Project Development Phase Sprint IV

Date	14 November 2022
Team ID	PNT2022TMID42162
Project Name	Project - Signs with smart connectivity for Better road safety

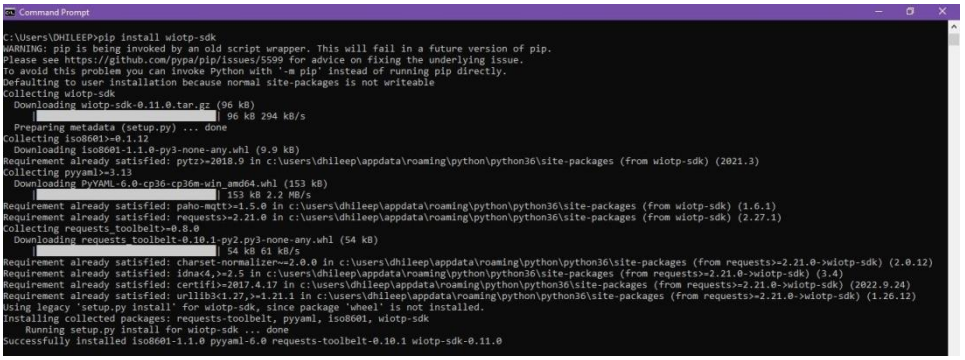
Code for print the random temperature, Road signs, Speed limit, Message :

(RandomValues.py)

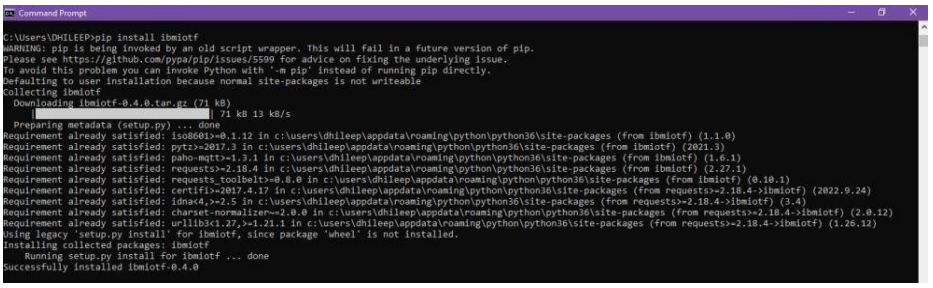
```
import wiotp.sdk.device
import time import random
import
ibmiotf.application
import ibmiotf.device
import requests, json
myConfig = {
    #Configuration
    "identity": {
        "orgId": "knubtc",
        "typeId": "raspberrypi",
        "deviceId":"123"
    },
    #API Key
    "auth": {
        "token": "12345678"
    }
}

#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("
  ")
   client.commandCallback = myCommandCallback time.sleep(5)
client.disconnect()
```

Import wiotp-sdk & ibmiotf :

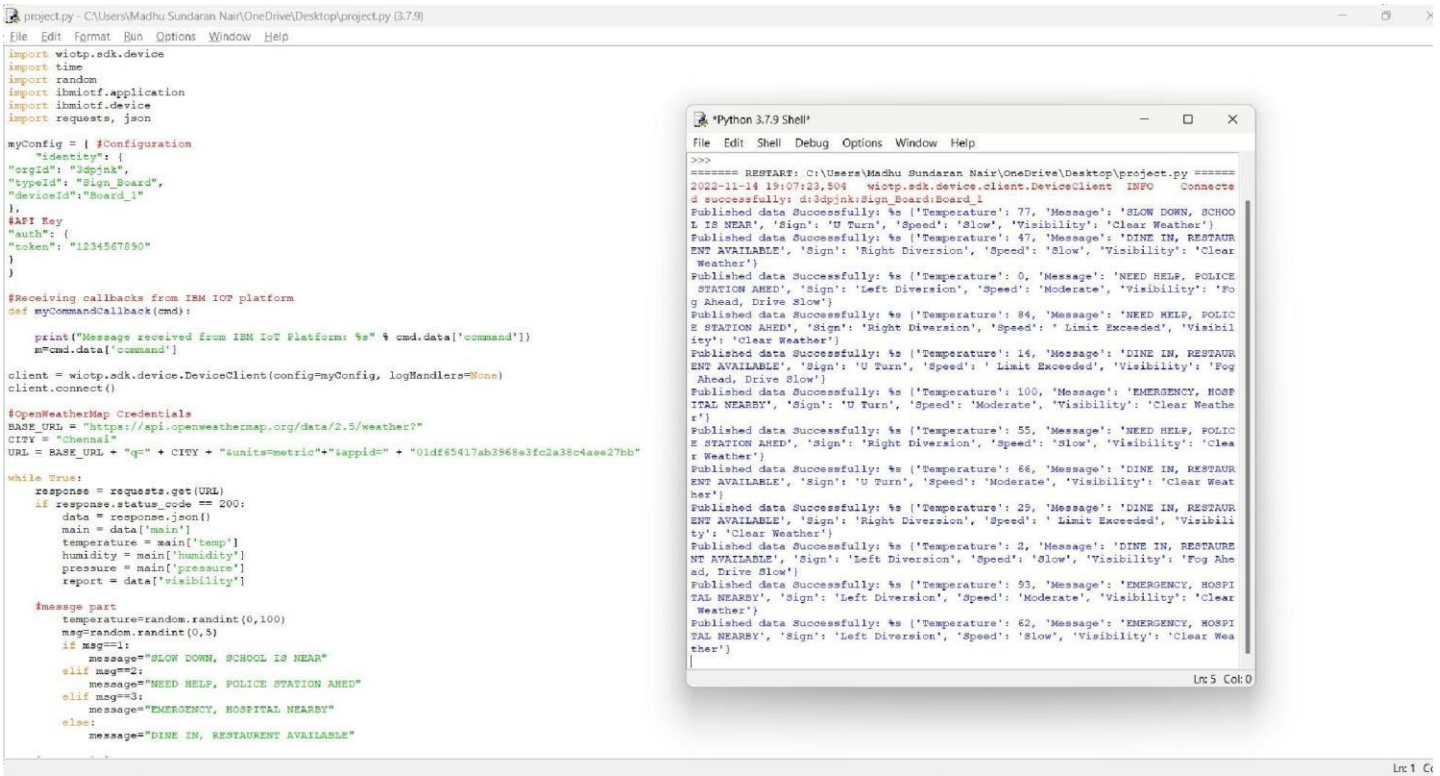


```
Command Prompt

C:\Users\DHILEEP>pip install wiotp-sdk
WARNING: pip is being invoked by an old script wrapper. This will fail in a future version of pip.
Please see https://github.com/pypa/pip/issues/5599 for advice on fixing the underlying issue.
To avoid this problem you can invoke Python with '-m pip' instead of running pip directly.
Defaulting to user installation because normal site-packages is not writeable
Collecting wiotp-sdk
  Downloading wiotp-sdk-0.11.0.tar.gz (96 kB)
     |████████████████████████████████| 96 kB 294 kB/s
  Preparing metadata (setup.py) ... done
Collecting iso8601>=0.1.12
  Downloading iso8601-1.1.0-py3-none-any.whl (9.9 kB)
Requirement already satisfied: pytz>=2018.9 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from wiotp-sdk) (2021.3)
Collecting pyyaml>=3.13
  Downloading PyYAML-6.0-cp36-cp36m-win_amd64.whl (153 kB)
     |████████████████████████████████| 153 kB 2.2 MB/s
Requirement already satisfied: paho-mqtt>=1.5.0 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from wiotp-sdk) (1.6.1)
Requirement already satisfied: requests>=2.21.0 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from wiotp-sdk) (2.27.1)
Collecting requests_toolbelt>=0.8.0
  Downloading requests_toolbelt-0.10.1-py2.py3-none-any.whl (54 kB)
     |████████████████████████████████| 54 kB 61 kB/s
Requirement already satisfied: charset-normalizer~=2.0.0 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.21.0->wiotp-sdk) (2.0.12)
Requirement already satisfied: idna<4,>=2.5 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.21.0->wiotp-sdk) (3.4)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.21.0->wiotp-sdk) (2022.9.24)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.21.0->wiotp-sdk) (1.26.12)
Using legacy 'setup.py install' for wiotp-sdk, since package 'wheel' is not installed.
Installing collected packages: requests-toolbelt, pyyaml, iso8601, wiotp-sdk
    Running setup.py install for wiotp-sdk ... done
Successfully installed iso8601-1.1.0 pyyaml-6.0 requests-toolbelt-0.10.1 wiotp-sdk-0.11.0
```



```
Command Prompt

C:\Users\DHILEEP>pip install ibmiotf
WARNING: pip is being invoked by an old script wrapper. This will fail in a future version of pip.
Please see https://github.com/pypa/pip/issues/5599 for advice on fixing the underlying issue.
To avoid this problem you can invoke Python with '-m pip' instead of running pip directly.
Defaulting to user installation because normal site-packages is not writeable
Collecting ibmiotf
  Downloading ibmiotf-0.4.0.tar.gz (71 kB)
     |████████████████████████████████| 71 kB 13 kB/s
  Preparing metadata (setup.py) ... done
Requirement already satisfied: iso8601>=0.1.12 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from ibmiotf) (1.1.0)
Requirement already satisfied: pytz>=2017.3 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from ibmiotf) (2021.3)
Requirement already satisfied: paho-mqtt>=1.3.1 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from ibmiotf) (1.6.1)
Requirement already satisfied: requests>=2.18.4 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from ibmiotf) (2.27.1)
Requirement already satisfied: requests_toolbelt>=0.8.0 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from ibmiotf) (0.10.1)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.18.4->ibmiotf) (2022.9.24)
Requirement already satisfied: idna<4,>=2.5 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.18.4->ibmiotf) (3.4)
Requirement already satisfied: charset-normalizer~=2.0.0 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.18.4->ibmiotf) (2.0.12)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\dhileep\appdata\roaming\python\python36\site-packages (from requests>=2.18.4->ibmiotf) (1.26.12)
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
```

OpenWeatherMap - (Ex., Salem, IN) :



project.py - C:\Users\Madhu Sundaran Nair\OneDrive\Desktop\project.py (3.7.9)

File Edit Format Run Options Window Help

```
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = { #Configuration
    "identity": {
"orgId": "3dpjnk",
"typeId": "Sign_Board",
"deviceId":"Board_1"
},
#API Key
"auth": {
"token": "1234567890"
}
}

#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 = "Chennai"
URL = BASE_URL + "q=" + CITY + "&units=metric"+"&appid=" + "01df65417ab3968e3fc2a38c4aee27bb"

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
        temperature=random.randint(0,100)
        msg=random.randint(0,5)
        if msg==1:
            message="SLOW DOWN, SCHOOL IS NEAR"
        elif msg==2:
            message="NEED HELP, POLICE STATION AHED"
        elif msg==3:
            message="EMERGENCY, HOSPITAL NEARBY"
        else:
            message="DINE IN, RESTAURENT AVAILABLE"
```

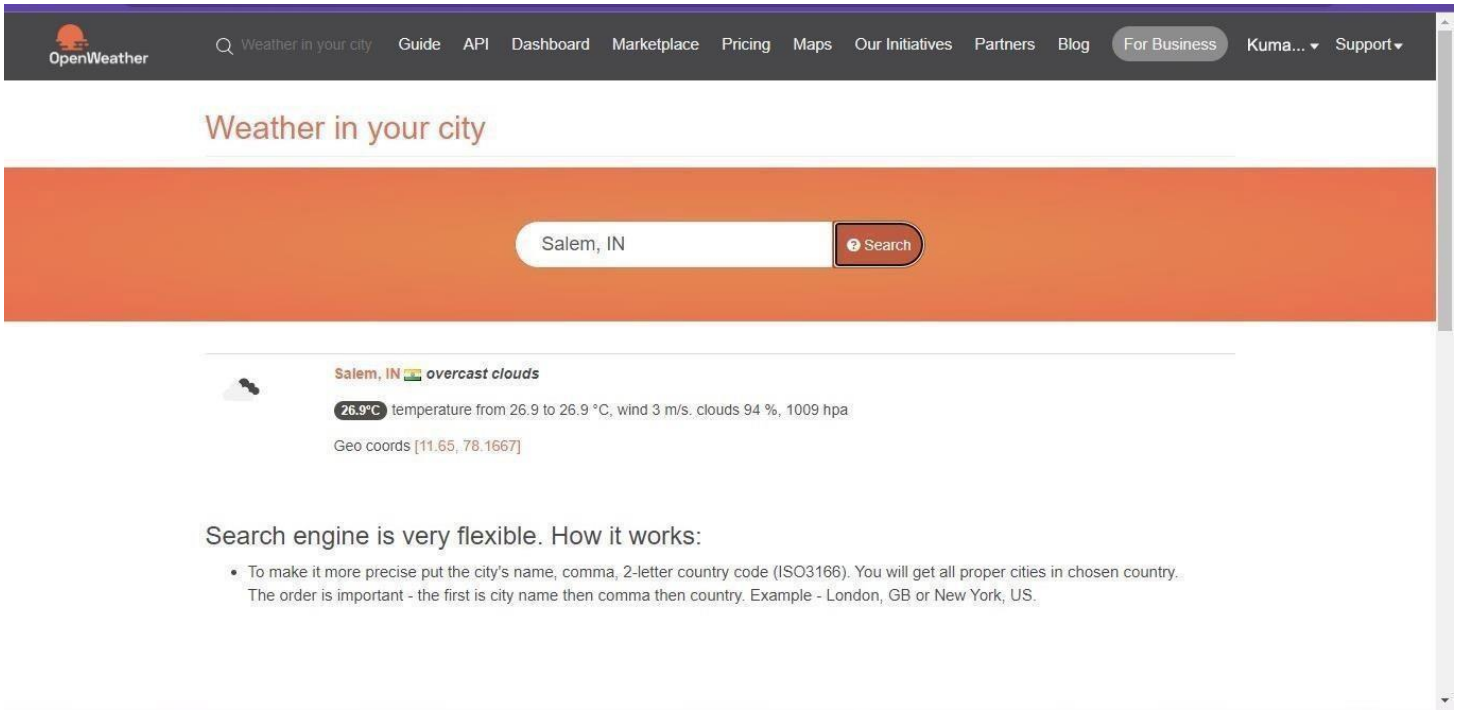
Python 3.7.9 Shell

File Edit Shell Debug Options Window Help

```
>>>
======= RESTART: C:\Users\Madhu Sundaran Nair\OneDrive\Desktop\project.py ======
2022-11-14 19:07:23,504  wiotp.sdk.device.client.DeviceClient  INFO    Connecte
d successfully: d:3dpjnk:Sign_Board:Board_1
Published data Successfully: %s {'Temperature': 77, 'Message': 'SLOW DOWN, SCHOO
L IS NEAR', 'Sign': 'U Turn', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 47, 'Message': 'DINE IN, RESTAUR
ENT AVAILABLE', 'Sign': 'Right Diversion', 'Speed': 'Slow', 'Visibility': 'Clear
 Weather'}
Published data Successfully: %s {'Temperature': 0, 'Message': 'NEED HELP, POLICE
 STATION AHED', 'Sign': 'Left Diversion', 'Speed': 'Moderate', 'Visibility': 'Fo
g Ahead, Drive Slow'}
Published data Successfully: %s {'Temperature': 84, 'Message': 'NEED HELP, POLIC
E STATION AHED', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibil
ity': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 14, 'Message': 'DINE IN, RESTAUR
ENT AVAILABLE', 'Sign': 'U Turn', 'Speed': ' Limit Exceeded', 'Visibility': 'Fog
 Ahead, Drive Slow'}
Published data Successfully: %s {'Temperature': 100, 'Message': 'EMERGENCY, HOSP
ITAL NEARBY', 'Sign': 'U Turn', 'Speed': 'Moderate', 'Visibility': 'Clear Weathe
r'}
Published data Successfully: %s {'Temperature': 55, 'Message': 'NEED HELP, POLIC
E STATION AHED', 'Sign': 'Right Diversion', 'Speed': 'Slow', 'Visibility': 'Clea
r Weather'}
Published data Successfully: %s {'Temperature': 66, 'Message': 'DINE IN, RESTAUR
ENT AVAILABLE', 'Sign': 'U Turn', 'Speed': 'Moderate', 'Visibility': 'Clear Weat
her'}
Published data Successfully: %s {'Temperature': 29, 'Message': 'DINE IN, RESTAUR
ENT AVAILABLE', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibili
ty': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 2, 'Message': 'DINE IN, RESTAURE
NT AVAILABLE', 'Sign': 'Left Diversion', 'Speed': 'Slow', 'Visibility': 'Fog Ahe
ad, Drive Slow'}
Published data Successfully: %s {'Temperature': 93, 'Message': 'EMERGENCY, HOSPI
TAL NEARBY', 'Sign': 'Left Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear
 Weather'}
Published data Successfully: %s {'Temperature': 62, 'Message': 'EMERGENCY, HOSPI
TAL NEARBY', 'Sign': 'Left Diversion', 'Speed': 'Slow', 'Visibility': 'Clear Wea
ther'}
```

Ln: 5 Col: 0

Ln: 1 Co



Python IDLE Output :