Project Development Phase
Project Development Delivery of Sprint 3

Date	16 November 2022
Team ID	PNT2022TMID16025
Project Name	Project - Signs with smart connectivity for Better road safety
Marks	8 Marks

Signs with smart connectivity for Better road safety

Objective :

>> Write a python code for print the random temperature, Road signs, Speed limit, Message

>> Simulate and Generate the data

>> Display the published data in IBM Watson IOT Platform

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": "dh6erm",
        "typeId": "NodeMCU",
        "deviceId":"09876"
    },
    #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 / COLLEGE 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()
```

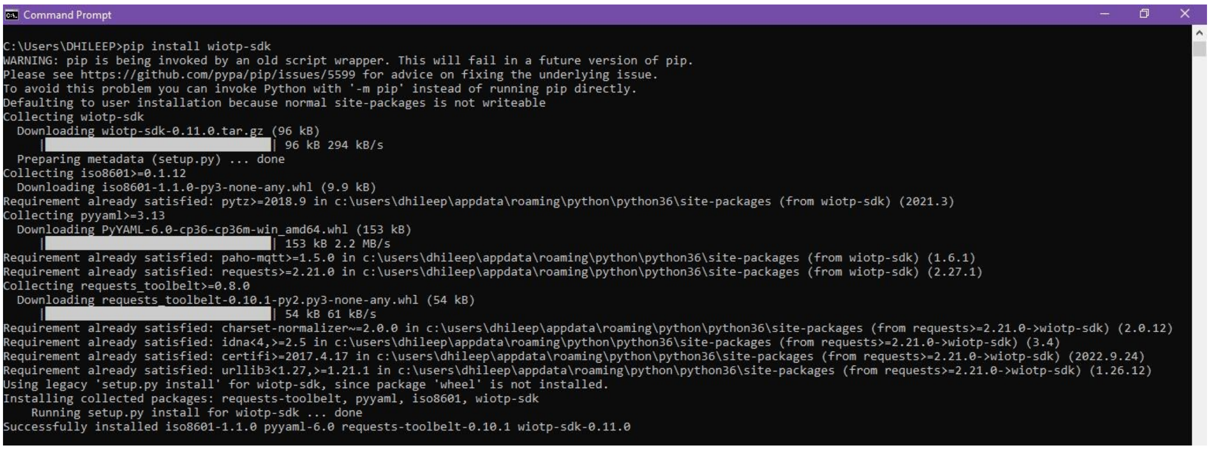
Python Simulation :

RandomValues.py - E:/IBM/Others/Project Development Phase/Sprint 3/RandomValues.py (3.6.5)

File Edit Format Run Options Window Help

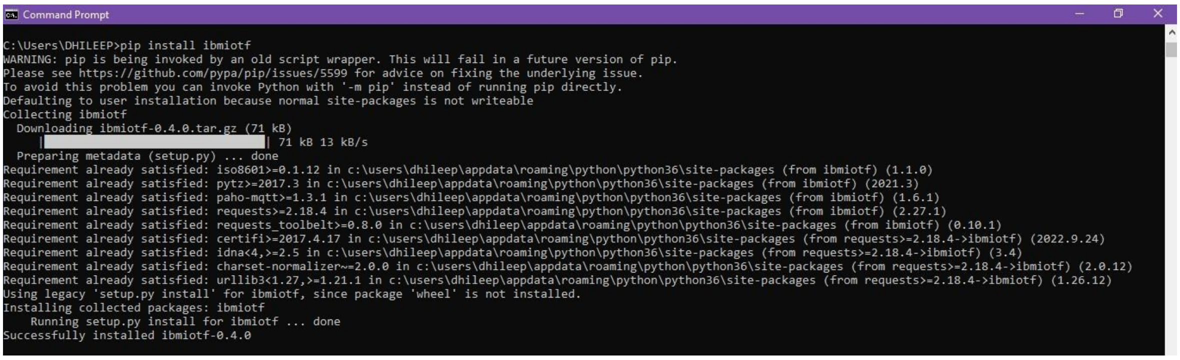
```python
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
  #Configuration
  "identity": {
    "orgId": "n6rl9n",
    "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']
```

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
```

Python IDLE Output :