

Project Development Phase Sprint IV

Date	14 November 2022
Team ID	PNT2022TMID13653
Project Name	Project - Signs with smart connectivity for Better road safety

Code for print the random temperature, Road signs, Speed limit, Message :

(RandomValues.py)

```
import wiotp.sdk.device
import time import random
import
ibmiotf.application
import ibmiotf.device
import requests, json
myConfig = {
    #Configuration
    "identity": {
        "orgId": "n6r19n",
        "typeId": "NodeMCU",
        "deviceId": "621319106312"
    },
    #API Key
    "auth": {
        "token": "9876543210"
    }
}

#Receiving callbacks from IBM IOT platform 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 = "Salem, IN"
URL = BASE_URL + "q=" + CITY + "&units=metric"&"&appid=" + "f58e4720c739a54c439aba9b05176839"
while True:
    response = requests.get(URL)
    if response.status_code == 200:
        data = response.json()
        main = data['main']
        temperature = main['temp']
        humidity = main['humidity']
        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:
    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"
elif temperature < 20:
    visibility="Bad Weather"
else: visibility="Clear
Weather"
else: print("Error in the HTTP
request")
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)
print("-----")
print("-----")
client.commandCallback = myCommandCallback time.sleep(5)
client.disconnect()

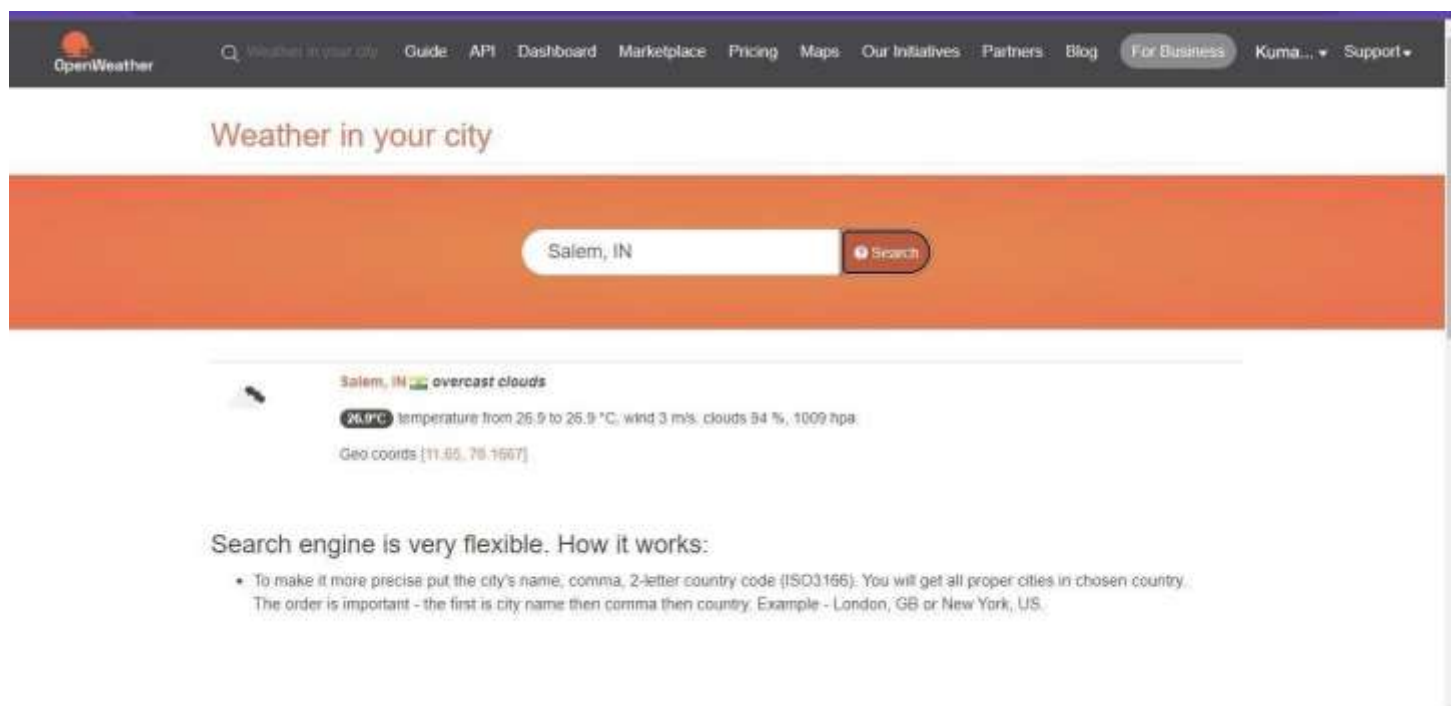
```

Python Simulation :


```
C:\Users\shilpi> pip install aiohttp
Collecting aiohttp
  Downloading aiohttp-3.8.1-py3-none-any.whl (55 kB)
    Preparing metadata (setup.py) ... done
Collecting frozenlist
  Downloading frozenlist-1.3.0-py3-none-any.whl (9.9 kB)
Requirement already satisfied: python-dateutil in c:\users\shilpi\appdata\local\programs\python\python38\packages (from aiohttp) (2019.2)
Collecting pyyaml
  Downloading pyyaml-5.4.1-py3-none-any.whl (132 kB)
Requirement already satisfied: attrs in c:\users\shilpi\appdata\local\programs\python\python38\packages (from aiohttp) (19.1.0)
Requirement already satisfied: requests in c:\users\shilpi\appdata\local\programs\python\python38\packages (from aiohttp) (2.27.1)
Collecting requests-toolbelt
  Downloading requests-toolbelt-0.10.1-py3-none-any.whl (26 kB)
Requirement already satisfied: urllib3 in c:\users\shilpi\appdata\local\programs\python\python38\packages (from requests-toolbelt) (1.26.12)
Requirement already satisfied: idna in c:\users\shilpi\appdata\local\programs\python\python38\packages (from requests-toolbelt) (3.4)
Requirement already satisfied: certifi in c:\users\shilpi\appdata\local\programs\python\python38\packages (from requests-toolbelt) (2021.10.8)
Requirement already satisfied: aiohttp-libs in c:\users\shilpi\appdata\local\programs\python\python38\packages (from aiohttp-libs) (1.2.0)
Installing collected packages: requests-toolbelt, pyyaml, frozenlist, aiohttp
  Running setup.py install for aiohttp ... done
Successfully installed aiohttp-3.8.1 pyyaml-5.4 requests-toolbelt-0.10.1 aiohttp-libs-1.2.0
```

```
C:\Users\shilpi> pip install lmdb
Collecting lmdb
  Downloading lmdb-0.9.3-py3-none-any.whl (11.1 kB)
Requirement already satisfied: python-dateutil in c:\users\shilpi\appdata\local\programs\python\python38\packages (from lmdb) (2019.2)
Requirement already satisfied: requests in c:\users\shilpi\appdata\local\programs\python\python38\packages (from lmdb) (2.27.1)
Requirement already satisfied: requests-toolbelt in c:\users\shilpi\appdata\local\programs\python\python38\packages (from lmdb) (0.10.1)
Requirement already satisfied: certifi in c:\users\shilpi\appdata\local\programs\python\python38\packages (from requests-toolbelt) (2021.10.8)
Requirement already satisfied: idna in c:\users\shilpi\appdata\local\programs\python\python38\packages (from requests-toolbelt) (3.4)
Requirement already satisfied: urllib3 in c:\users\shilpi\appdata\local\programs\python\python38\packages (from requests-toolbelt) (1.26.12)
Installing collected packages: lmdb
  Running setup.py install for lmdb ... done
Successfully installed lmdb-0.9.3
```

OpenWeatherMap



Python IDLE Output :

```
Python 3.5.3 Shell
File Edit Shell Debug Options Window Help

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Speed Breaker', 'Speed': 'Limit Exceeded', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'GO SLOW, SCHOOL / COLLEGE ZONE AHEAD', 'Sign': 'Right Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'PETROL BUNK NEARBY', 'Sign': 'Speed Breaker', 'Speed': 'Limit Exceeded', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Speed Breaker', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': '', 'Sign': '', 'Speed': 'Limit Exceeded', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}

Published data Successfully: {'Temperature': 26.03, 'Message': 'NEED HELP, POLICE STATION AHEAD', 'Sign': 'Left Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}

Ln: 24 - Col: 0
```