SPRINT 2 - Receiving datas in IBM Watson and developing web Application using Node RED

Date:	13th November 2022
Team ID	PNT2022TMID27964
Project Name	Project – Smart Farmer- IoT basedSmartFarmingApplication

AIM:

To create a device in IBM Watson to receive datas from where Node RED is used to develop a web application

SOFTWARES USED:

- IBM Cloud
- IBM Watson for IoT
- Node RED
- Python

PROCEDURE :

- The python code is first run to receive the Sensor values.
- A new device is created in Ibm Watson and the API and authentication token is generated.
- The output of code is linked to Ibm Cloud from where the datas are sent to Ibm Watson platoform for Iot.
- From here the datas are send to Node Red , which is used to create the web application.
- The received data are graphically represented in IBM Watson and Node RED respectively.

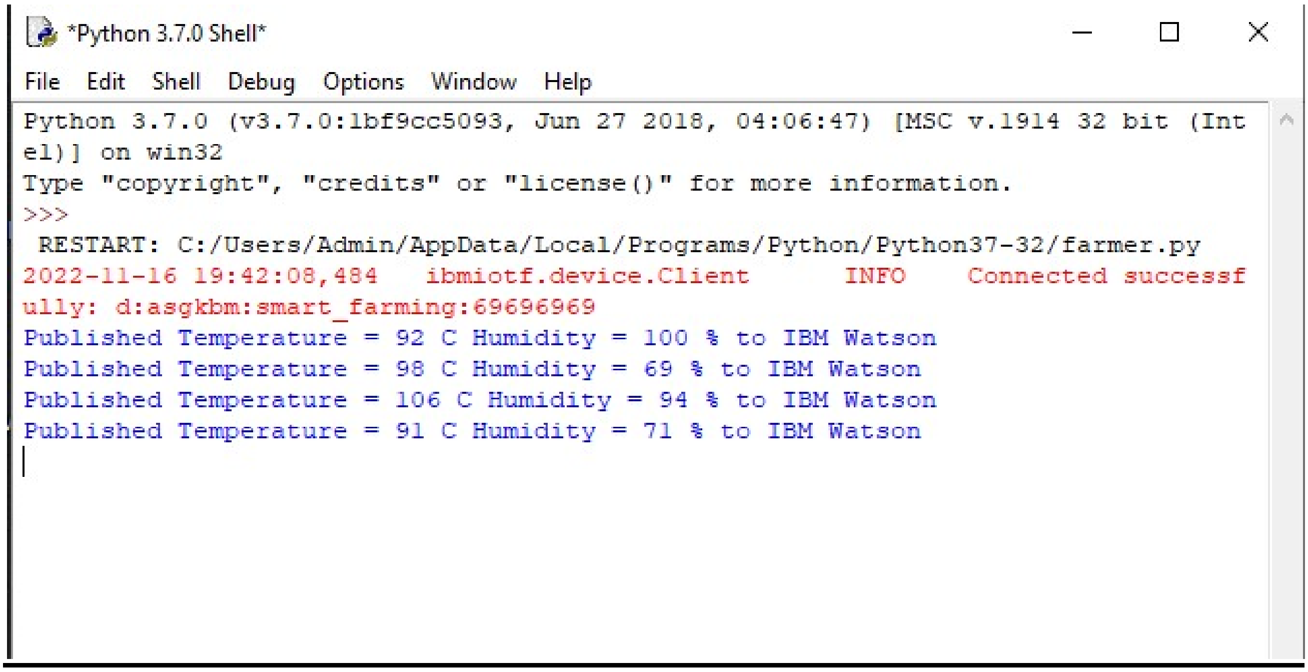
PYTHON CODE :

```
import time

import sys

importibmiotf.application

importibmiotf.device

import random

#Provide your IBM Watson Device Credentials

organization = "asgkbm"

deviceType = "smart_farming"

deviceId = "69696969"

authMethod = "token"
```

```
authToken = "12345678"


# Initialize GPIO
defmyCommandCallback(cmd):
print("Command received: %s" % cmd.data['command'])
status=cmd.data['command']
if status=="lighton":
print ("led is on")
elif status == "lightoff":
print ("led is off")
else :
print ("please send proper command")


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(90,110)
	Humid=random.randint(60,100)


	data = { 'temp' : temp, 'Humid': Humid }
```

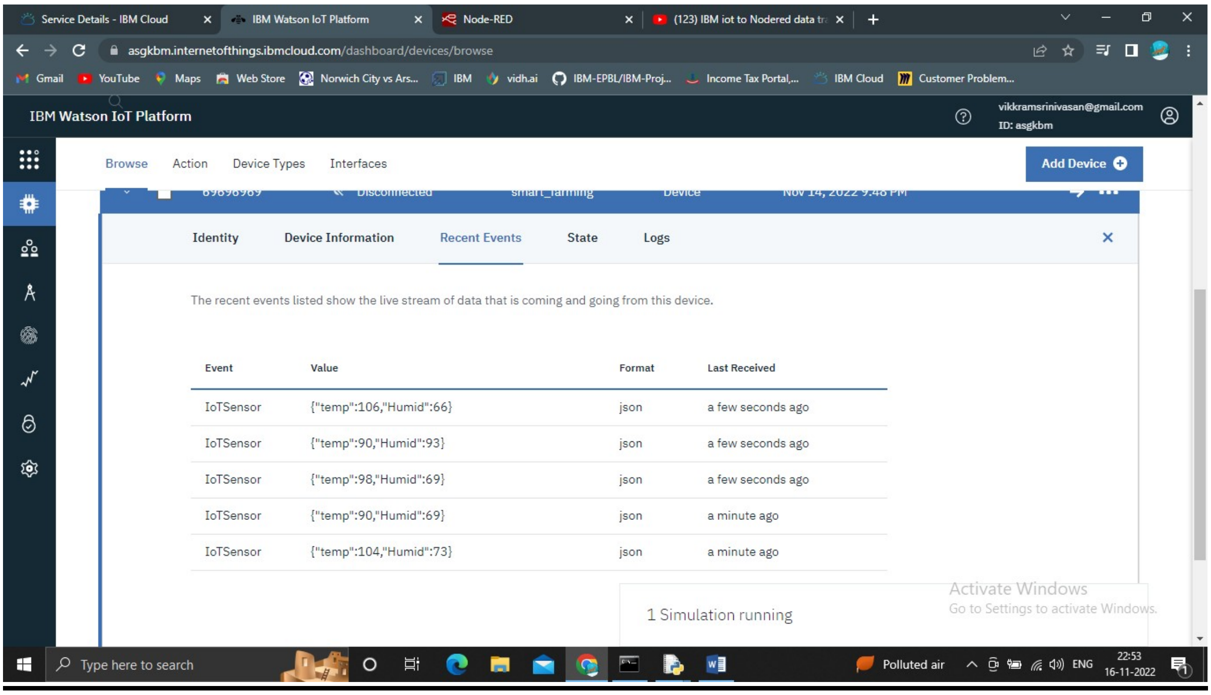
```
#print data
defmyOnPublishCallback():
print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % Humid, "to IBM Watson")

success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=myOnPublishCallback)
if not success:
print("Not connected to IoTF")
time.sleep(10)
deviceCli.commandCallback = myCommandCallback

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

PYTHON OUTPUT :



```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Int
el)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
 RESTART: C:/Users/Admin/AppData/Local/Programs/Python/Python37-32/farmer.py
2022-11-16 19:42:08,484   ibmiotf.device.Client      INFO    Connected successf
ully: d:asgkbm:smart_farming:69696969
Published Temperature = 92 C Humidity = 100 % to IBM Watson
Published Temperature = 98 C Humidity = 69 % to IBM Watson
Published Temperature = 106 C Humidity = 94 % to IBM Watson
Published Temperature = 91 C Humidity = 71 % to IBM Watson
```

COLLECTING OUTPUT DATA IN IBM WATSON :

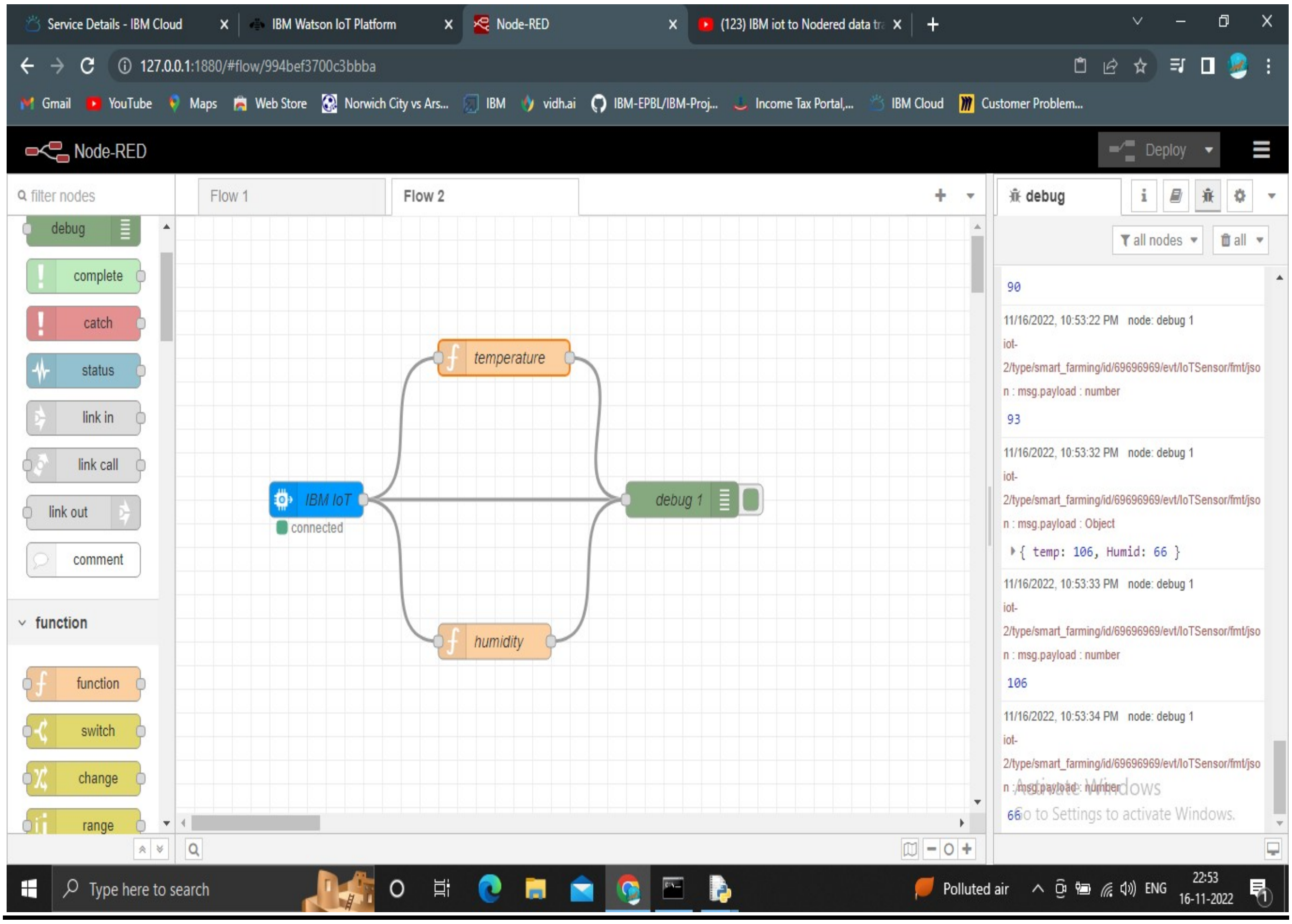


The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
IoTSensor	{"temp":106,"Humid":66}	json	a few seconds ago
IoTSensor	{"temp":90,"Humid":93}	json	a few seconds ago
IoTSensor	{"temp":98,"Humid":69}	json	a few seconds ago
IoTSensor	{"temp":90,"Humid":69}	json	a minute ago
IoTSensor	{"temp":104,"Humid":73}	json	a minute ago

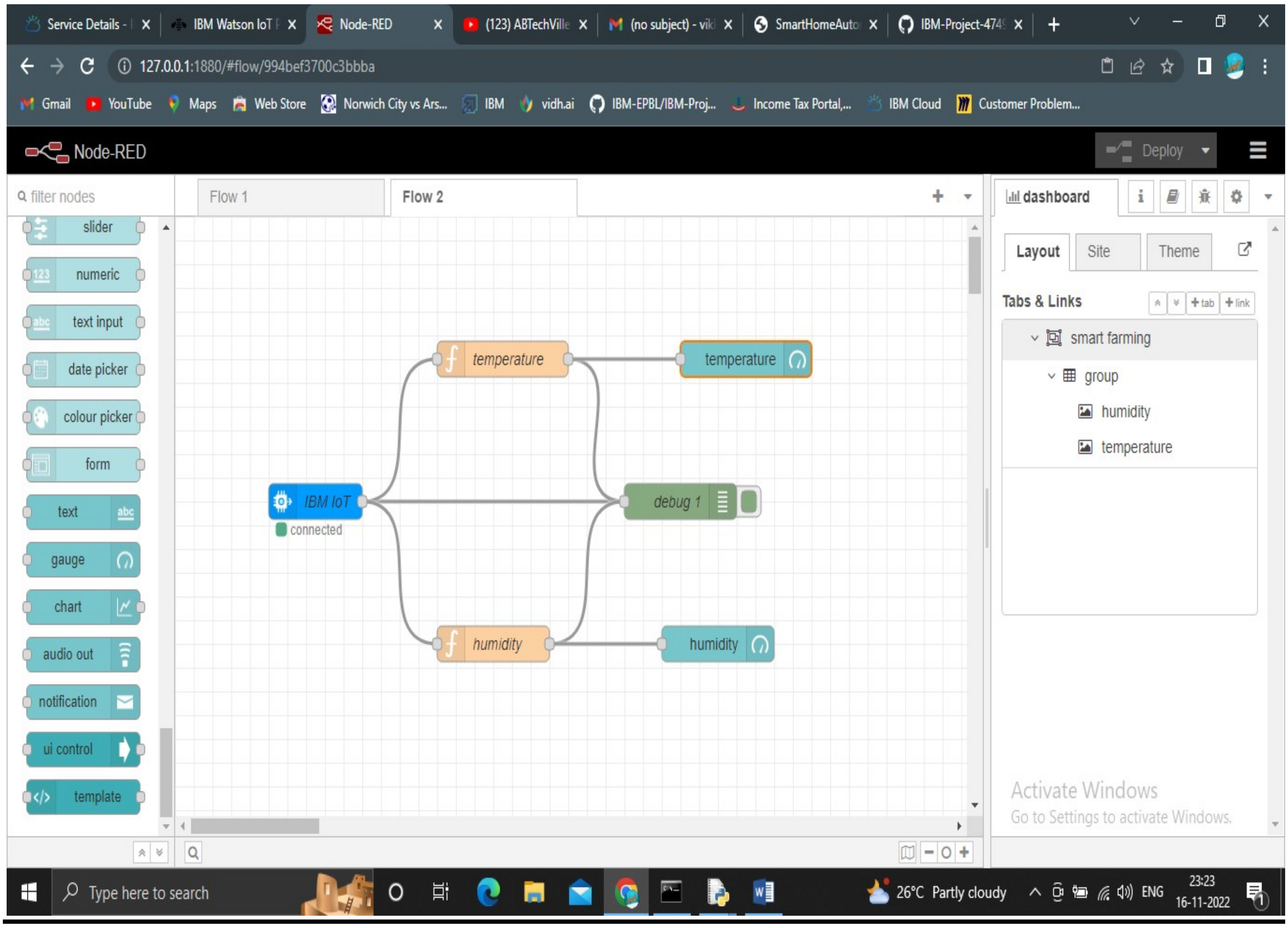
1 Simulation running

CREATING WEB APPLICATION USING NODE RED

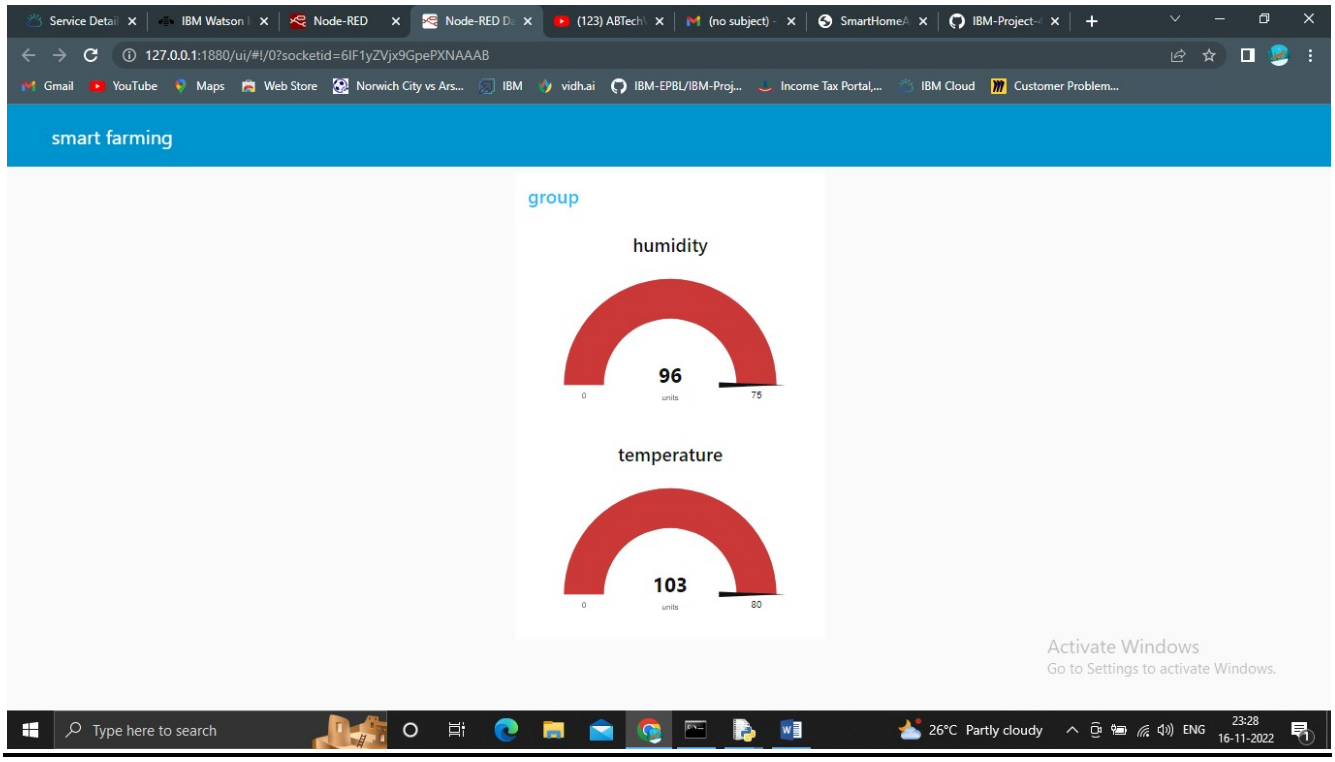


```
90
11/16/2022, 10:53:22 PM   node: debug 1
iot-2/type/smart_farming/id/69696969/evt/IoTSensor/fmt/json : msg.payload : number
93
11/16/2022, 10:53:32 PM   node: debug 1
iot-2/type/smart_farming/id/69696969/evt/IoTSensor/fmt/json : msg.payload : Object
▸{ temp: 106, Humid: 66 }
11/16/2022, 10:53:33 PM   node: debug 1
iot-2/type/smart_farming/id/69696969/evt/IoTSensor/fmt/json : msg.payload : number
106
11/16/2022, 10:53:34 PM   node: debug 1
iot-2/type/smart_farming/id/69696969/evt/IoTSensor/fmt/json : msg.payload : number
66
```

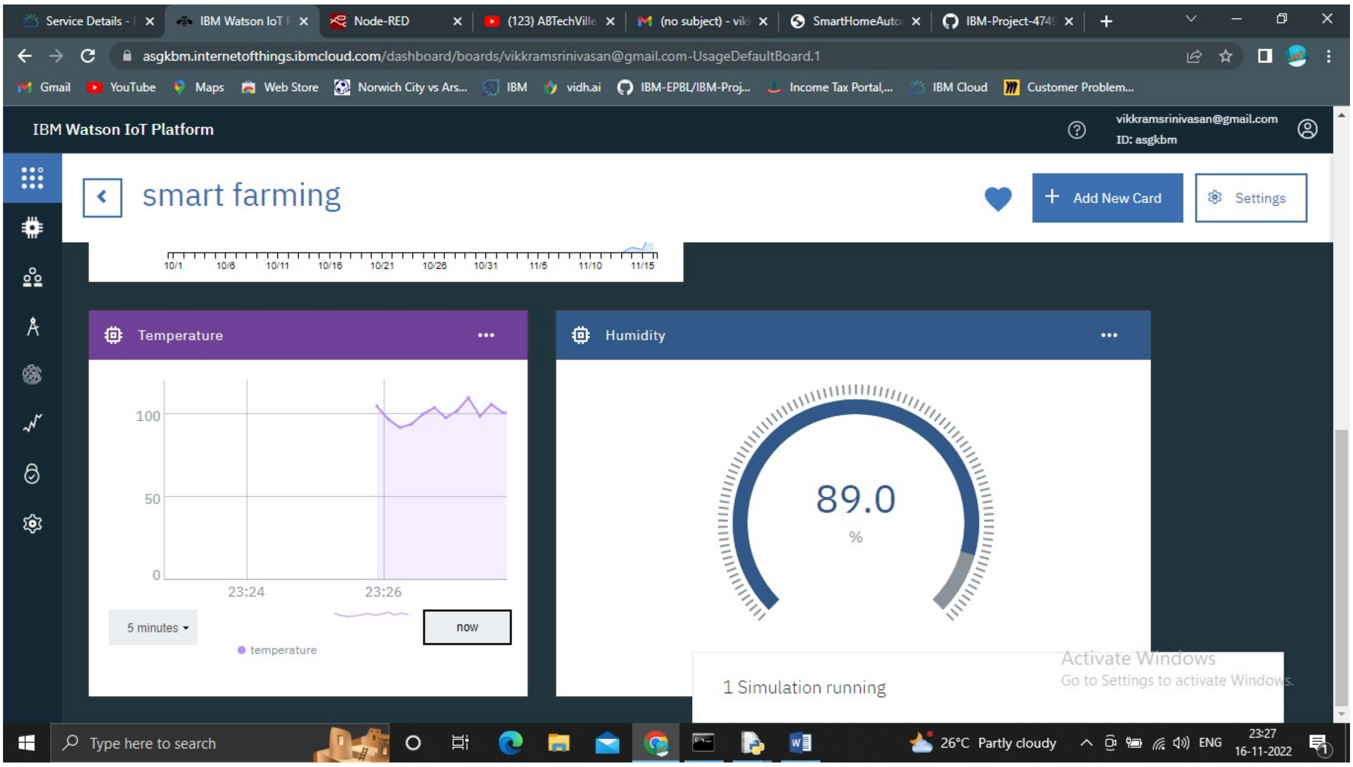
EDITING THE FUNCTIONS AND COMPONENTS



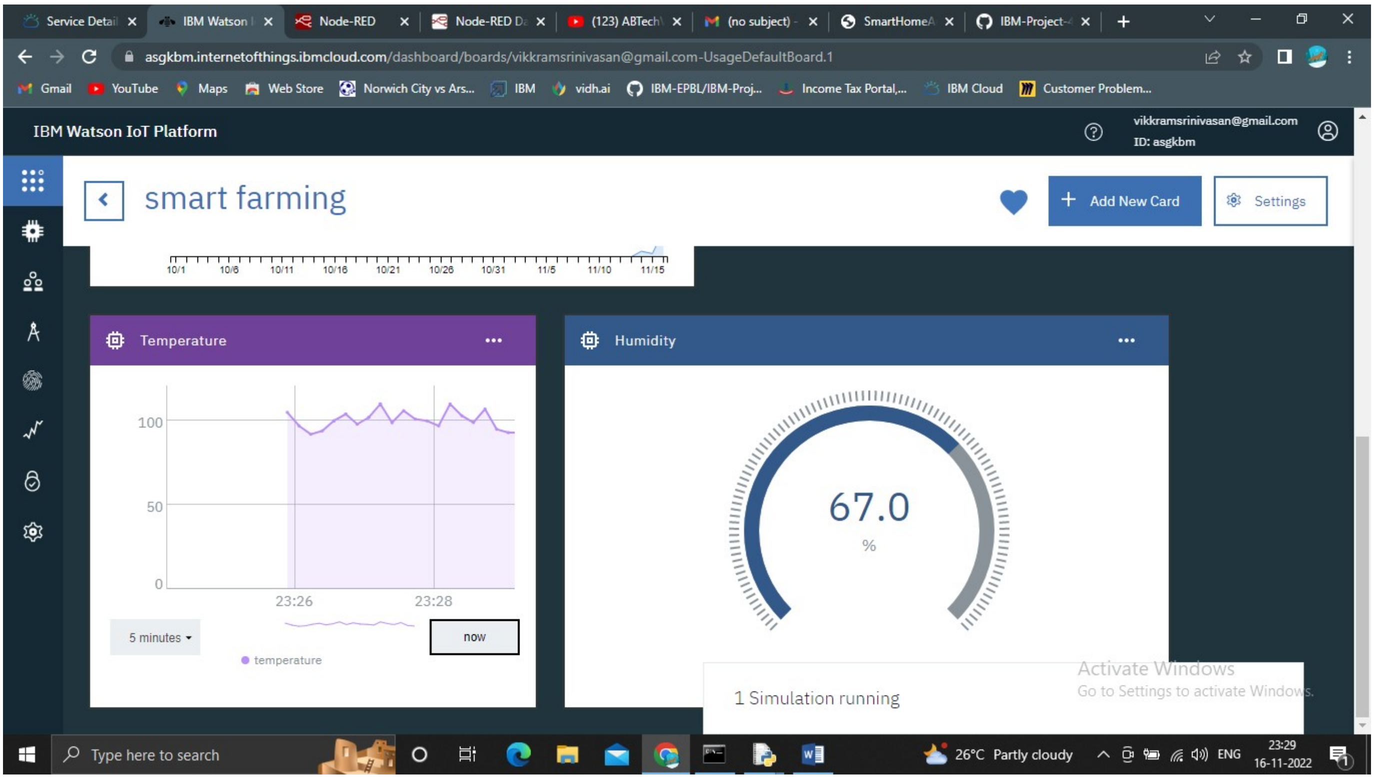
NODE RED OUTPUT



IBM WATSON OUTPUT



asgkbm.internetofthings.ibmcloud.com/dashboard/boards/vikkramsrinivasan@gmail.com-UsageDefaultBoard.1
IBM Watson IoT Platform
vikkramsrinivasan@gmail.com
ID: asgkbm
smart farming
Add New Card
Settings
Temperature
100
50
0
23:24
23:26
5 minutes
now
temperature
Humidity
89.0
%
1 Simulation running



asgkbm.internetofthings.ibmcloud.com/dashboard/boards/vikkramsrinivasan@gmail.com-UsageDefaultBoard.1
IBM Watson IoT Platform
vikkramsrinivasan@gmail.com
ID: asgkbm
smart farming
Add New Card
Settings
Temperature
100
50
0
23:26
23:28
5 minutes
now
temperature
Humidity
67.0
%
1 Simulation running