

Final Coding

TEAM ID : PNT2022TMID38943

Title :Smart waste management for metropolitan cities

Python code and Links

```
import time

import sys

import ibmiotf.application

import ibmiotf.device

import random


#Provide your IBM Watson Device Credentials

organization = "yal2ec"

deviceType = "BIN1"

deviceId = "54321"

authMethod = "token"

authToken = "12345678"


# Initialize GPIO

def myCommandCallback(cmd):

    print("Command received: %s" % cmd.data['command'])

    status=cmd.data['command']


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
```

```
deviceCli.connect()
```

```
while True:
```

```
    #Get Sensor Data from ultrasonic
```

```
    distance= random.randint(5,100)
```

```
    data= {'distance':distance}
```

```
    if distance >5 and distance<=35:
```

```
        print("alert:' 'waste bin level high is 90%, Time to collect")
```

```
    elif distance>35 and distance<=50:
```

```
        print("Risk warning:' 'waste Bin is above 60%")
```

```
    elif distance >35 and distance <=70:
```

```
        print("waste Bin level is above 40%")
```

```
    elif distance >70 and distance <=85:
```

```
        print("waste Bin level is above 25%")
```

```
    elif distance >85 and distance <100:
```

```
        print("waste Bin level is above 10%")
```

```
    elif distance==100:
```

```
        print("waste Bin is Empty")
```

```
#print data

def myOnPublishCallback():
    print ("Published distance = %s " %distance ,"to IBM Watson")
success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=myOnPublishCallback)
if not success:
    print("Not connected to IoT")
time.sleep(10)

deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

Python output

```
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 (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\MR.DEVIL\Downloads\waste bin detect program.py =====
waste Bin level is above 10%2022-11-19 10:32:50,304 ibmiotf.device.Client INFO Connected successfully: d:yal2ec:BIN1:54921

Published distance = 93 to IBM Watson
waste Bin level is above 40%
Published distance = 63 to IBM Watson
waste Bin level is above 25%
Published distance = 74 to IBM Watson
waste Bin level is above 10%
Published distance = 96 to IBM Watson
waste Bin level is above 10%
Published distance = 94 to IBM Watson
waste Bin level is above 40%
Published distance = 60 to IBM Watson
alert:'waste bin level high is 90%, Time to collect
Published distance = 14 to IBM Watson
waste Bin level is above 25%
Published distance = 76 to IBM Watson
```

- Git up repository Direct Link
 - Link- <https://github.com/IBM-EPBL/IBM-Project-43127-1660713349>
 - IBM WATSON LINK
 - LINK-<https://yal2ec.internetofthings.ibmcloud.com/dashboard/devices/browse>
 - NODE-RED LINK
 - LINK - <https://node-red-bin.eu-de.mybluemix.net/red/#flow/86ea7e106b01eff5>
 - Demonstration video LINK
 - LINK- <https://youtu.be/r9l4ICkOwU8>
 - MIT APP INVERTER LINK
- Link- <http://ai2.appinventor.mit.edu/#4963665393352704>