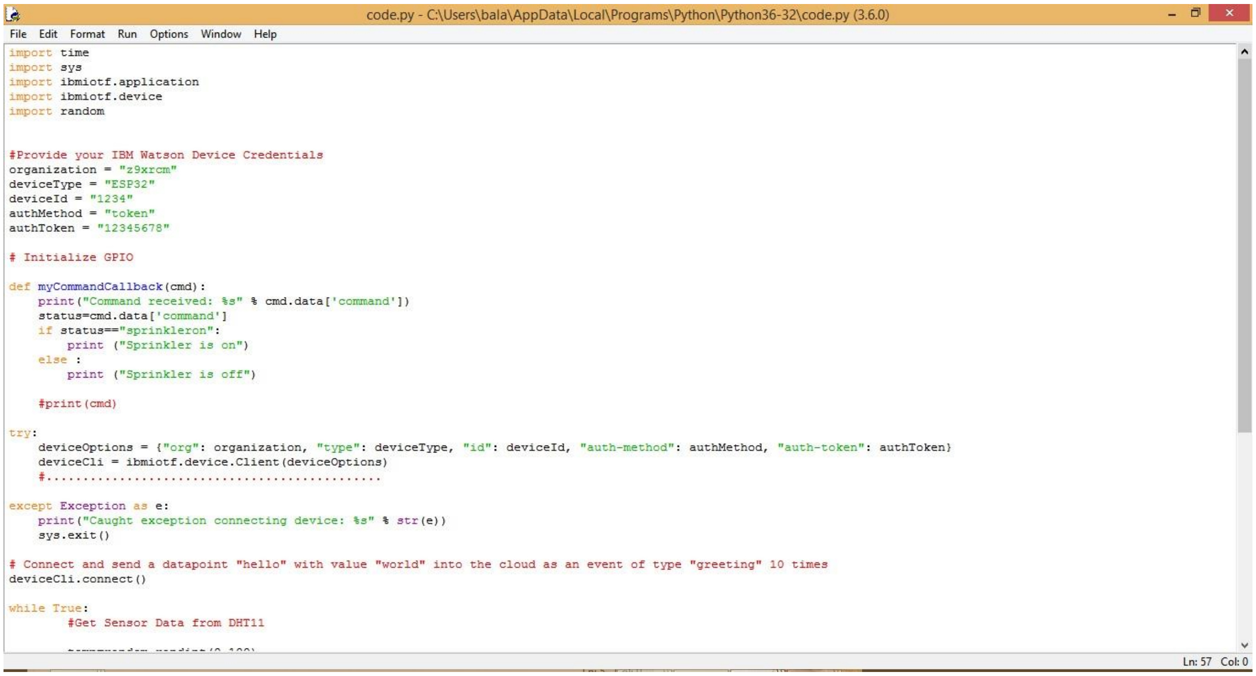
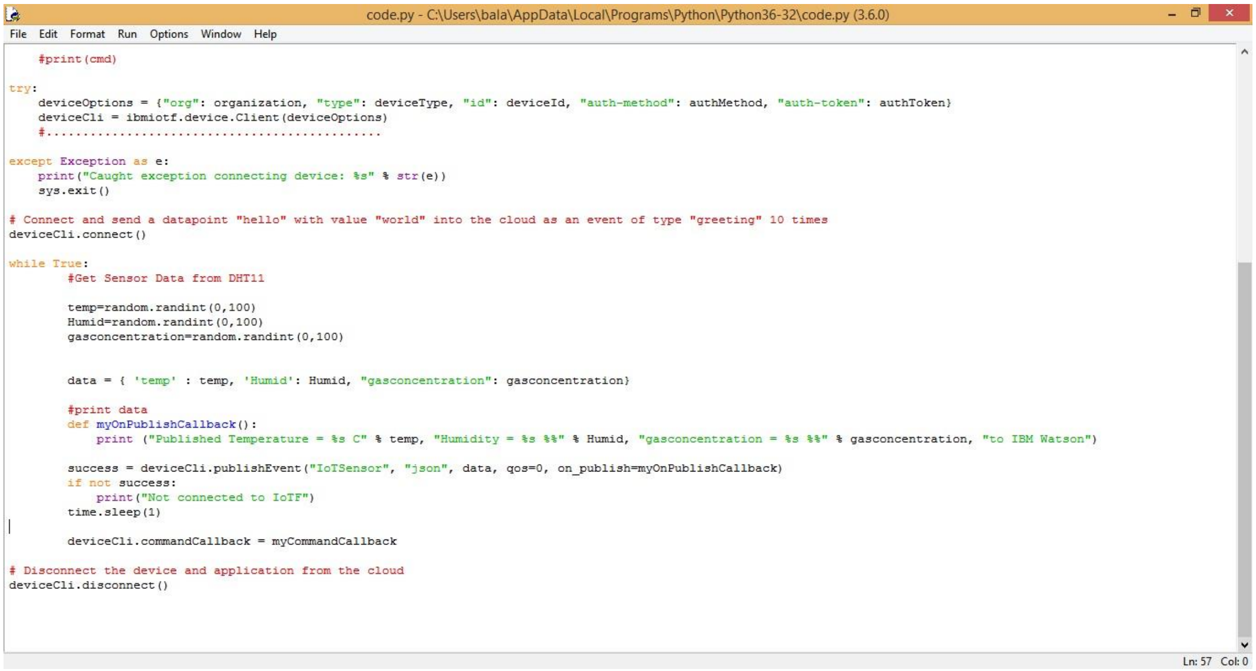
SPRINT-4

Team ID	**PNT2022TMID04339**
Project Title	**Gas Leakage Monitoring And Alerting System**
Date	**15.11.2022**

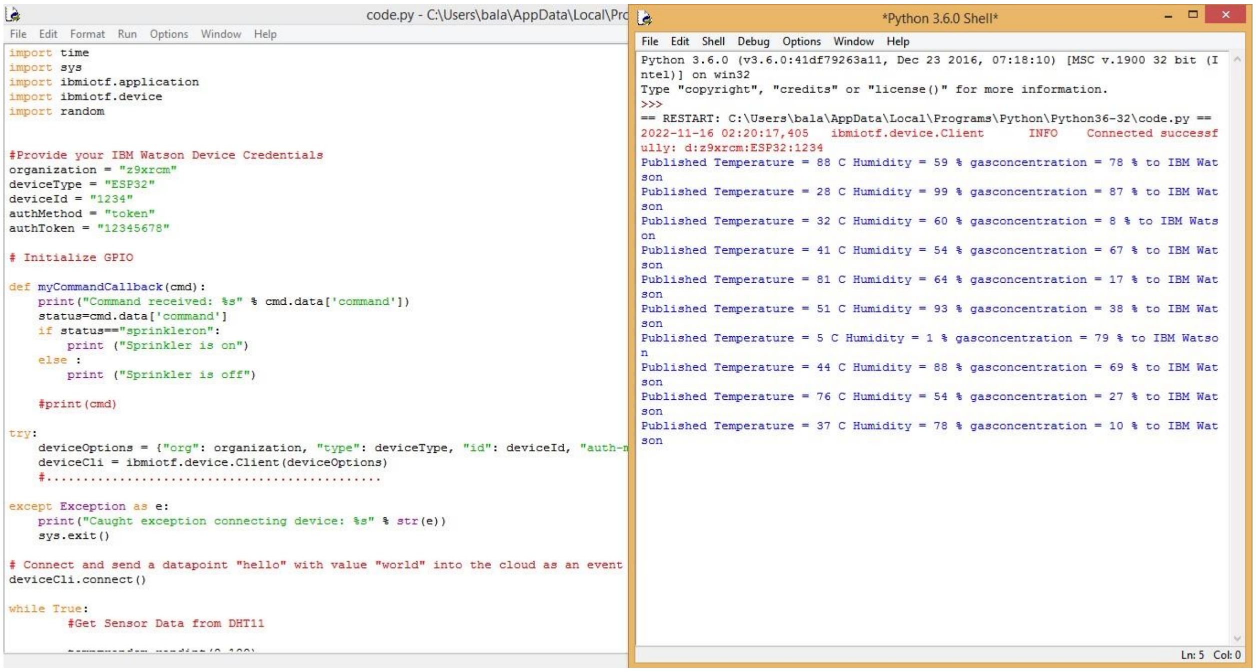
PYTHON CODE EXECUTION :


code.py - C:\Users\bala\AppData\Local\Programs\Python\Python36-32\code.py (3.6.0)
File
Edit
Format
Run
Options
Window
Help
Ln: 57
Col: 0

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random


#Provide your IBM Watson Device Credentials
organization = "z9xrcm"
deviceType = "ESP32"
deviceId = "1234"
authMethod = "token"
authToken = "12345678"

# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="sprinkleron":
        print ("Sprinkler is on")
    else :
        print ("Sprinkler is off")

    #print(cmd)

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()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
        #Get Sensor Data from DHT11
```


code.py - C:\Users\bala\AppData\Local\Programs\Python\Python36-32\code.py (3.6.0)
File Edit Format Run Options Window Help
Ln: 57 Col: 0

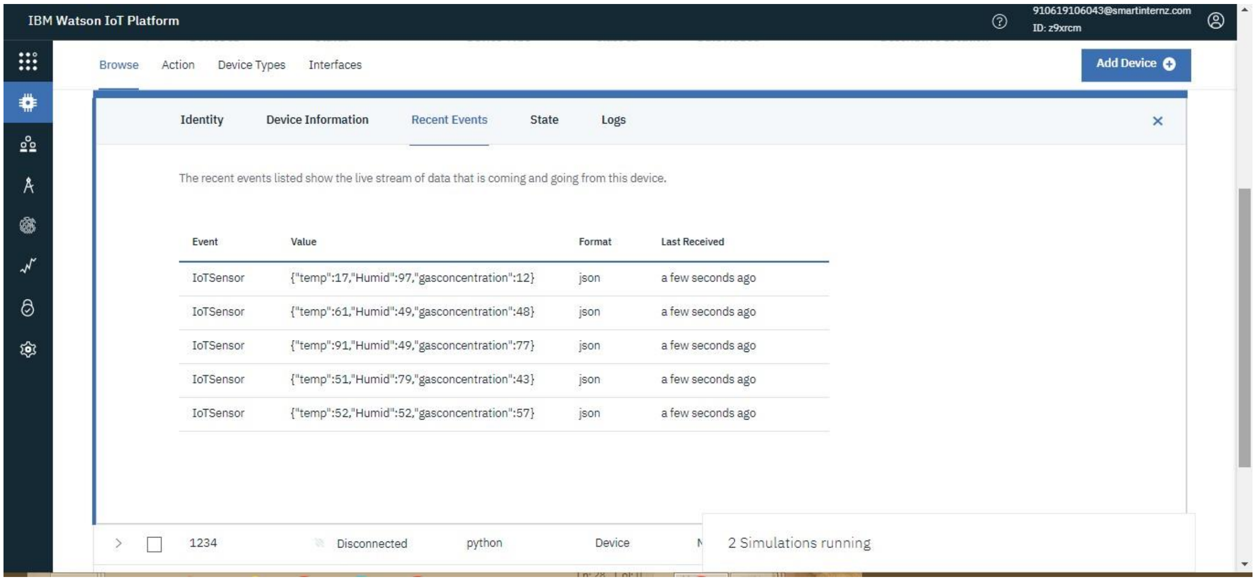
```
    #print(cmd)

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()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
        #Get Sensor Data from DHT11

        temp=random.randint(0,100)
        Humid=random.randint(0,100)
        gasconcentration=random.randint(0,100)


        data = { 'temp' : temp, 'Humid': Humid, "gasconcentration": gasconcentration}

        #print data
        def myOnPublishCallback():
            print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % Humid, "gasconcentration = %s %%" % gasconcentration, "to IBM Watson")

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

        deviceCli.commandCallback = myCommandCallback

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


code.py - C:\Users\bala\AppData\Local\Pro
File Edit Format Run Options Window Help
Python 3.6.0 Shell
File Edit Shell Debug Options Window Help
Ln: 5 Col: 0

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random


#Provide your IBM Watson Device Credentials
organization = "z9xrcm"
deviceType = "ESP32"
deviceId = "1234"
authMethod = "token"
authToken = "12345678"

# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="sprinkleron":
        print ("Sprinkler is on")
    else :
        print ("Sprinkler is off")

    #print(cmd)

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-m
    deviceCli = ibmiotf.device.Client(deviceOptions)
    #..............................................

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

# Connect and send a datapoint "hello" with value "world" into the cloud as an event
deviceCli.connect()

while True:
        #Get Sensor Data from DHT11

        temp=random.randint(0,100)
```

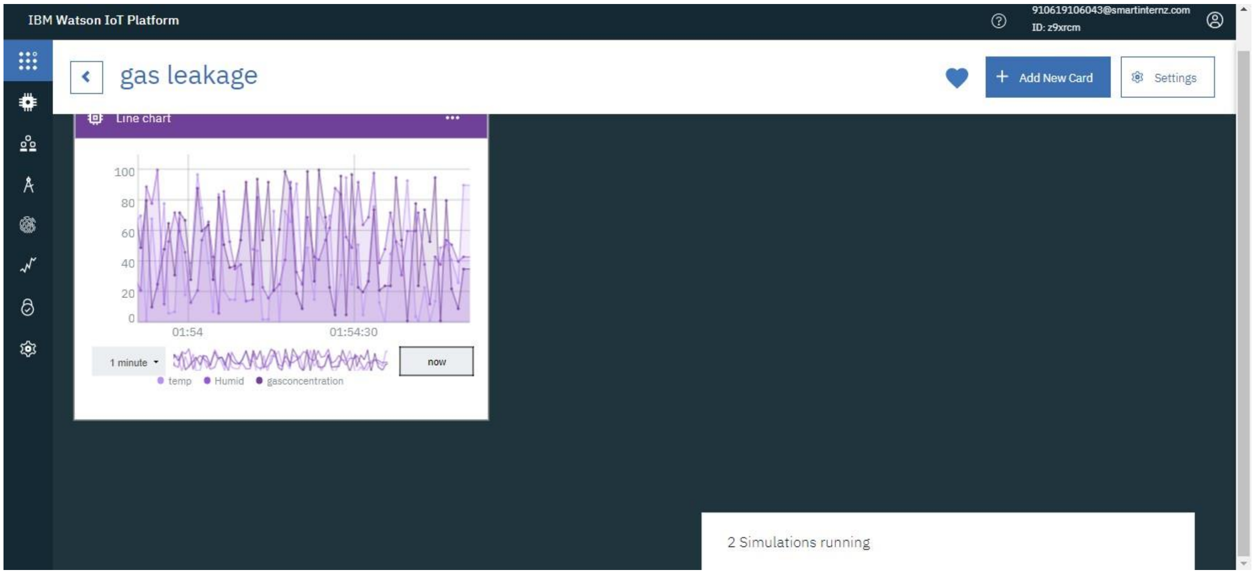
```
Python 3.6.0 (v3.6.0:41df79263a11, Dec 23 2016, 07:18:10) [MSC v.1900 32 bit (I
ntel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
== RESTART: C:\Users\bala\AppData\Local\Programs\Python\Python36-32\code.py ==
2022-11-16 02:20:17,405   ibmiotf.device.Client      INFO    Connected successf
ully: d:z9xrcm:ESP32:1234
Published Temperature = 88 C Humidity = 59 % gasconcentration = 78 % to IBM Wat
son
Published Temperature = 28 C Humidity = 99 % gasconcentration = 87 % to IBM Wat
son
Published Temperature = 32 C Humidity = 60 % gasconcentration = 8 % to IBM Wats
on
Published Temperature = 41 C Humidity = 54 % gasconcentration = 67 % to IBM Wat
son
Published Temperature = 81 C Humidity = 64 % gasconcentration = 17 % to IBM Wat
son
Published Temperature = 51 C Humidity = 93 % gasconcentration = 38 % to IBM Wat
son
Published Temperature = 5 C Humidity = 1 % gasconcentration = 79 % to IBM Watso
n
Published Temperature = 44 C Humidity = 88 % gasconcentration = 69 % to IBM Wat
son
Published Temperature = 76 C Humidity = 54 % gasconcentration = 27 % to IBM Wat
son
Published Temperature = 37 C Humidity = 78 % gasconcentration = 10 % to IBM Wat
son
```

Recent Events in IBM WATSON IOT Platform :

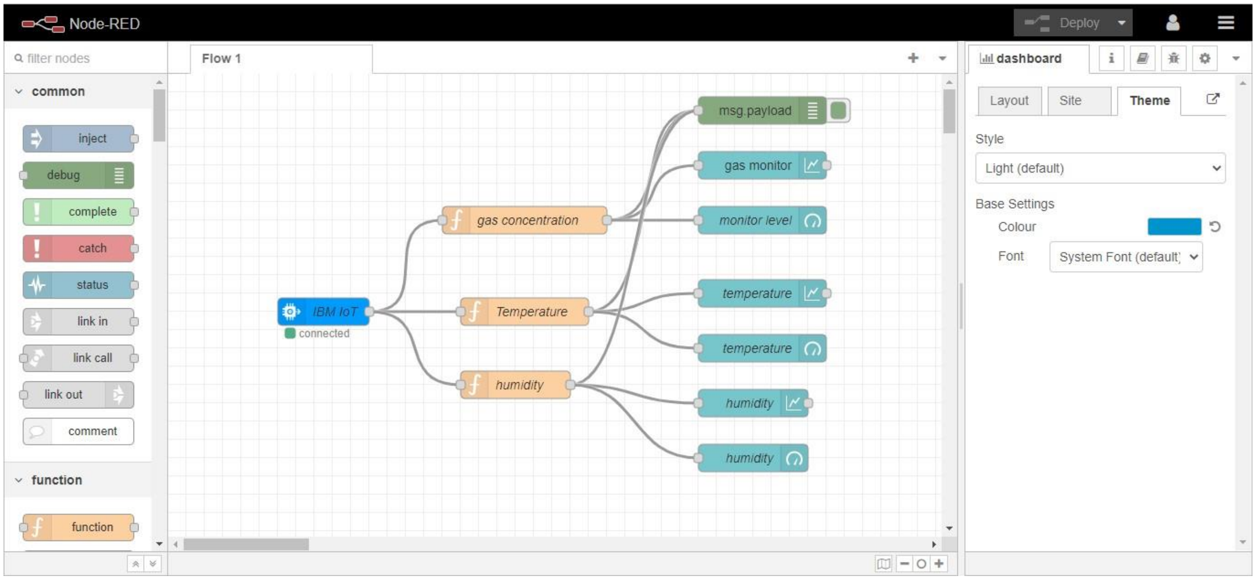


The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
IoTSensor	{"temp":17,"Humid":97,"gasconcentration":12}	json	a few seconds ago
IoTSensor	{"temp":61,"Humid":49,"gasconcentration":48}	json	a few seconds ago
IoTSensor	{"temp":91,"Humid":49,"gasconcentration":77}	json	a few seconds ago
IoTSensor	{"temp":51,"Humid":79,"gasconcentration":43}	json	a few seconds ago
IoTSensor	{"temp":52,"Humid":52,"gasconcentration":57}	json	a few seconds ago



Node Red Flow :

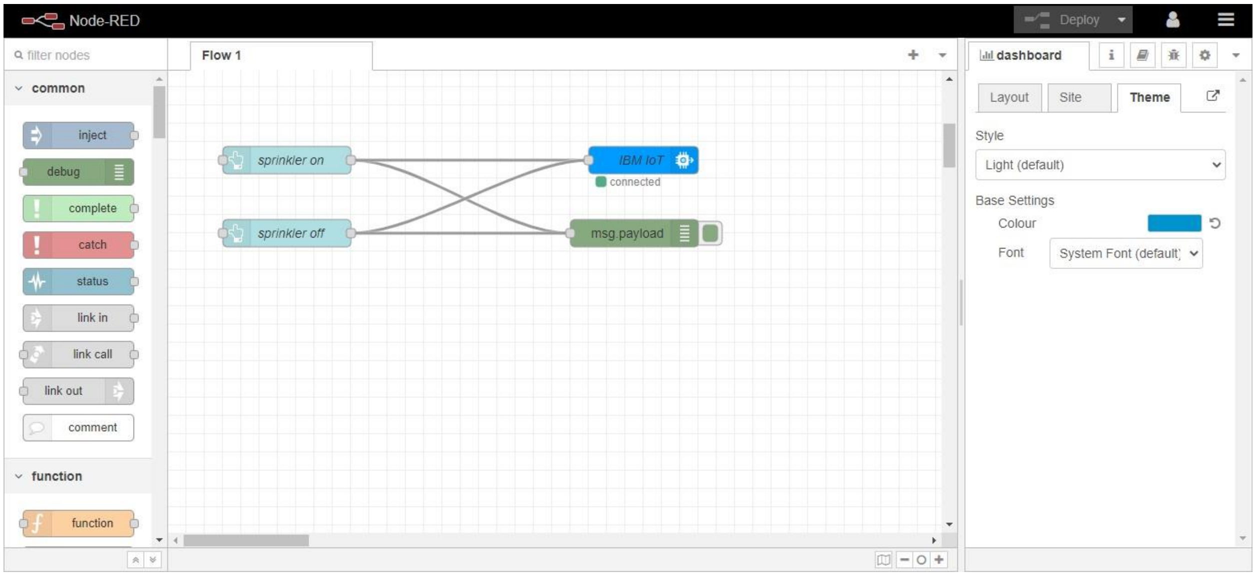


Style: Light (default)

Base Settings

Colour

Font: System Font (default)



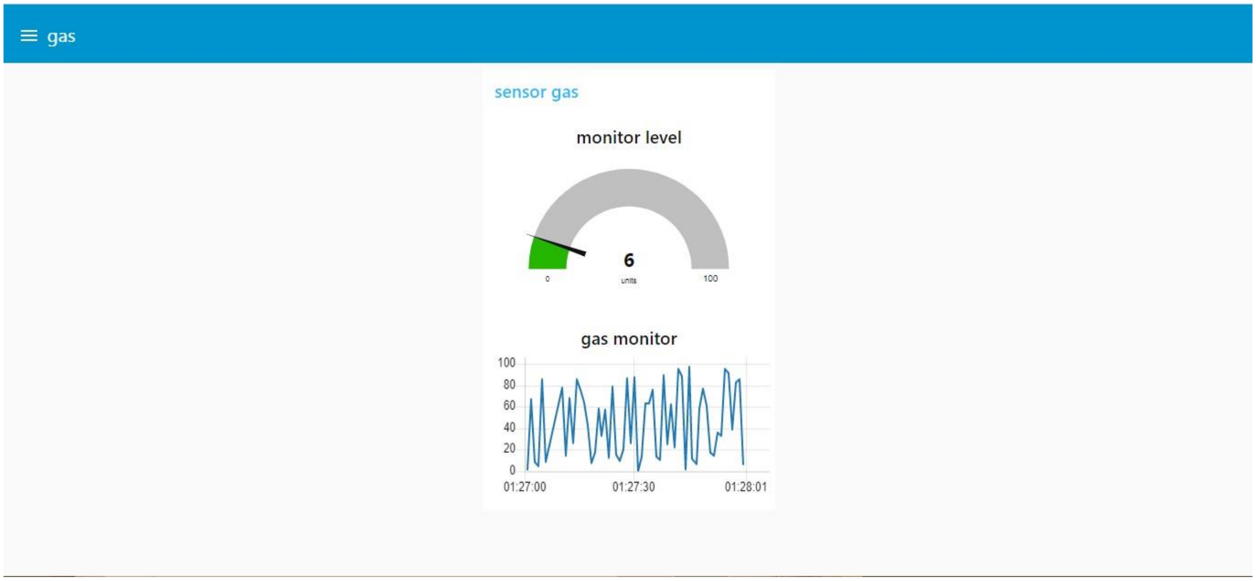
Style: Light (default)

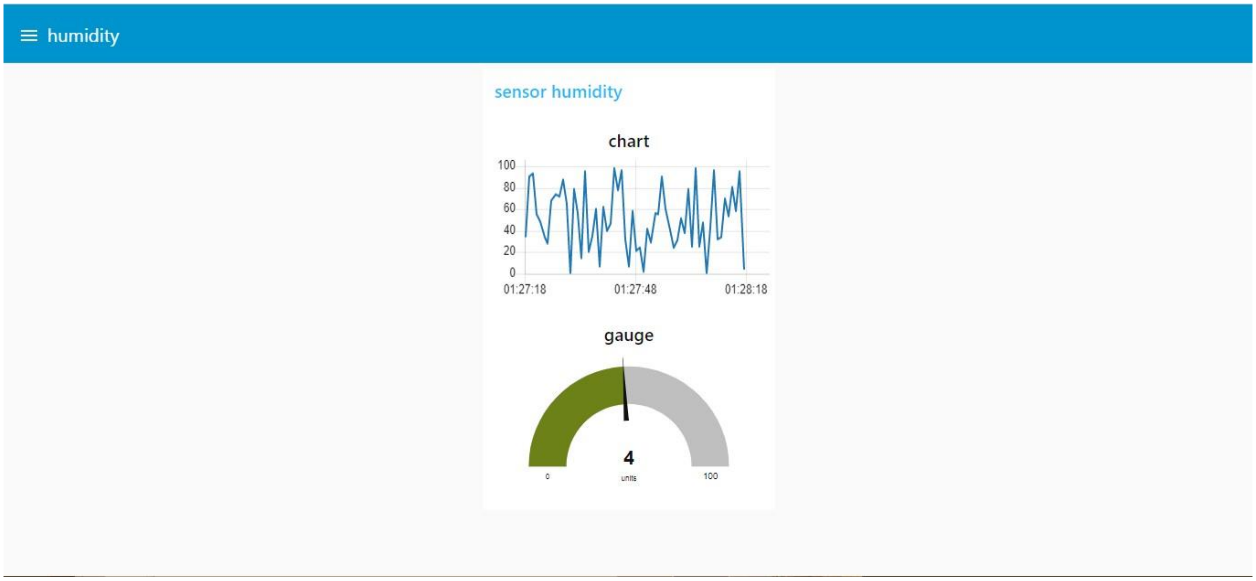
Base Settings

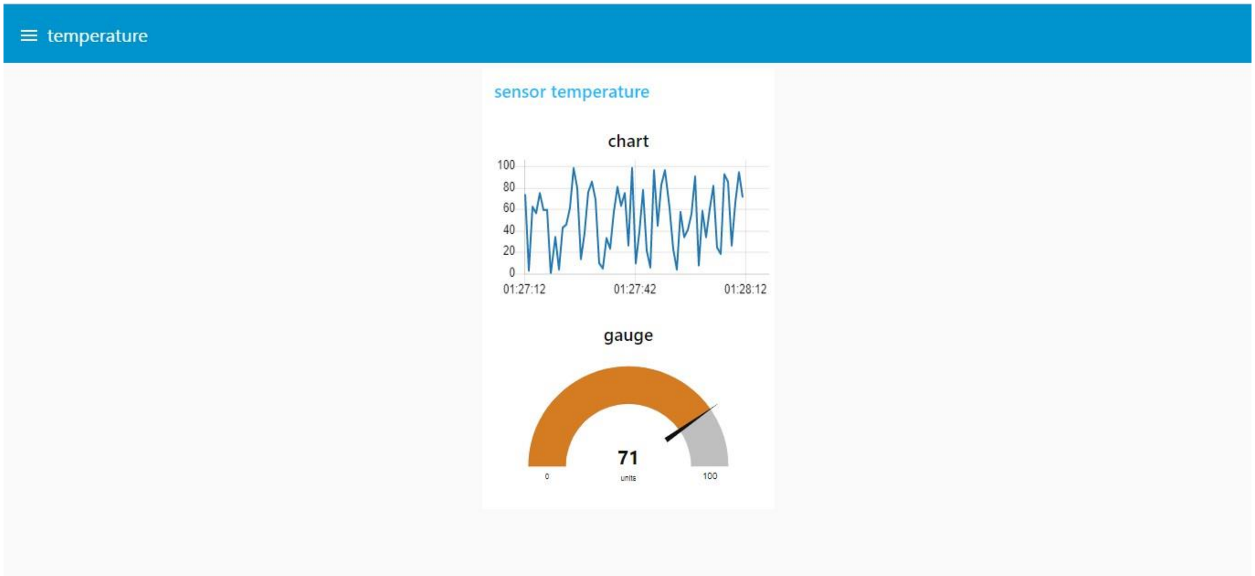
Colour

Font: System Font (default)

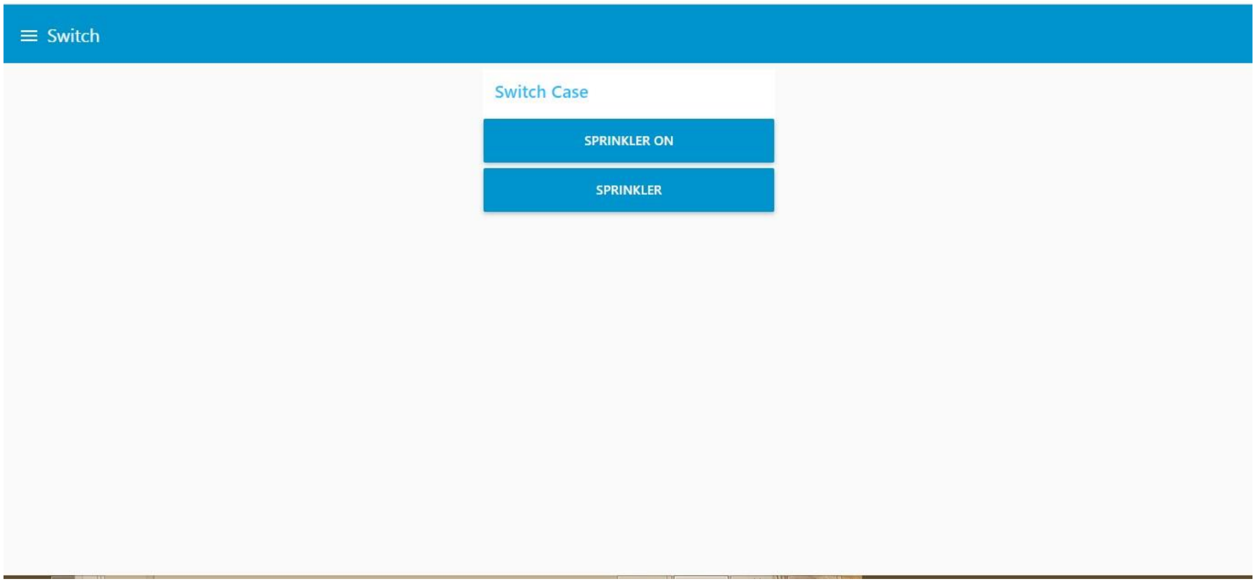
Dashboard Created Using Node :

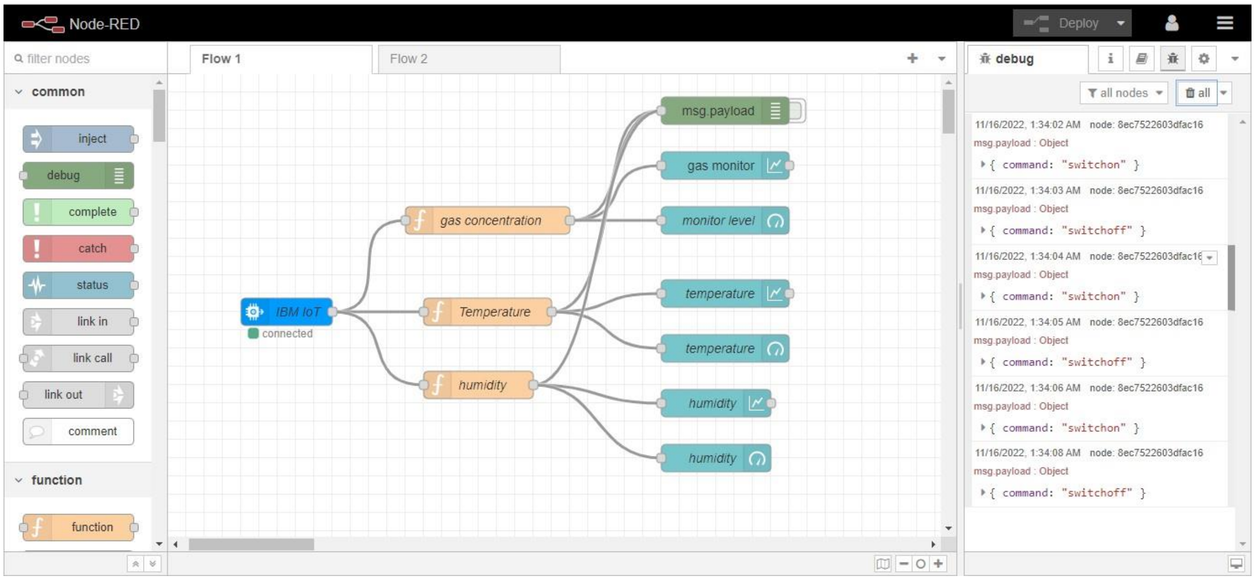

gas
sensor gas
monitor level
6
units
0
100
gas monitor
100
80
60
40
20
0
01:27:00
01:27:30
01:28:01


humidity
sensor humidity
chart
100
80
60
40
20
0
01:27:18
01:27:48
01:28:18
gauge
4
units
0
100


☰ temperature
sensor temperature
chart
100
80
60
40
20
0
01:27:12
01:27:42
01:28:12
gauge
71
units
0
100

Testing :


☰ Switch
Switch Case
SPRINKLER ON
SPRINKLER



```
11/16/2022, 1:34:02 AM   node: 8ec7522603dfac16
msg.payload : Object
▸{ command: "switchon" }
11/16/2022, 1:34:03 AM   node: 8ec7522603dfac16
msg.payload : Object
▸{ command: "switchoff" }
11/16/2022, 1:34:04 AM   node: 8ec7522603dfac16
msg.payload : Object
▸{ command: "switchon" }
11/16/2022, 1:34:05 AM   node: 8ec7522603dfac16
msg.payload : Object
▸{ command: "switchoff" }
11/16/2022, 1:34:06 AM   node: 8ec7522603dfac16
msg.payload : Object
▸{ command: "switchon" }
11/16/2022, 1:34:08 AM   node: 8ec7522603dfac16
msg.payload : Object
▸{ command: "switchoff" }
```