Project Development Phase

Sprint – IV

Date	14 November 2022
Team id	PNT2022TMID51225
Project name	Signs with smart connectivity for better road safety

Coding to print the random Road signs, Speed limit, Message and temperature :

randomSensordata.py:

```
import wiotp.sdk.device

import time

import random

import ibmiotf.application

import ibmiotf.device

import requests, json


myConfig = {

 #Configuration

 "identity": {

 "orgId": "q536ty",

  "typeId": "Sample_one",

  "deviceId":"4054"

},

 #API Key

 "auth": {
```

```python
    "token": "953719104054"

  }

}


def myCommandCallback(cmd):

  print("Message received from IBM IoT Platform: %s"%

cmd.data['command'])

  m=cmd.data['command']


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

client.connect()


#OpenWeatherMap Credentials

BASE_URL ="https://api.openweathermap.org/data/2.5/weather?"

CITY = "Bengaluru, IN"

URL = BASE_URL + "q=" + CITY + "&units=metric"+"&appid="
+"76d24dec9915b133df9bdef90b7c215a"


while True:

    response = requests.get(URL)

    if response.status_code == 200:

    data = response.json()

      main = data['main']

      temperature = main['temp']

      humidity = main['humidity']
```

```python
pressure = main['pressure']

report = data['visibility']


#messge part

msg=random.randint(0,5)

if msg==1:

  message="GO SLOW, SCHOOL ZONE AHEAD"

elif msg==2:

  message="NEED HELP, POLICE STATION AHEAD"

elif msg==3:

  message="EMERGENCY, HOSPITAL NEARBY"

elif msg==4:

  message="DINE IN, RESTAURENT AVAILABLE"

elif msg==5:

  message="PETROL BUNK NEARBY"

else:

  message=""


#Speed Limit part

speed=random.randint(0,150)

if speed>=100:

    speedMsg=" Limit Exceeded"

elif speed>=60 and speed<100:

    speedMsg="Moderate"

else:
```

```python
        speedMsg="Slow"


#Diversion part
    sign=random.randint(0,5)
    if sign==1:
        signMsg="Right Diversion"
    elif sign==2:
        signMsg="Speed Breaker"
    elif sign==3:
        signMsg="Left Diversion"
    elif sign==4:
        signmsg="U Turn"
    else:
        signMsg=""


#Visibility
    if temperature < 24:
        visibility="Fog Ahead, Drive Slow"
    else:
        visibility="Clear Weather"


    myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg, 'Speed':speedMsg,
'Visibility':visibility}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
onPublish=None) #PUBLISHING TO IOT WATSON
    print("Published data Successfully: ", myData)
```

```
client.commandCallback = myCommandCallback

time.sleep(5)

client.disconnect()
```

Python simulation:

Import wiotp-sdk & ibmiotf :

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19042.2251]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Sri\AppData\Local\Programs\Python\Python39\Scripts>pip install ibmiotf
Collecting ibmiotf
  Downloading ibmiotf-0.4.0.tar.gz (71 kB)
     |████████████████████████████████| 71 kB 13 kB/s
Requirement already satisfied: iso8601>=0.1.12 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from ibmiotf) (1.1.0)
Requirement already satisfied: pytz>=2017.3 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from ibmiotf) (2022.6)
Requirement already satisfied: paho-mqtt>=1.3.1 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from ibmiotf) (1.6.1)
Requirement already satisfied: requests>=2.18.4 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from ibmiotf) (2.28.1)
Requirement already satisfied: requests_toolbelt>=0.8.0 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from ibmiotf) (0.10.1)
Requirement already satisfied: idna<4,>=2.5 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from requests>=2.18.4->ibmiotf) (3.4)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from requests>=2.18.4->ibmiotf) (2022.9.24)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from requests>=2.18.4->ibmiotf) (1.26.12)
)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\sri\appdata\local\programs\python\python39\lib\site-packages (from requests>=2.18.4->ibmiotf) (2.1.1
)
Using legacy 'setup.py install' for ibmiotf, since package 'wheel' is not installed.
Installing collected packages: ibmiotf
    Running setup.py install for ibmiotf ... done
Successfully installed ibmiotf-0.4.0
WARNING: You are using pip version 21.2.4; however, version 22.3.1 is available.
You should consider upgrading via the 'C:\Users\Sri\AppData\Local\Programs\Python\Python39\python.exe -m pip install --upgrade pip' command.

C:\Users\Sri\AppData\Local\Programs\Python\Python39\Scripts>
```
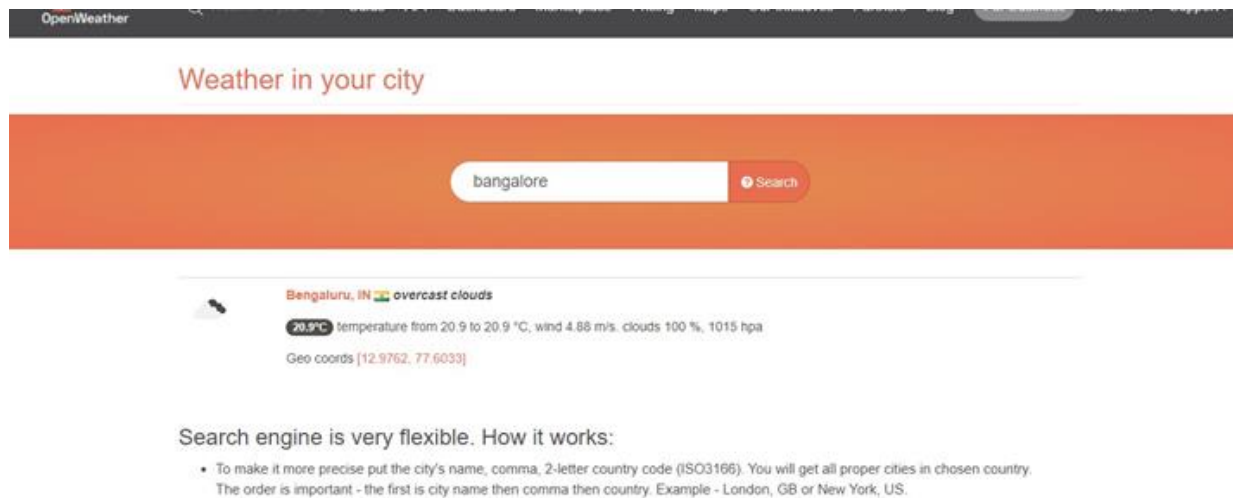
OpenWeatherMap - (Ex., Bengaluru, IN) :

{"coord":{"lon":77.6033,"lat":12.9762},"weather":[{"id":804,"main":"Clouds","description":"overcast clouds","icon":"04n"}],"base":"stations","main":
{"temp":298.08,"feels_like":299.21,"temp_min":295.05,"temp_max":298.08,"pressure":1014,"humidity":99,"sea_level":1014,"grnd_level":913},"visibility":10000,"wind":
{"speed":3.03,"deg":72,"gust":5.19},"clouds":{"all":100},"dt":1668522483,"sys":
{"type":2,"id":2036502,"country":"IN","sunrise":1668473293,"sunset":1668514814},"timezone":19800,"id":1277333,"name":"Bengaluru","cod":200}

Python IDLE Output :

Published data Successfully: {'Temperature': 24.93, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Left Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}