

Final Delivery

Date	19 November 2022
Team ID	PNT2022TMID49521
Project Name	IOT – Smart Waste Management Systems for Metropolitan Cities

1. Final Code for Project

```
import time
import sys
import ibmiotf.application
import ibmiotf.device

#IBM Watson Device Credentials
organization = "sfouh6"
deviceType = "Python"
deviceId = "9238"
authMethod = "token"
authToken = "vishnuprabhu923819106057"

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
deviceCli.connect()

while True:
    print("\nDon't use any capital letters to given an input \nSenosr sensing gas is")    #Unavailable of sensors    in the
    wokwi and tinkercad, we give inputs manually
```

```

detect = input()
Sensing = () #Detecting Harmful Wastage
Location_info = () #Sending Location & Contact information

if detect == "ammonia": #Harmful material sensing by MQ-137 gas sensor
    Sensing = "Harmful Waste is detected"
    Location_info = "7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9876123450"

elif detect == "hydrogen sulfide": #Harmful material sensing by MQ-136 gas sensor
    Sensing = "Harmful Waste is detected"
    Location_info = "7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9876123450"
elif detect == "methane": #Harmful material sensing by TGS-2611 gas sensor
    Sensing = "Harmful Waste is detected"
    Location_info = "7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9876123450"

else:
    Sensing = "Harmful Waste is not detected"
    Location_info = "Everything is normal in the particular house"

data = { 'Sensing' : Sensing, 'Location_info' : Location_info }
#print data

def myOnPublishCallback():
    print ("Published Sensing data - %s " % Sensing, "\nLocation_info - %s" %Location_info, "to IBM Watson")

success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0, on_publish=myOnPublishCallback)

if not success:
    print("Not connected to IoT")
    time.sleep(1)

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

```

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```
sprint 2.py - C:\Users\ELCOT\Desktop\Smart Waste Management System for Metropolitan cities\Z - Programming\Sensing Program\sprint 2.py (3.7.0)
File Edit Format Run Options Window Help

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sprint 2.py - C:\Users\ELCOT\Desktop\Smart Waste Management System for Metropolitan cities\Z - Programming\Sensing Program\sprint 2.py (3.7.0)
File Edit Format Run Options Window Help

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Output in Python Shell Module:

```
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\ELCOT\Desktop\Smart Waste Management System for Metropolitan cities\Z - Programmaing\Sensing Program\sprint 2.py

Don't use any capital letters to given an input
Senosr sensing gas is2022-11-05 20:39:42,254  ibmiotf.device.Client      INFO
Connected successfully: d:sfouh6:Python:9238

ammonia
Published Sensing data - Harmful Waste is detected
Location info - 7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9
876123450 to IBM Watson

Don't use any capital letters to given an input
Senosr sensing gas is
methane
Published Sensing data - Harmful Waste is detected
Location info - 7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9
876123450 to IBM Watson

Don't use any capital letters to given an input
Senosr sensing gas is
chlorine
Published Sensing data - Harmful Waste is not detected
Location info - 7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9
876123450 to IBM Watson

Don't use any capital letters to given an input
Senosr sensing gas is
sulfide
Published Sensing data - Harmful Waste is not detected
Location info - 7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9
876123450 to IBM Watson

Don't use any capital letters to given an input
Senosr sensing gas is
```

Output in IBM IOT Cloud Recent Events:

IBM Watson IoT Platform

923819106057@smartinternz.com
ID: sfouh6

Browse Action Device Types Interfaces Add Device +

9238 Connected Python Device Nov 5, 2022 10:10 AM

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	{"Sensing":"Harmful Waste is not detected","Loc...	json	a few seconds ago	
IoTSensor	{"Sensing":"Harmful Waste is not detected","Loc...	json	a few seconds ago	
IoTSensor	{"Sensing":"Harmful Waste is detected","Locatio...	json	a few seconds ago	
IoTSensor	{"Sensing":"Harmful Waste is detected","Locatio...	json	a few seconds ago	

0 Simulations running

Output in Node-Red Debug:

The screenshot shows the Node-RED web interface. On the left, the 'common' and 'function' node palettes are visible. The main workspace displays 'Flow 1' with a flow starting from an 'IBM IoT' node (connected), passing through a 'Sensing' function node, then a 'Location_Information' function node. The flow then splits into two paths: one leading to a 'msg.payload' node and another to a 'Harmful Sensing' node (labeled 'abc'). The flow then splits again into two paths: one leading to a 'msg.payload' node and another to a 'Location Information' node (labeled 'abc'). The flow then splits into two paths: one leading to a 'msg.payload' node and another to a 'Sensing' function node. The flow then splits into two paths: one leading to an 'IBM IoT' node (connected) and another to an 'http' node. On the right, the 'debug' tab is active, showing a list of messages. The messages are as follows:

```
msg.payload : string[3]
"7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9876123450"

11/9/2022, 9:15:04 PM node: f2f2649a.0d0d98
iot-2/type/Python/Id/9238/levfIoTSensor/fmt/json :
msg.payload : string[25]
"Harmful Waste is detected"

11/9/2022, 9:15:04 PM node: f2f2649a.0d0d98
iot-2/type/Python/Id/9238/levfIoTSensor/fmt/json :
msg.payload : string[73]
"7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9876123450"

11/9/2022, 9:17:32 PM node: f2f2649a.0d0d98
iot-2/type/Python/Id/9238/levfIoTSensor/fmt/json :
msg.payload : string[25]
"Harmful Waste is detected"

11/9/2022, 9:17:32 PM node: f2f2649a.0d0d98
iot-2/type/Python/Id/9238/levfIoTSensor/fmt/json :
msg.payload : string[73]
"7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9876123450"
```

Output in Web UI:

The screenshot shows a web UI with a blue header bar labeled 'Sensing'. Below the header, there is a section titled 'Harmful waste Detection'. This section contains two rows of data:

Address & Mobile Number	7-1-139, 1st street, Mangayarkarasi Nagar, Paravai, Madurai. & 9876123450
Sensing	Harmful Waste is detected