# Final Coding

**TEAM ID :** PNT2022TMID38943

Title :Smart waste management for metropolitan cities

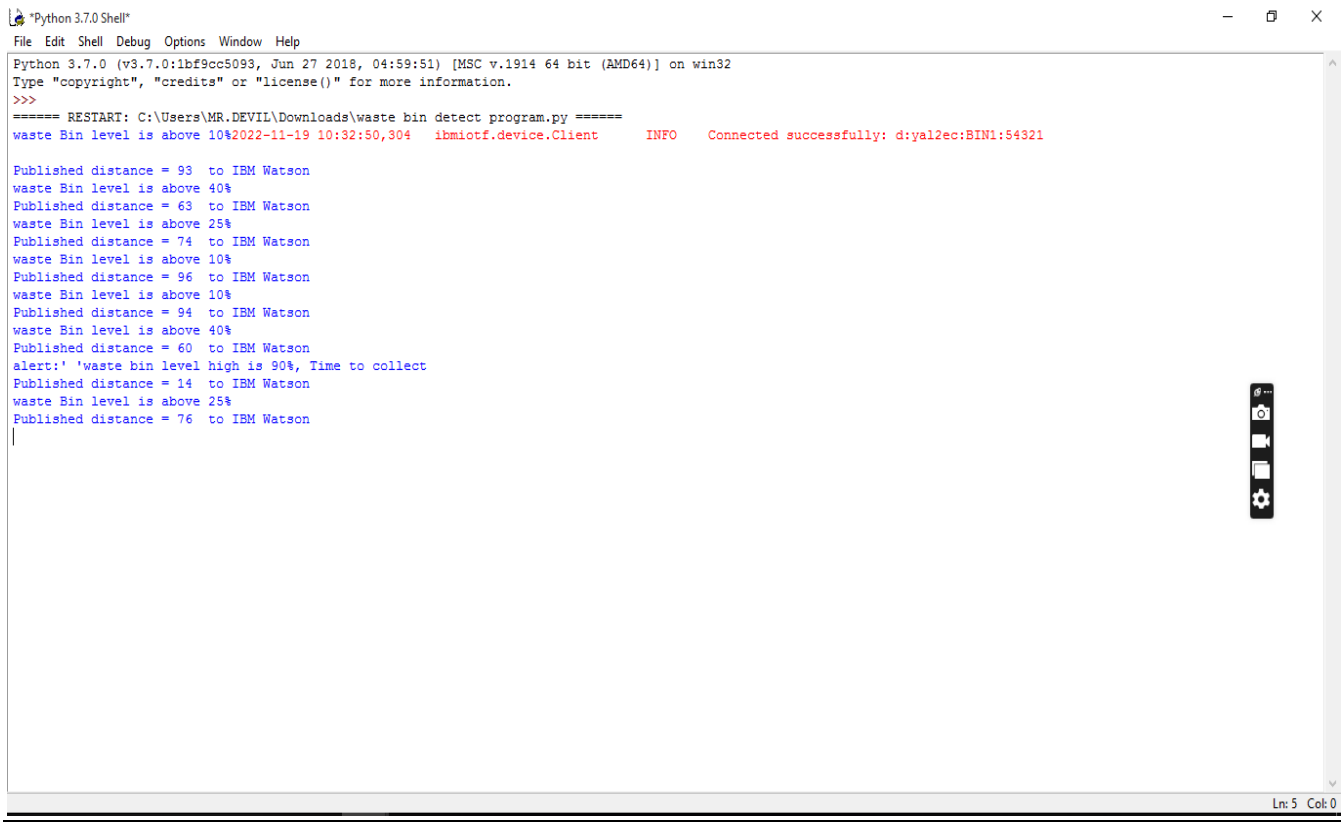
## Python code and Links

```
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 IoTF")
        time.sleep(10)


        deviceCli.commandCallback = myCommandCallback

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

## Python output




- 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