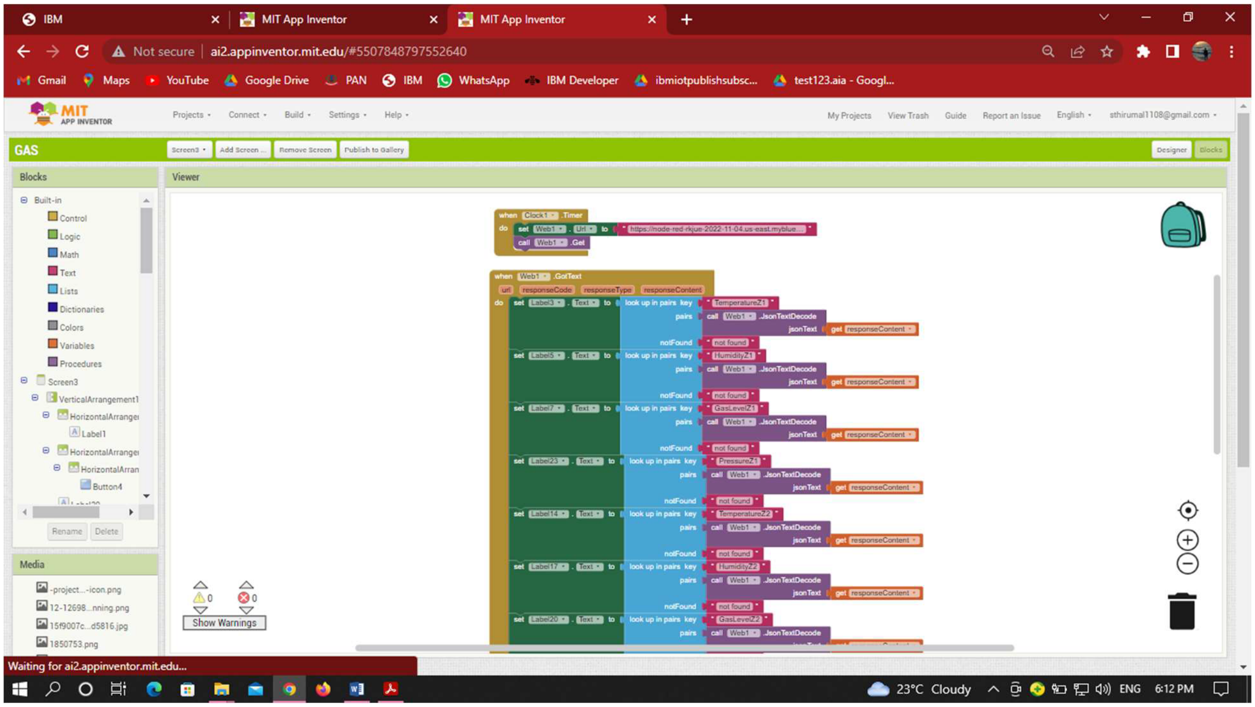
Humidity : 93 %

Gas Level : 47 ppm

Pressure : 27 Pa

Switch

Blocks:



```
when Clock1 .Timer
do  set Web1 . Url to "https://node-red-rkjue-2022-11-04.us-east.myblue..."
    call Web1 .Get

when Web1 .GotText
  url  responseCode  responseType  responseContent
do  set Label3 . Text to  look up in pairs key "TemperatureZ1"
                                         pairs  call Web1 .JsonTextDecode
                                                        jsonText  get responseContent
                                      notFound  "not found"
    set Label5 . Text to  look up in pairs key "HumidityZ1"
                                         pairs  call Web1 .JsonTextDecode
                                                        jsonText  get responseContent
                                      notFound  "not found"
    set Label7 . Text to  look up in pairs key "GasLevelZ1"
                                         pairs  call Web1 .JsonTextDecode
                                                        jsonText  get responseContent
                                      notFound  "not found"
    set Label23 . Text to  look up in pairs key "PressureZ1"
                                          pairs  call Web1 .JsonTextDecode
                                                         jsonText  get responseContent
                                       notFound  "not found"
    set Label14 . Text to  look up in pairs key "TemperatureZ2"
                                          pairs  call Web1 .JsonTextDecode
                                                         jsonText  get responseContent
                                       notFound  "not found"
    set Label17 . Text to  look up in pairs key "HumidityZ2"
                                          pairs  call Web1 .JsonTextDecode
                                                         jsonText  get responseContent
                                       notFound  "not found"
    set Label20 . Text to  look up in pairs key "GasLevelZ2"
                                          pairs  call Web1 .JsonTextDecode
```