

Delievery of Sprint-3

Date	15 November 2022
Team ID	PNT2022TMID42279
Project Name	SMART WASTE MANAGEMENT SYSTEM FORMETROPOLITAN CITIES
Maximum Marks	2 Marks

CODE:

```
import time
import wiotp.sdk.device
import sys
import ibmiotf.application
import ibmiotf.device
import random
import sys
#Provide your IBM Watson Device Credentials
organization = "udgvx5"
deviceType = "GPS"
deviceId = "1"
authMethod = "token"
authToken = "12345678"

myConfig = {
    "identity":{
        "orgId":"udgvx5",
        "typeId":"GPS",
        "deviceId":"1"
    },
    "auth":{
        "token":"12345678"
    }
}

def myCommandCallback2(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status == "lighton":
        print("led in on")
    else :
        print ("led is off")
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()

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

def pub(data):
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)

while True:
    time.sleep(2)
    ult_son=random.randint(0,80)
    weight=random.randint(0,100)
    lat = round(random.uniform(12.03, 13.50), 6)
    lon = round(random.uniform(80.80, 85.90), 6)
    data = {'Ultrasonic' : ult_son, 'Weight' : weight , 'lat' : lat,'lon':lon}
    #print data
    def myOnPublishCallback():
        print ("Published Ultrasonic :%s Cm" %ult_son, "Weight:%s kg " %weight, "lat: %s" %lat,"lon: %s"
        %lon)
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
    on_publish=myOnPublishCallback)
    if not success:5
    time.sleep(1)
    deviceCli.commandCallback = myCommandCallback

    myData={'name':'Bin1','lat': 13.08005,'lon': 80.27009}
    pub(myData)
    time.sleep(3)
    myData={'name':'Bin1','lat': 13.09005,'lon': 80.28009}
    pub(myData)
    time.sleep(3)
    myData={'name':'Bin1','lat': 13.08905,'lon': 80.27909}
    pub(myData)
    time.sleep(3)

    client.commandCallback = myCommandCallback2
# Disconnect the device and application from the cloud
deviceCli.disconnect()
client.disconnect()

```

Python code:

```
python last.py - C:/Users/GOMAL/Documents/IBM documents/Team Deliverables/python last.py (3.9.6)
File Edit Format Run Options Window Help

import time
import wiotp.sdk.device
import sys
import ibmiotf.application
import ibmiotf.device
import random
import sys

#Provide your IBM Watson Device Credentials
organization = "udgvx5"
deviceType = "GPS"
deviceId = "1"
authMethod = "token"
authToken = "12345678"

myConfig = {
    "identity":{
        "orgId":"udgvx5",
        "typeId":"GPS",
        "deviceId":"1"
    },
    "auth":{
        "token":"12345678"
    }
}

def myCommandCallback2(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']

# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="lighton":
        print("led in on")
    else :
        print ("led is off")

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()

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

Ln: 83 Col: 0
```

```
python last.py - C:/Users/GOMAL/Documents/IBM documents/Team Deliverables/python last.py (3.9.6)
File Edit Format Run Options Window Help

deviceCli = ibmiotf.device.Client(deviceOptions)
#.....
except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()

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

def pub(data):
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)

while True:
    time.sleep(2)
    ult_son=random.randint(0,80)
    weight=random.randint(0,100)
    lat = round(random.uniform(12.03, 13.50), 6)
    lon = round(random.uniform(80.80, 85.90), 6)
    data = {'Ultrasonic' : ult_son, 'Weight' : weight, 'lat' : lat, 'lon':lon}
    #print data
    def myOnPublishCallback():
        print ("Published Ultrasonic: %s Cm %s Weight: %s kg " %weight, "lat: %s" %lat, "lon: %s" %lon)
        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
        on_publish=myOnPublishCallback)
        if not success:5
        time.sleep(1)
        deviceCli.commandCallback = myCommandCallback

    myData={'name':'Bin1','lat': 13.08005,'lon': 80.27009}
    pub(myData)
    time.sleep(3)
    myData={'name':'Bin1','lat': 13.09005,'lon': 80.28009}
    pub(myData)
    time.sleep(3)
    myData={'name':'Bin1','lat': 13.08905,'lon': 80.27909}
    pub(myData)
    time.sleep(3)

    client.commandCallback = myCommandCallback2
# Disconnect the device and application from the cloud
deviceCli.disconnect()
client.disconnect()

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```

Python Output:

```
2022-11-15 14:10:35,157 ihmiofff.device.Client INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:10:35,159 wiotp.sdk.device.client.DeviceClient ERROR Unexpected disconnect from IBM Watson IoT Platform: 7
2022-11-15 14:10:47,416 wiotp.sdk.device.client.DeviceClient WARNING Unable to send event status because client is is disconnected state
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.09005, 'lon': 80.28009)
2022-11-15 14:10:47,620 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:10:47,620 ihmiofff.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08905, 'lon': 80.27909)
Published Ultrasonic :9 Cm Weight:32 kg lat: 13.014519 lon: 84.90383
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08005, 'lon': 80.27009)
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.09005, 'lon': 80.28009)
2022-11-15 14:10:59,935 wiotp.sdk.device.client.DeviceClient ERROR Unexpected disconnect from IBM Watson IoT Platform: 7
2022-11-15 14:10:59,937 ihmiofff.device.Client INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:11:12,299 ihmiofff.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-15 14:11:12,306 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:udgvx5:GPS:1
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08905, 'lon': 80.27909)
Published Ultrasonic :8 Cm Weight:76 kg lat: 12.655732 lon: 82.519286
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08005, 'lon': 80.27009)
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.09005, 'lon': 80.28009)
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08905, 'lon': 80.27909)
2022-11-15 14:11:25,495 wiotp.sdk.device.client.DeviceClient ERROR Unexpected disconnect from IBM Watson IoT Platform: 7
2022-11-15 14:11:25,494 ihmiofff.device.Client INFO Connected successfully: d:udgvx5:GPS:1
Published Ultrasonic :39 Cm Weight:29 kg lat: 12.964729 lon: 85.645417
2022-11-15 14:11:38,379 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:11:38,380 ihmiofff.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08005, 'lon': 80.27009)
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.09005, 'lon': 80.28009)
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08905, 'lon': 80.27909)
Published Ultrasonic :7 Cm Weight:28 kg lat: 13.278702 lon: 81.723373
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08005, 'lon': 80.27009)
2022-11-15 14:11:51,035 ihmiofff.device.Client INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:11:51,037 wiotp.sdk.device.client.DeviceClient ERROR Unexpected disconnect from IBM Watson IoT Platform: 7
2022-11-15 14:12:03,656 wiotp.sdk.device.client.DeviceClient WARNING Unable to send event status because client is is disconnected state
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.09005, 'lon': 80.28009)
2022-11-15 14:12:03,829 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:12:03,828 ihmiofff.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08905, 'lon': 80.27909)
Published Ultrasonic :17 Cm Weight:74 kg lat: 12.215554 lon: 81.445594
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08005, 'lon': 80.27009)
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.09005, 'lon': 80.28009)
2022-11-15 14:12:16,261 wiotp.sdk.device.client.DeviceClient ERROR Unexpected disconnect from IBM Watson IoT Platform: 7
2022-11-15 14:12:16,260 ihmiofff.device.Client INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:12:28,879 wiotp.sdk.device.client.DeviceClient WARNING Unable to send event status because client is is disconnected state
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08905, 'lon': 80.27909)
2022-11-15 14:12:31,659 wiotp.sdk.device.client.DeviceClient INFO Connected successfully: d:udgvx5:GPS:1
2022-11-15 14:12:31,660 ihmiofff.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
Published data Successfully: %s ('name': 'Bin1', 'lat': 13.08005, 'lon': 80.27009)
```

IBM Watson Platform Output:

Service Details: x Cloudant Dev: x IBM Watson IoT: x Node-RED: x Node-RED: x Node-RED: x Node-RED: x Node-RED: x Node-RED: x Node-RED: x

udgvx5.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform

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Browse Action Device Types Interfaces

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
1	Connected	GPS	Device	Nov 14, 2022 10:31 PM	

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
IoTSensor	{\"Ultrasonic\":71,\"Weight\":31,\"lat\":12.253074,\"lo...	json	a few seconds ago
status	{\"name\":\"Bin1\",\"lat\":13.08005,\"lon\":80.27009}	json	a few seconds ago
status	{\"name\":\"Bin1\",\"lat\":13.08905,\"lon\":80.27909}	json	a few seconds ago
status	{\"name\":\"Bin1\",\"lat\":13.09005,\"lon\":80.28009}	json	a few seconds ago

NodeRed Platform:

The screenshot displays the Node-RED web interface in a browser. The URL bar shows <https://node-red-lpfhg-2022-11-05.eu-gb.mybluemix.net/red/>. The interface includes a left sidebar with node categories (common, function), a central workspace for building flows, and a right sidebar for debugging.

Flow 1:

- Input:** An **IBM IoT** node (connected) receives data from an **guhan_ibm** device.
- Processing:** The data is split into multiple paths:
 - One path goes through a **Notify** node and a **show notification** node.
 - Another path goes through a **msg payload** node, which then branches into several **Distance**, **Load**, **Latitude**, and **Longitude** nodes.
 - A third path goes through a **function** node (labeled **Distance**), then a **Weight** node, then a **Latitude** node, then a **longitude** node, and finally a **location1** node.
 - A fourth path goes through a **name** node and a **location1** node.
- Output:** The final output is a **Map** node (connected 4), which visualizes the location data.

Debug Console:

The debug console shows a series of messages from the **IBM IoT** node. The messages are structured as follows:

```
"Bin1"  
11/15/2022, 2:12:54 PM node: f3699f46b5eae2b  
iot-2type/GPSId/1ev1toTSensor/rmtl/json :  
msg.payload : Object  
  { Ultrasonic: 29, Weight: 41, lat: 12.70655, lon: 82.030996 }  
11/15/2022, 2:12:54 PM node: f3699f46b5eae2b  
iot-2type/GPSId/1ev1toTSensor/rmtl/json :  
msg.payload : number  
29  
11/15/2022, 2:12:54 PM node: f3699f46b5eae2b  
iot-2type/GPSId/1ev1toTSensor/rmtl/json :  
msg.payload : number  
82.030996  
11/15/2022, 2:12:54 PM node: f3699f46b5eae2b  
iot-2type/GPSId/1ev1toTSensor/rmtl/json :  
msg.payload : number  
12.70655  
11/15/2022, 2:12:54 PM node: f3699f46b5eae2b  
iot-2type/GPSId/1ev1toTSensor/rmtl/json :  
msg.payload : number  
41  
11/15/2022, 2:12:54 PM node: f3699f46b5eae2b  
iot-2type/GPSId/1ev1toTSensor/rmtl/json :  
msg.payload : undefined  
undefined
```