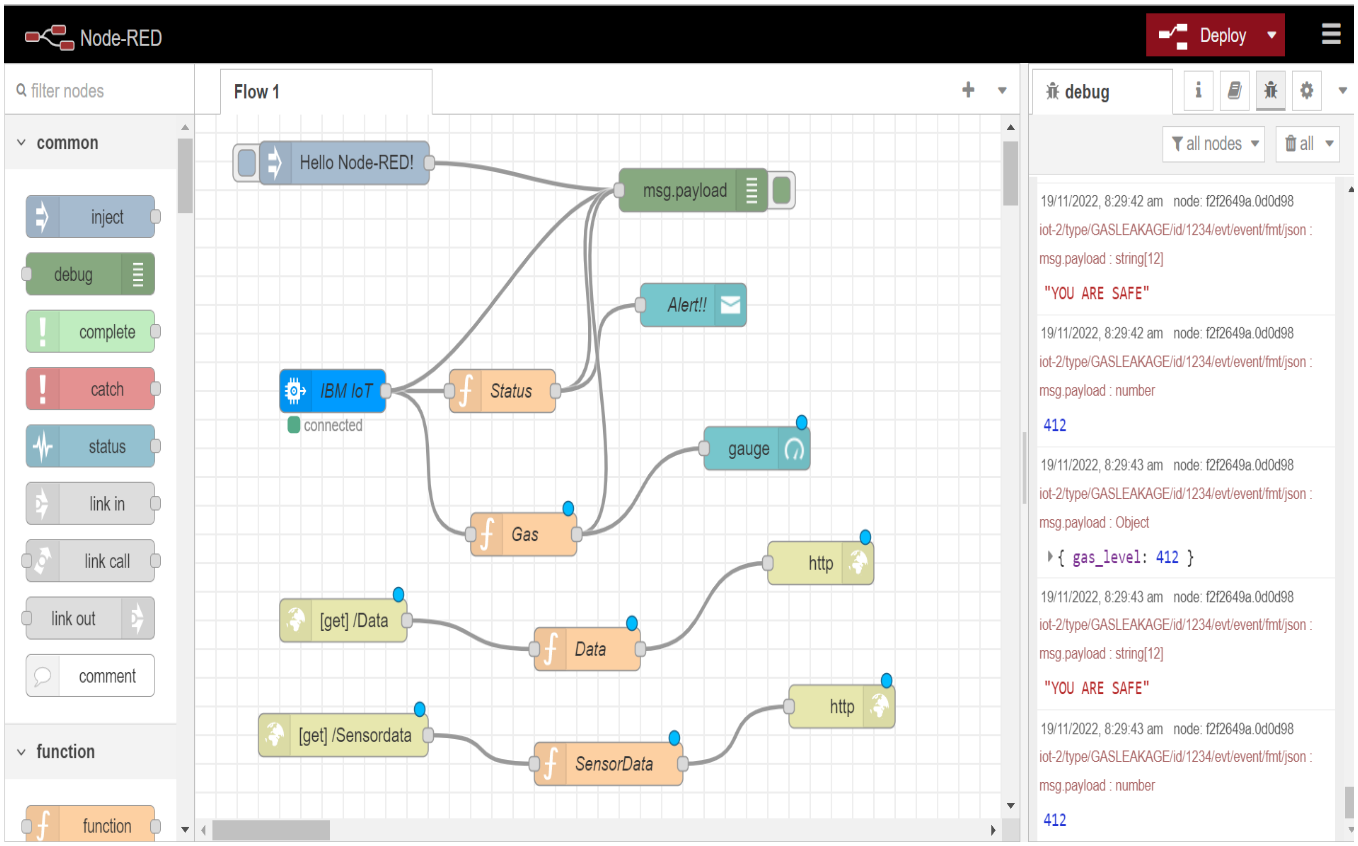
SPRINT-IV
WEB UI

Team ID : PNT2022TMID18536
Project Name : Gas Leakage Monitoring and Alerting System

Creating a Web UI:

- Creating a web UI to make user to interact with the software.



```
19/11/2022, 8:29:42 am  node: f2f2649a.0d0d98
iot-2/type/GASLEAKAGE/id/1234/evt/event/fmt/json :
msg.payload : string[12]
"YOU ARE SAFE"
19/11/2022, 8:29:42 am  node: f2f2649a.0d0d98
iot-2/type/GASLEAKAGE/id/1234/evt/event/fmt/json :
msg.payload : number
412
19/11/2022, 8:29:43 am  node: f2f2649a.0d0d98
iot-2/type/GASLEAKAGE/id/1234/evt/event/fmt/json :
msg.payload : Object
▸{ gas_level: 412 }
19/11/2022, 8:29:43 am  node: f2f2649a.0d0d98
iot-2/type/GASLEAKAGE/id/1234/evt/event/fmt/json :
msg.payload : string[12]
"YOU ARE SAFE"
19/11/2022, 8:29:43 am  node: f2f2649a.0d0d98
iot-2/type/GASLEAKAGE/id/1234/evt/event/fmt/json :
msg.payload : number
412
```

Source code :

```
# Importing Required modules
import time
import sys
import  wiotp.sdk.device# IBM IoT Watson Platform Module
import ibmiotf.device
import tkinter as tk # Python GUI Package
from tkinter import ttk # Python GUI
```

```
import time
from threading import Thread


organization = "vens1r" # Organization ID
deviceType = "GASLEAKAGE"   # Device type
deviceId = "1234"    # Device ID
authMethod = "token"    # Authentication Method
authToken = "12345678" #Replace the authtoken


# Tkinter root window
root = tk.Tk()
root.geometry('350x300')  # Set size of root window
root.resizable(False, False) # root window non-resizable
root.title('Gas Leakage Monitoring And Alerting System for
Industries (PNT2022TMID18536)')


# Layout Configurations
root.columnconfigure(0, weight=1)
root.columnconfigure(1, weight=3)


current_gas = tk.DoubleVar()

def get_current_gas(): # function returns current gas level value
    return '{: .2f}'.format(current_gas.get())

def slider_changed(event): # Event Handler for changes in sliders
    print('--------')
    print('Gas Level: {: .2f}'.format(current_gas.get()))
    print('--------')
    gas_label.configure(text=str(get_current_gas()) +" ppm")  #
Displays current gas level as label content
```

```
# Tkinter Labels

# label for the gas level slider
slider_gas_label = ttk.Label(root,text='Set Gas Level:')
slider_gas_label.grid(column=0,row=0,sticky='w')


#  Gas Level slider
slider_gas = ttk.Scale(root,from_=0,to=3000,orient='horizontal',
 command=slider_changed,variable=current_gas)
slider_gas.grid(column=1,row=0,sticky='we')


# current gas level label
current_gas_label = ttk.Label(root,text='Current Gas Level:')
current_gas_label.grid(row=1,columnspan=2,sticky='n',ipadx=10,ip
ady=10)


# Gas level label (value gets displayed here)
gas_label = ttk.Label(root,text=str(get_current_gas()) +" ppm")
gas_label.grid(row=2,columnspan=2,sticky='n')


def publisher_thread():
    thread = Thread(target=publish_data)
    thread.start()

def publish_data():
    # Exception Handling
    try:
        deviceOptions = {"org": organization, "type": deviceType, "id":
deviceId, "auth-method": authMethod,
                         "auth-token": authToken}
        deviceCli = ibmiotf.device.Client(deviceOptions)
    # ..............................................

    except Exception as e:
        print("Caught exception connecting device: %s" % str(e))
        sys.exit()

    deviceCli.connect()  # Connect to IBM Watson IoT Platform

    while True:
        gas_level = int(current_gas.get())

        data = {'gas_level' : gas_level}

        def myOnPublishCallback():
            print("Published Gas Level = %s ppm" % gas_level, "to IBM Watson")

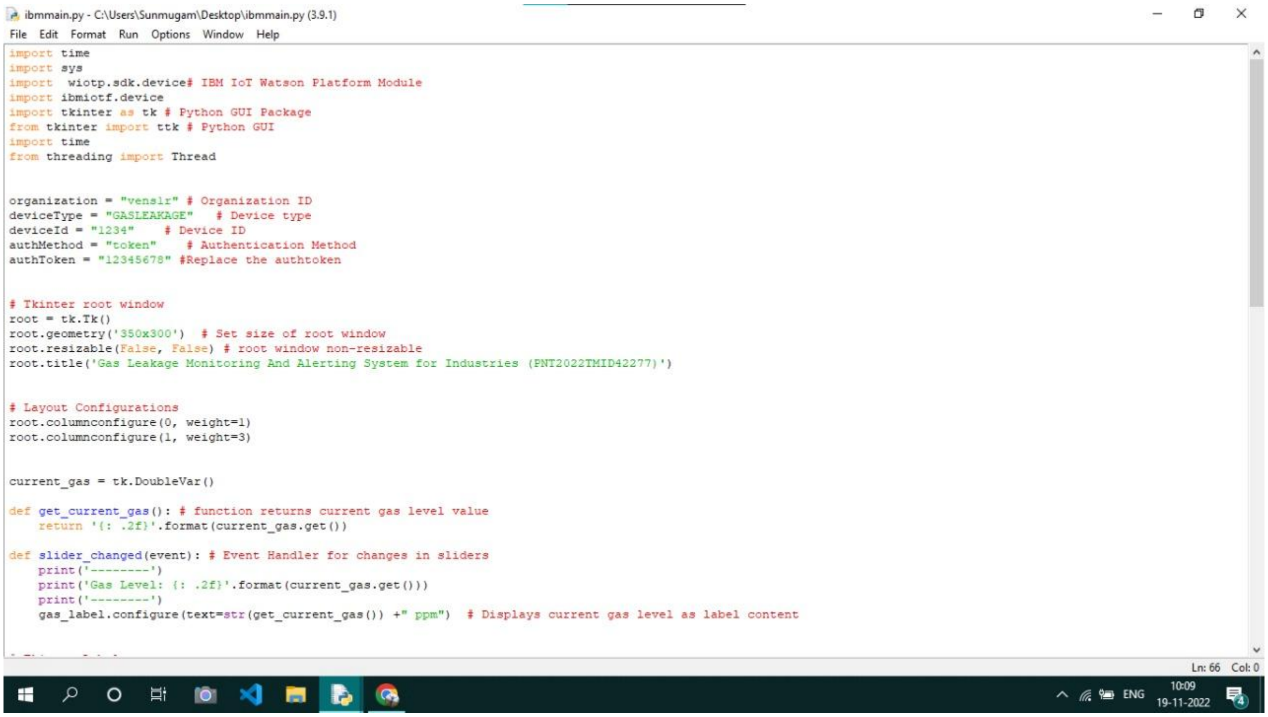
        success = deviceCli.publishEvent("event", "json", data, qos=0, on_publish=myOnPublishCallback)
        if not success:
            print("Not connected to IoTF")
        time.sleep(1)

publisher_thread()

root.mainloop() # startup Tkinter GUI

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

CODE:


ibmmain.py - C:\Users\Sunmugam\Desktop\ibmmain.py (3.9.1)
File Edit Format Run Options Window Help
Ln: 66 Col: 0
ENG
10:09
19-11-2022

```
import time
import sys
import  wiotp.sdk.device# IBM IoT Watson Platform Module
import ibmiotf.device
import tkinter as tk # Python GUI Package
from tkinter import ttk # Python GUI
import time
from threading import Thread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deviceId = "1234"    # Device ID
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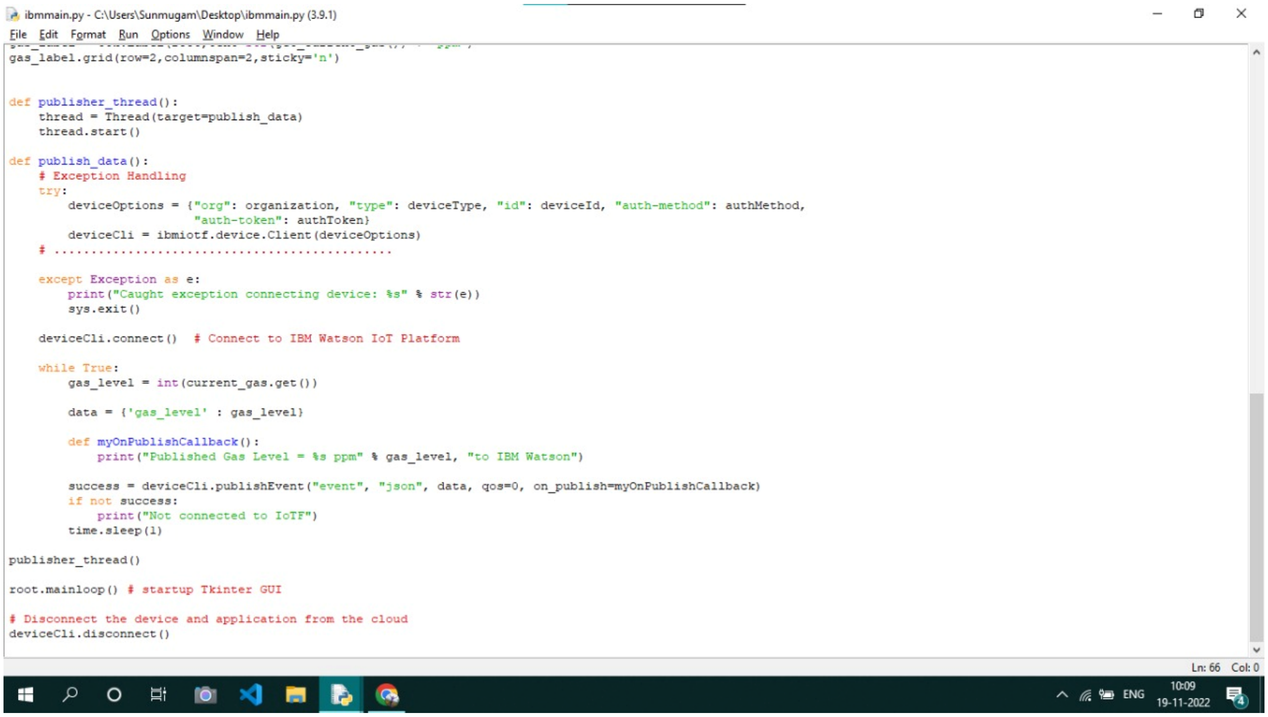
    print('--------')
    print('Gas Level: {: .2f}'.format(current_gas.get()))
    print('--------')
    gas_label.configure(text=str(get_current_gas()) +" ppm")  # Displays current gas level as label content
```


ibmmain.py - C:\Users\Sunmugam\Desktop\ibmmain.py (3.9.1)
File Edit Format Run Options Window Help
Ln: 66 Col: 0
ENG
10:09
19-11-2022

```
gas_label.grid(row=2,columnspan=2,sticky='n')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        deviceCli = ibmiotf.device.Client(deviceOptions)
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        success = deviceCli.publishEvent("event", "json", data, qos=0, on_publish=myOnPublishCallback)
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publisher_thread()

root.mainloop() # startup Tkinter GUI

# Disconnect the device and application from the cloud
deviceCli.disconnect()
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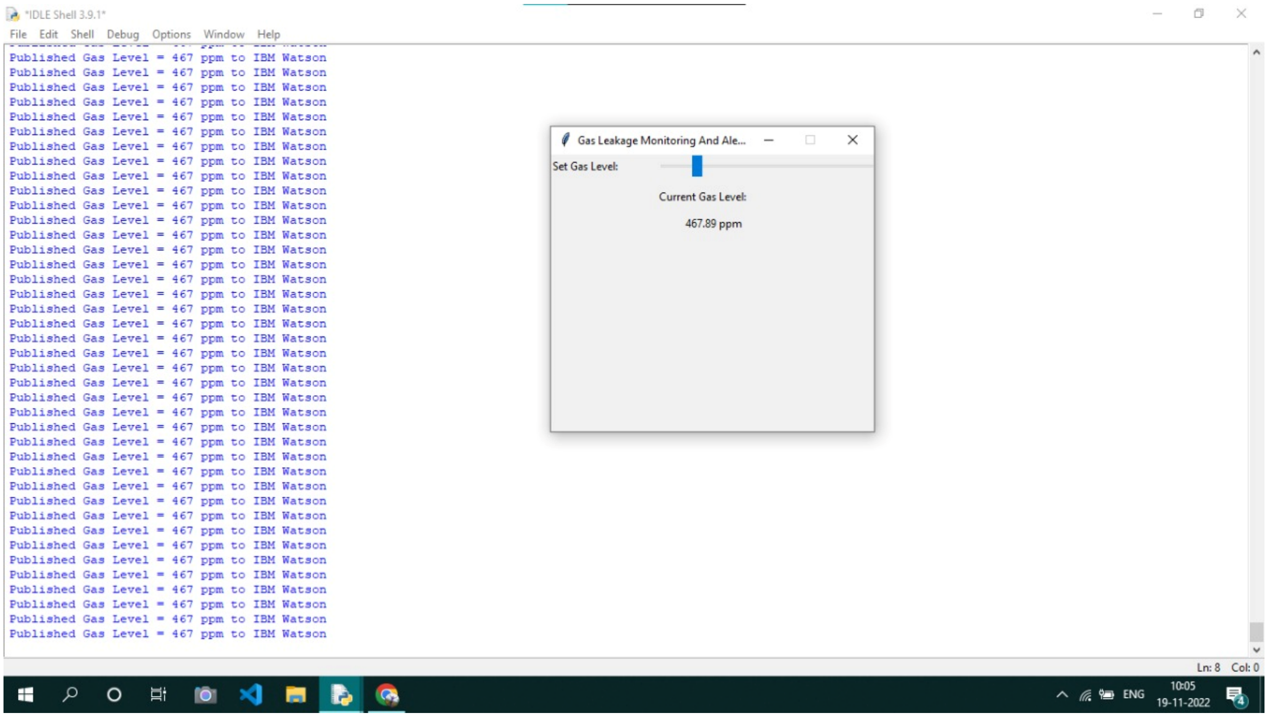
OUTPUT:


IDLE Shell 3.9.1
File Edit Shell Debug Options Window Help
Gas Leakage Monitoring And Ale...
Ln: 8 Col: 0
ENG
10:05
19-11-2022

```
Published Gas Level = 467 ppm to IBM Watson
Published Gas Level = 467 ppm to IBM Watson
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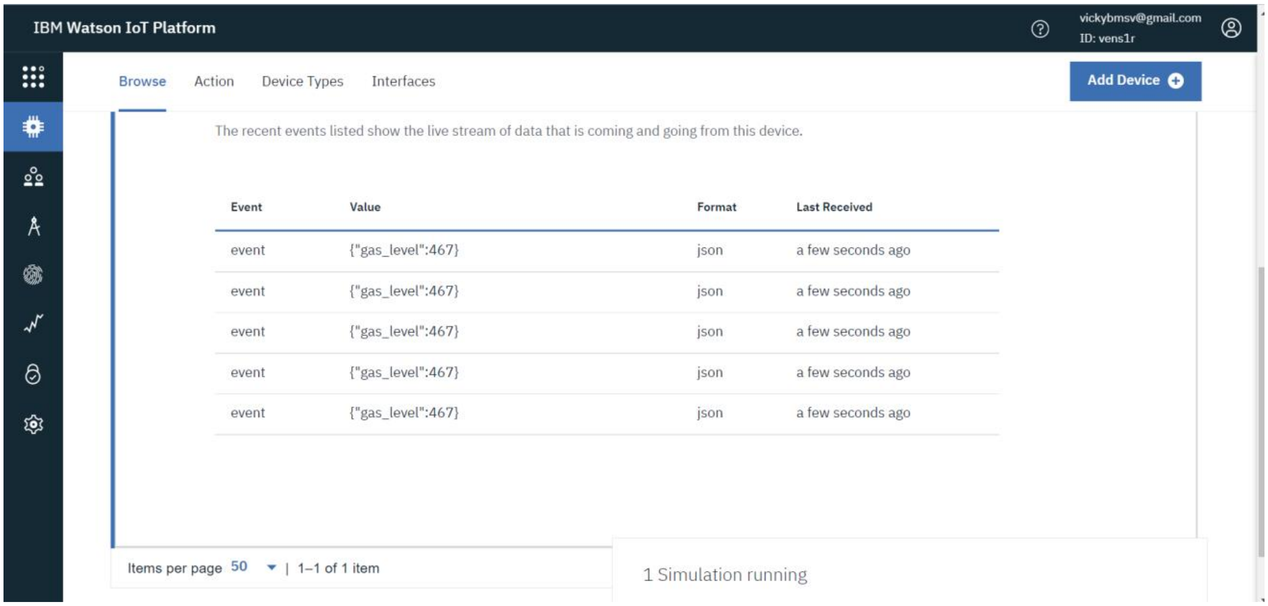
```

Set Gas Level:

Current Gas Level:

467.89 ppm

Testing Web UI:

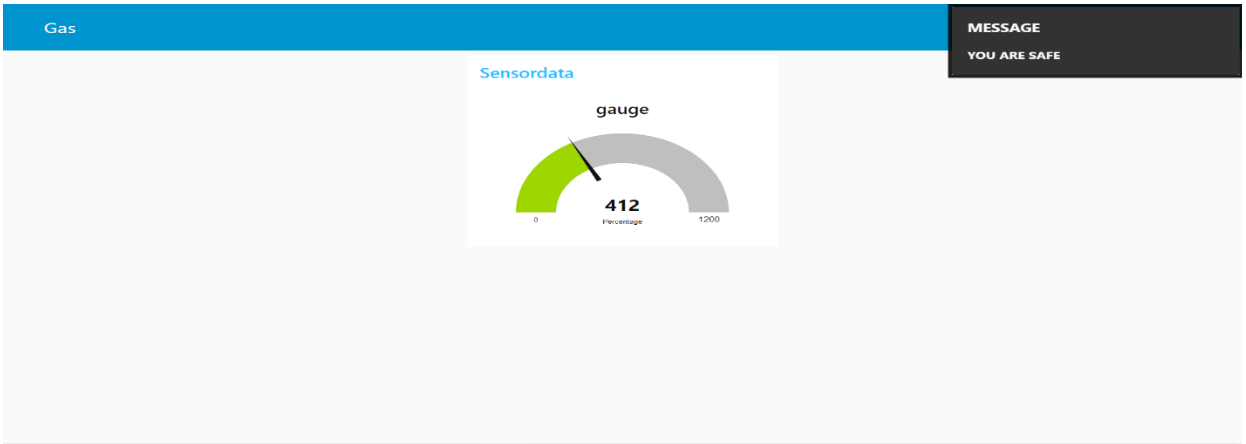


The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
event	{"gas_level":467}	json	a few seconds ago
event	{"gas_level":467}	json	a few seconds ago
event	{"gas_level":467}	json	a few seconds ago
event	{"gas_level":467}	json	a few seconds ago
event	{"gas_level":467}	json	a few seconds ago

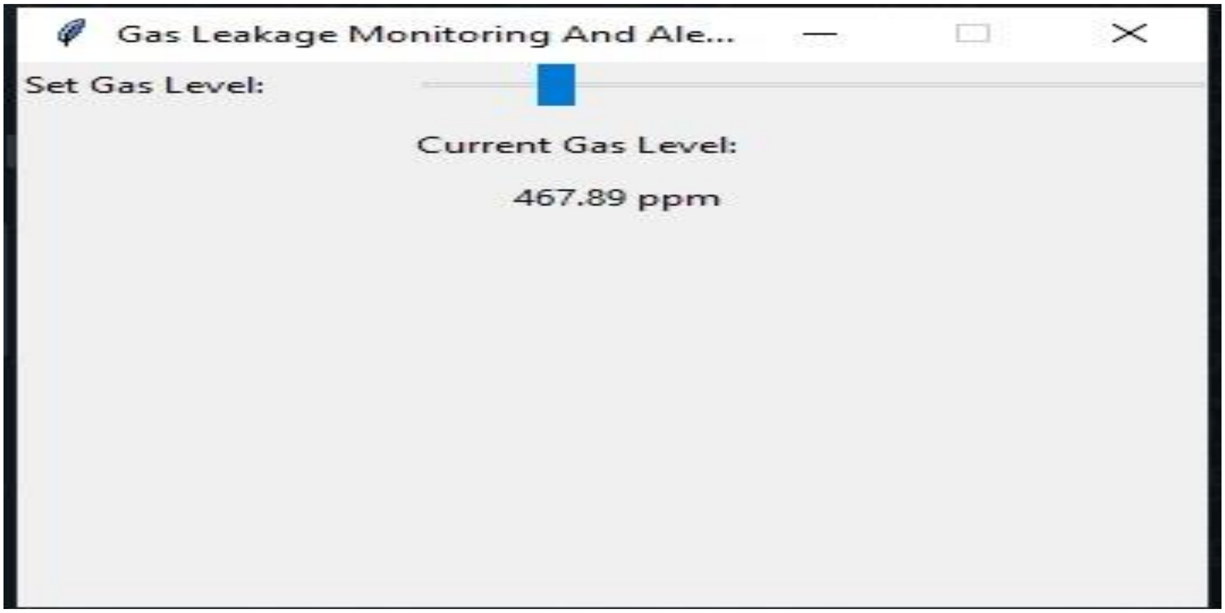
Items per page 50 | 1–1 of 1 item

1 Simulation running



MESSAGE

YOU ARE SAFE

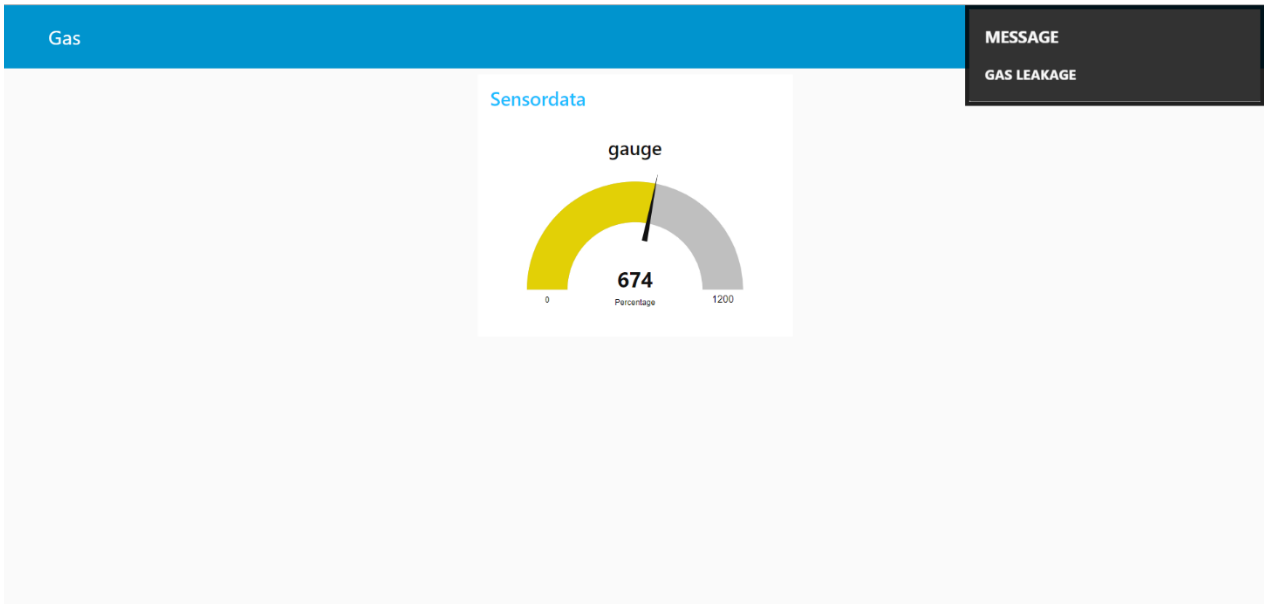


Gas Leakage Monitoring And Ale...

Set Gas Level:

Current Gas Level:

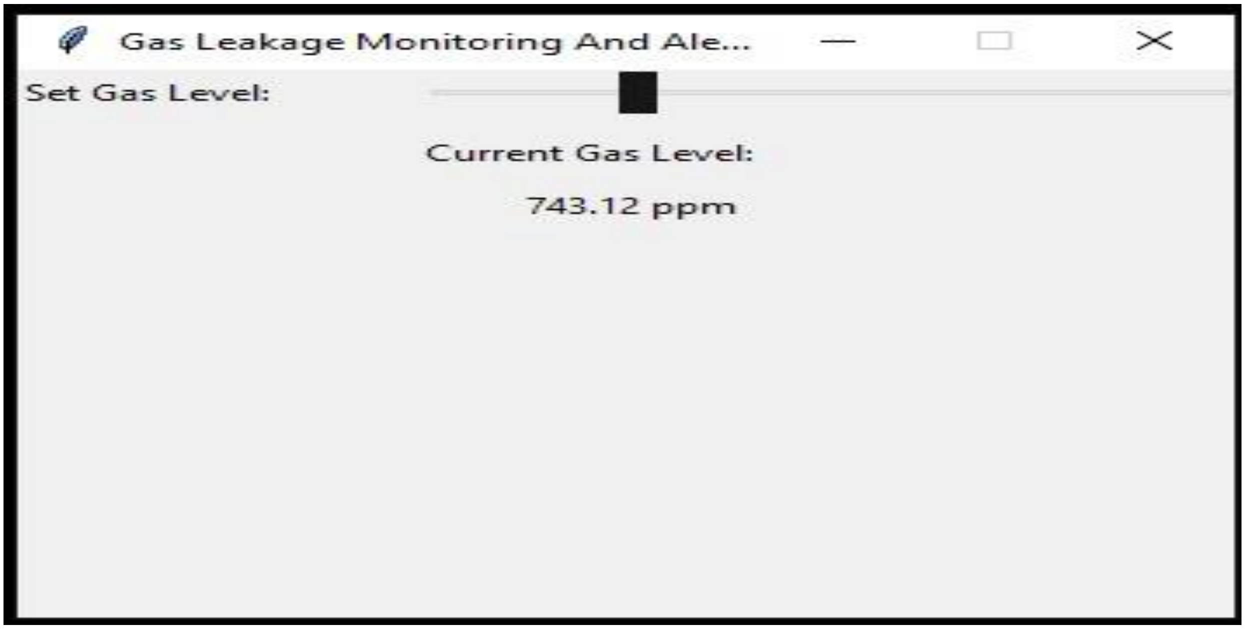
467.89 ppm



674

MESSAGE

GAS LEAKAGE



Gas Leakage Monitoring And Ale...

Set Gas Level:

Current Gas Level:

743.12 ppm

RESULT:

The Web UI is created successfully to monitor the GAS LEAKAGE