

## SPRINT-2

**TEAM ID: PNT2022TMID04607**

### **PROJECT TITLE: SMART WASTE MANAGEMENT SYSTEM FOR METROPOLITIAN CITIES**

Source code to deployed on IBM Watson Iot platform to generate the sensor data.

#### **SOURCE CODE:**

```
import time
import random
import sys
import requests
import json
import ibmiotf.application
import ibmiotf.device
# watson device details
OrganizationID="kz2her"
DeviceType="INIAN"
DeviceID="9360"
AuthenticationMethod="use-token-auth"
AuthenticationToken="zw?q1U3ycJr_gLFDJ5"
#generate random values for random variables (Distance and load)
def myCommandCallback(cmd):
    global a
    print("command recieved:%s" %cmd.data['command'])
    control=cmd.data['command']
    print(control)
try:
    deviceOptions={"org": organization, "type": devicType,"id":
deviceId,"authmethod":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 "Distance" with value integer value into the cloud as a type
of event for every 10 seconds
deviceCli.connect()
while True:
    Distance= random.randint(1,75)
    Loadcell= random.randint(0,20)
    data= {'dist':Distance,'load':Loadcell}
```

```

if Loadcell<5 and Loadcell>0:
    load="20%"
elif Loadcell<10 and Loadcell>5:
    load="40%"
elif Loadcell<15 and Loadcell>10:
    load="60%"
elif Loadcell<18 and Loadcell>15:
    load="80%"
elif Loadcell<20 and Loadcell>18:
    load="90%"
else:
    load="100%"
if Distance<7 and Distance>1:
    level="90%"
elif Distance<15 and Distance>7:
    level="80%"
elif Distance<30 and Distance>15:
    level="60%"
elif Distance<45 and Distance>30:
    level="40%"
elif Distance<60 and Distance>45:
    level="20%"
elif Distance<75 and Distance>60:
    level="10%"
else:
    level="0%"
if level=="90%" or load=="90%":
    warn="Alert:"Dustbin is almost filled"
else:
    warn=""
def myOnPublishCallback(latitude=10.9368,longitude=78.1366):
    print("Anna Nagar,Madurai,Tamilnadu")
    print("published Level of bin = %s " %level, "Load = %s " %load, "Latitude = %s "
    %latitude, "Longitude = %s " %longitude)
    print(load)
    print(level)
    print(warn)
time.sleep(10)
success=deviceCli.publishEvent
("IoTSensor","json",warn,qos=0,on_publish=myOnPublishCallback)
success=deviceCli.publishEvent
("IoTSensor","json",data,qos=0,on_publish=myOnPublishCallback)
if not success:
    print("not connected to ibmiot")
time.sleep(20)
deviceCli.commandCallback=myCommandCallback
#disconnect the device
deviceCli.disconnect()

```

## SENSOR DATA:

The screenshot displays the IBM Watson IoT Platform dashboard. The main table lists devices with columns for Device ID, Status, Device Type, Class ID, Date Added, and Descriptive Location. A modal window is open for the selected device (ID 9360, Type INIAN), showing configuration options for Events, Schedule, and Payload. The payload is a JSON array of sensor data points.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
4222	Connected	NODE	Device	Nov 18, 2022 3:50 PM	
8778	Disconnected	Sampledevice	Device	Nov 14, 2022 2:38 PM	
9360	Disconnected	INIAN	Device	Nov 19, 2022 11:05 PM	
9843	Disconnected	PYTHONCODE	Device	Nov 14, 2022 3:49 PM	

**Device Configuration Modal (Device Type: NODE)**

**Events:** event\_1

**Schedule:** 20 Every Minute

**Payload:**

```
{
  0: {
    1: "Temperature": random(0, 100)
    2: "Humidity": random(0, 100)
    3: "PIR": random(0, 100)
  }
}
```

Buttons: Upload a CSV file, Cancel, Save

## OUTPUT:

```
2022-11-19 18:28:03,157 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:03,157 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
...
2022-11-19 18:28:03,160 ibmiotf.device.Client INFO Connected successfully: d:kz2her:NODE:4222
INFO:ibmiotf.device.Client:Connected successfully: d:kz2her:NODE:4222
2022-11-19 18:28:03,308 ibmiotf.device.Client INFO Connected successfully: d:kz2her:NODE:4222
INFO:ibmiotf.device.Client:Connected successfully: d:kz2her:NODE:4222
2022-11-19 18:28:03,316 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:03,839 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:03,847 ibmiotf.device.Client INFO Connected successfully: d:kz2her:NODE:4222
INFO:ibmiotf.device.Client:Connected successfully: d:kz2her:NODE:4222
Published Temperature = 6 C Humidity = 68% PIR = 95 ppm to IBM Watson
BIN OVERFLOW
2022-11-19 18:28:04,787 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:04,996 ibmiotf.device.Client INFO Connected successfully: d:kz2her:NODE:4222
INFO:ibmiotf.device.Client:Connected successfully: d:kz2her:NODE:4222
2022-11-19 18:28:05,002 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:05,470 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:06,384 ibmiotf.device.Client INFO Connected successfully: d:kz2her:NODE:4222
INFO:ibmiotf.device.Client:Connected successfully: d:kz2her:NODE:4222
2022-11-19 18:28:06,389 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:06,671 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:08,122 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
2022-11-19 18:28:11,406 ibmiotf.device.Client ERROR Unexpected disconnect from the IBM Watson IoT Platform: 7
ERROR:ibmiotf.device.Client:Unexpected disconnect from the IBM Watson IoT Platform: 7
```