Project Development phase

Date	09 November 2022
Team ID	PNT2022TMID05196
Project Name	**Project – SMART WASTE MANAGEMENT FOR METROPOLITAN CITIES**
Maximum Marks	**4 Marks**

Delivering of Sprint-3

IBM Cloud service

- Python code for sending location(latitude,longitude)along with the bin status
- Sending the data to the IBM watson

Python code test code:

```python
import time

import sys

import ibmiotf.application

import ibmiotf.device

import random

from geopy.geocoders import Nominatim


# initialize Nominatim API

geolocator = Nominatim(user_agent="geoapiExercises")

#Provide your IBM Watson Device Credentials

organization = "pb6xw8"

deviceType = "efgh"

deviceId = "1234"

authMethod = "token"
```

```python
authToken = "12345678"

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

print("checking connection to waston iot...")

deviceCli.connect()

time.sleep(1)


while True:

    name='bin'

    level=random.randint(1,100)

    weight=random.randint(1,100)

    latitude=random.uniform(12.867342,13.043514)

    longitude=random.uniform(77.477635,77.695109)

    Latitude=str(latitude)

    Longitude=str(longitude)

    location = geolocator.reverse(Latitude+","+Longitude)
```

```python
address = location.raw['address']
city = address.get('city', '')
print('City : ', str(city))


#STATUS OF GARBAGE CAN
if(level<30):
    level_status="low level"
    print("level_status=low level garbage")
elif(level>30)and(level<80):
    level_status="medium level garbage"
    print("level_status=low level garbage")
else:
    level_status="high level garbage"
    print("level_status=high level garbage")
if (weight<30):
    weight_status="low level"
    print("weight_status=low level garbage")
elif(weight>30)and(weight<80):
    weight_status="medium level garbage"
    print("weight_status=low level garbage")

else:
    weight_status="high level garbage"
    print("weight_status=high level garbage")
```

```python
    data = { 'name' : name,'level' : level,'level_status':level_status,'weight':
weight,'weight_status':weight_status, 'lat': Latitude,'lon':Longitude,'city':str(city)}
    #print data

 def myOnPublishCallback():
        print ("Published weight = %s kg" % weight,"level=%s m" %level, "latitude =
%s %%" % latitude, "longitude = %s %%" % longitude,"city=%s" %city,"to IBM
Watson")

 success = deviceCli.publishEvent("project", "json", data, qos=0,
on_publish=myOnPublishCallback)

    if not success:

        print("Not connection lost from sensor to ibm iot")

    time.sleep(10)

# Disconnect the device and application from the cloud

deviceCli.disconnect()
```

```
Python 3.7.0 Shell

File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD6
4)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
====== RESTART: C:/Users/91934/Documents/PYTHON/smartwastemanagement.py ======
checking connection to waston iot...
2022-11-10 13:28:30,354      ibmiotf.device.Client         INFO     Connected successfu
lly: d:pb6xw8:efgh:1234
City :  Bengaluru
level_status=low level garbage
weight_status=low level garbage
Published weight = 54 kg level=58 m latitude = 13.004686220188193 % longitude =
77.66501956000818 % city=Bengaluru to IBM Watson
City :  Bengaluru
level_status=low level garbage
weight_status=low level garbage
Published weight = 56 kg level=57 m latitude = 12.982720495374544 % longitude =
77.51427277819398 % city=Bengaluru to IBM Watson
City :  Bengaluru
level_status=low level garbage
weight_status=low level garbage
Published weight = 36 kg level=35 m latitude = 12.882526197360793 % longitude =
77.5496741648336 % city=Bengaluru to IBM Watson
City :  Bengaluru
level_status=low level garbage
weight_status=low level garbage
Published weight = 33 kg level=33 m latitude = 12.912084802748902 % longitude =
77.60890353424664 % city=Bengaluru to IBM Watson
City :  Bengaluru
level_status=low level garbage
weight_status=low level garbage
Published weight = 23 kg level=68 m latitude = 12.976870833403341 % longitude =
77.62184275243061 % city=Bengaluru to IBM Watson
|
```

Browse   Action   Device Types   Interfaces

Add Device ⊕

| 1234 | 🔌 Disconnected | efgh | Device | 4 Nov 2022 11:10 | → ⋯ |

| Identity | Device Information | Recent Events | State | Logs | ✕ |

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

Event	Value	Format	Last Received
project	{"name":"bin","level":48,"level_status":"medium ...	json	a few seconds ago
project	{"name":"bin","level":68,"level_status":"medium ...	json	a few seconds ago
project	{"name":"bin","level":33,"level_status":"medium ...	json	a few seconds ago
project	{"name":"bin","level":35,"level_status":"medium ...	json	a few seconds ago
project	{"name":"bin","level":57,"level_status":"medium ...	json	a few seconds ago

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