

Date	19 November 2022
Team ID	PNT2022TMID42565
Project Name	Smart waste management system for metropolitan cities

Final deliverable:

Python Code:

```

balaji.py - C:\Users\N\AppData\Local\Programs\Python\Python37\balaji.py (3.7.8)
File Edit Format Run Options Window Help

import requests
import json
import ibmiotf.application
import ibmiotf.device
import time
import random
import sys

organization = "70icwF"
deviceType="1234"
deviceId="12345678"
authMethod="token"
authToken="S_OVsw4ICr5-Vk9A9x"

def myCommandCallback(cmd):
    global a
    print("Command received: %s" %cmd.data['command'])
    control=cmd.data['command']
    print(control)

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()
deviceCli.connect()
while True:

    distance= random.randint(10,70)
    loadcell= random.randint(5,15)
    data= {'dist':distance,'load':loadcell}

    if loadcell < 13 and loadcell > 15:
        load= "90 %"
    elif loadcell < 8 and loadcell > 12:
        load= "60 %"
    elif loadcell < 4 and loadcell > 7:
        load= "40 %"
    else:
        load = "0 %"

    if distance < 15:
        dist = 'Warning:' 'Trash is getting high, Time to collect 90 %'

```

```
balaji.py - C:\Users\NJ\AppData\Local\Programs\Python\Python37\balaji.py (3.7.8)
File Edit Format Run Options Window Help
sys.exit()
deviceCli.connect()
while True:
    distance= random.randint(10,70)
    loadcell= random.randint(5,15)
    data= {'dist':distance,'load':loadcell}

    if loadcell < 13 and loadcell > 15:
        load= "90 %"
    elif loadcell < 8 and loadcell > 12:
        load= "60 %"
    elif loadcell < 4 and loadcell > 7:
        load= "40 %"
    else:
        load= "0 %"

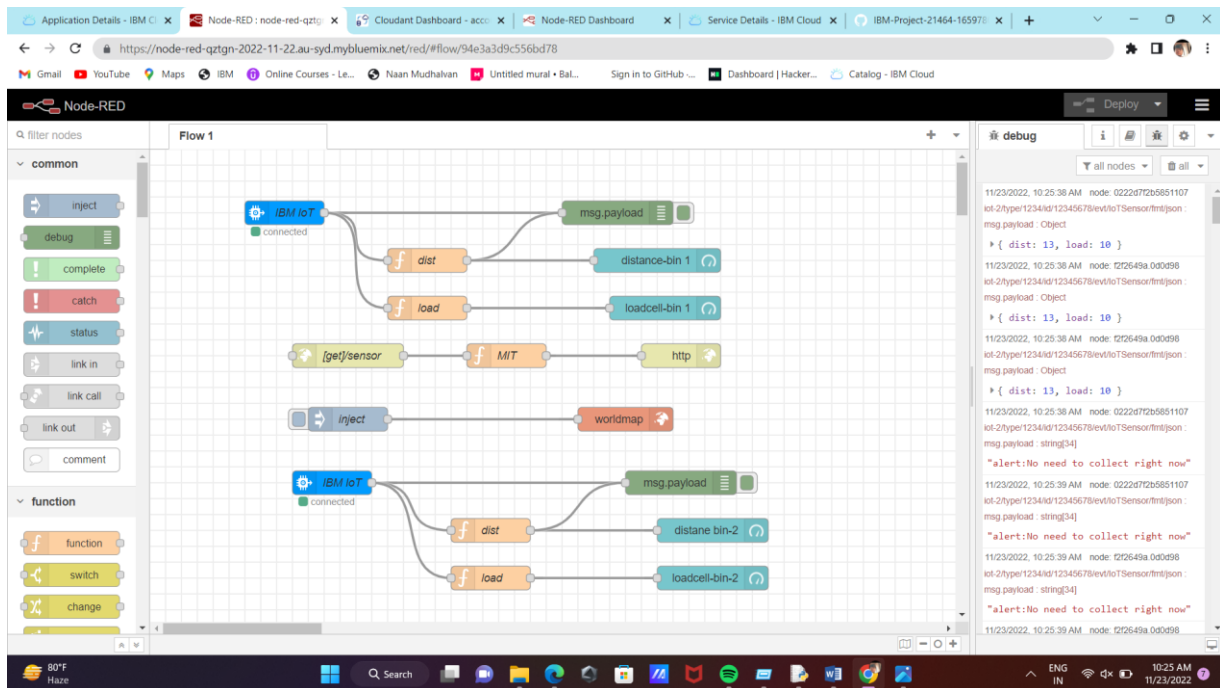
    if distance < 15:
        dist = 'Warning:' 'Trash is getting high, Time to collect 90 %'
    elif distance < 40 and distance >16:
        dist = 'Warning:' 'Trash is above 70 %'
    elif distance < 60 and distance > 41:
        dist = 'Warning:' '40 %'
    else:
        dist = 'Warning:' '17 %'
    if load == "90 %" or distance == "90 %":
        warn = 'alert:' 'Warning: Trash poundage getting high, Time to collect'
    elif load == "60%" or distance == "60 %":
        warn = 'alert:' 'Trash is above 60%'
    else :
        warn = 'alert:' 'No need to collect right now'
    def myOnPublishCallback(lat=11.0168,long=76.9558):
        print("Coimbatore")
        print("published distance = %s" %distance, "loadcell:%s" %loadcell, "lon= %s"%long,"lat=%s" %lat)
        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 iImiot")
    time.sleep(20)
    deviceCli.commandCallback=myCommandCallback
deviceCli.disconnect()
```

Python Output:

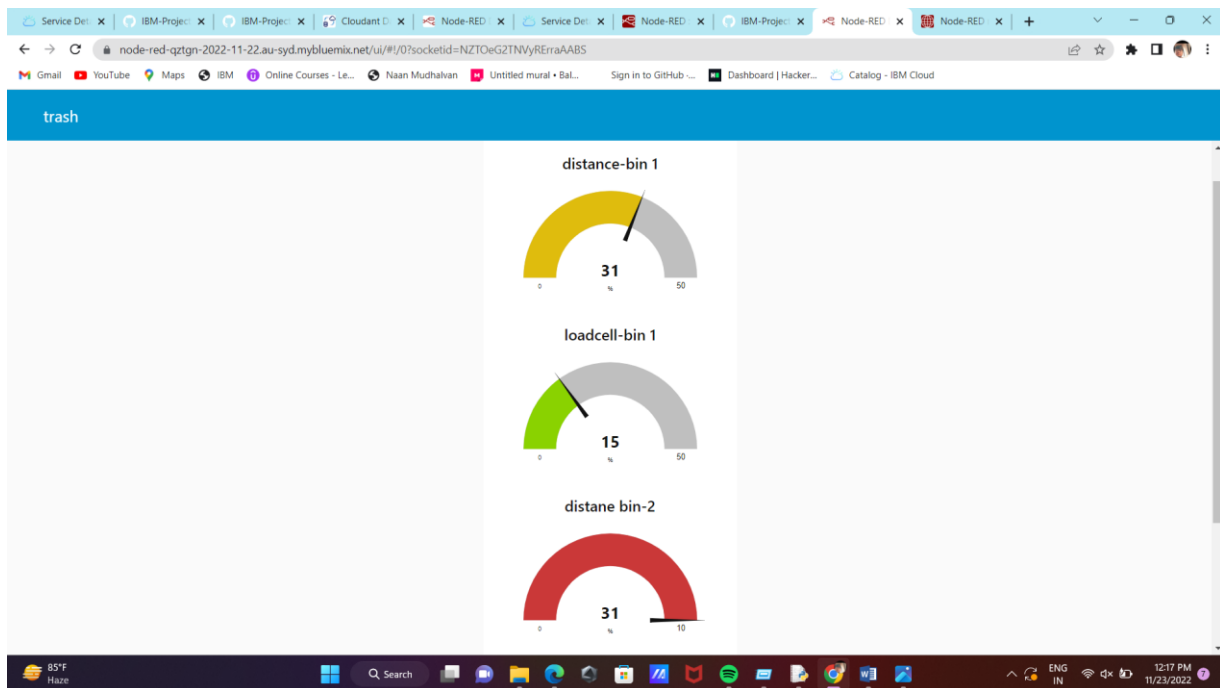
```
*Python 3.7.8 Shell*
File Edit Shell Debug Options Window Help
2022-11-23 13:29:58,012  iImiotf.device.Client  INFO  Connected successfully: d:701cwf:1234:12345678
Coimbatore
published distance = 51 loadcell:5 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 51 loadcell:5 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 31 loadcell:10 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 31 loadcell:10 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 54 loadcell:11 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 54 loadcell:11 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 65 loadcell:9 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 65 loadcell:9 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 20 loadcell:5 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 20 loadcell:5 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 38 loadcell:8 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 38 loadcell:8 lon= 76.9558 lat=11.0168
alert:No need to collect right now

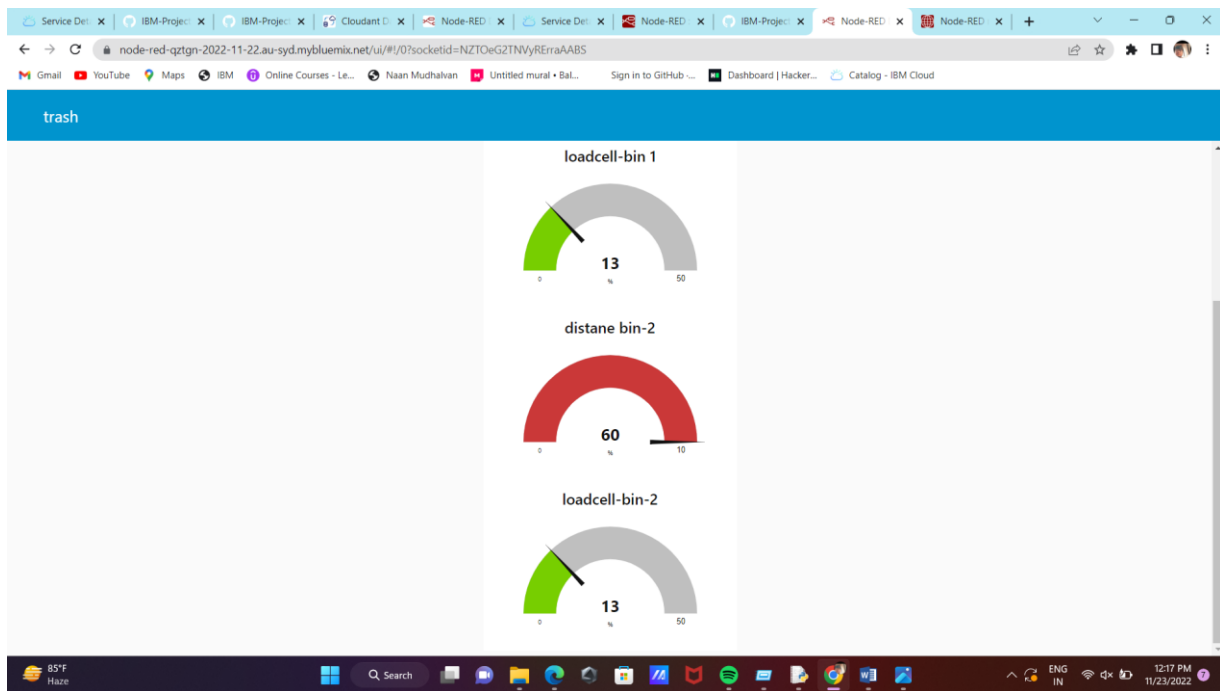
===== RESTART: C:\Users\NJ\AppData\Local\Programs\Python\Python37\balaji.py =====
2022-11-23 13:33:02,001  iImiotf.device.Client  INFO  Connected successfully: d:701cwf:1234:12345678
Coimbatore
published distance = 64 loadcell:12 lon= 76.9558 lat=11.0168
alert:No need to collect right now
Coimbatore
published distance = 64 loadcell:12 lon= 76.9558 lat=11.0168
alert:No need to collect right now
```

NODE – RED Flow:



NODE – RED Dashboard:





Location Output:

