

Smart Waste Management System for Metropolitan Cities

Project Objectives - Develop A Web Application Using Node-RED Service:

Problem:

A Web UI should be created in Node-RED using dashboard nodes available in it.

Features:

The web application should have the following features:

- Connect to IBM IoT platform and get the location data
- Display the location on the Map in Node-RED Web UI
- Send the notification if the bin value crosses the threshold value

You should need dashboard nodes to be installed to build a dashboard.

Screenshot:

Output from Pycharm (Simulation of the hardware used to pass values and connect to IBM Iot) :

```
File Edit View Window Code Debug Run Tools VS Windows Help pythonProject3-main.py  
pythonProject3  
pythonProject3 C:\>  
External Libraries  
ScatterPlotAndConsole  
14 }  
15 lat=11.167589°  
16 lon=80.248510°  
17 name="point1"  
18 icon="fa-trash-o"  
19 color="green"  
20  
21 def myCommandCallback(cmd):  
22     print("Message received from IOT IoT Platform: %s" % cmd.data['command'])  
23     cmd.data['command']  
24  
25 client = mqttelib.DeviceClient(config.myConfig, config.myConn)  
26 client.connect()  
27  
28 while True:  
29     temp=random.randint(0,100)  
30     if temp<40:  
31         icon="fa-trash"  
32         color="red"  
33     else:  
34         icon="fa-trash-o"  
35         color="green"  
36  
37     myData={"Name":name,"Latitude":lat,"Longitude":lon,"Icon":icon,"FillPercent":temp,"Color":color}  
38     client.publishFromIot(IotId="cloud", msgName=myData["icon"], data=myData, qos=0, dupPublish=False)  
39     print("Published data Successfully: %s"%myData)  
40     client.commandCallback = myCommandCallback  
41     time.sleep(10)  
42 client.disconnect()
```

Output from IBM Waston IOT Platform:

IDM Watson IoT Platform

Browse Action Device Types Interfaces Add Device +

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

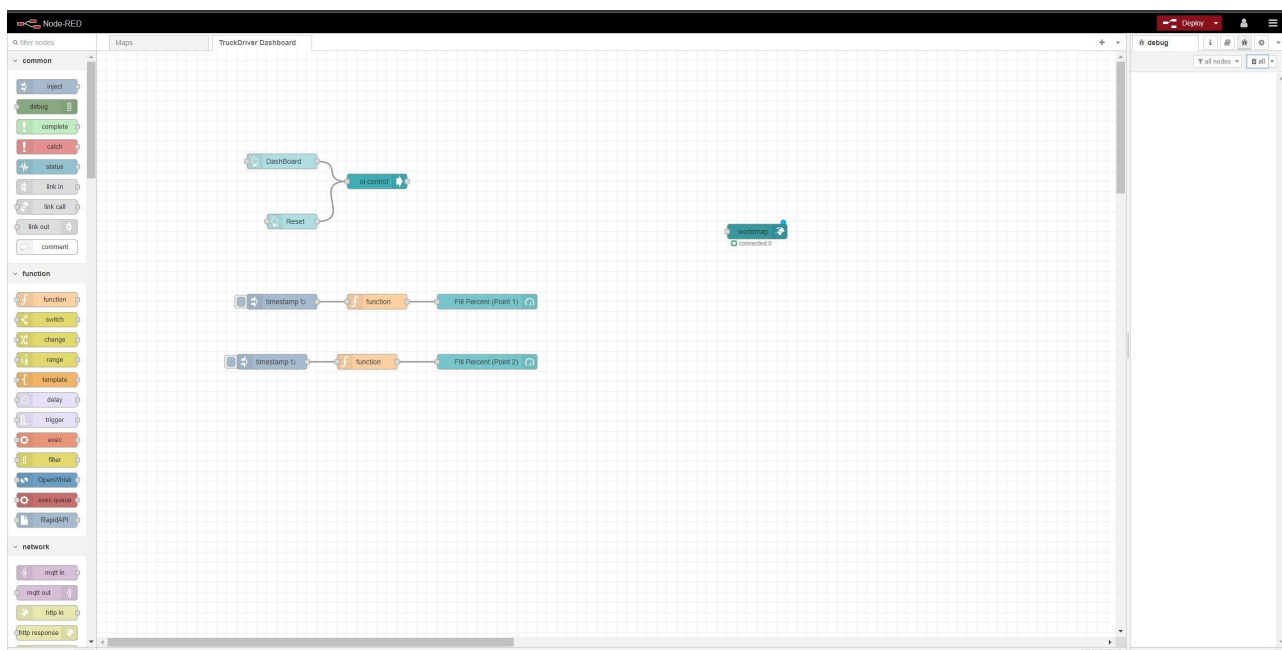
Search by Device ID Device Simulator [Toggle] [Filter Icon]

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class
12345	Connected	NodeMCU	Device	Oct 17, 2022 2:36 PM		111719106007@smartinterra.com	[More Options]

Identity Device Information Recent Events State Logs

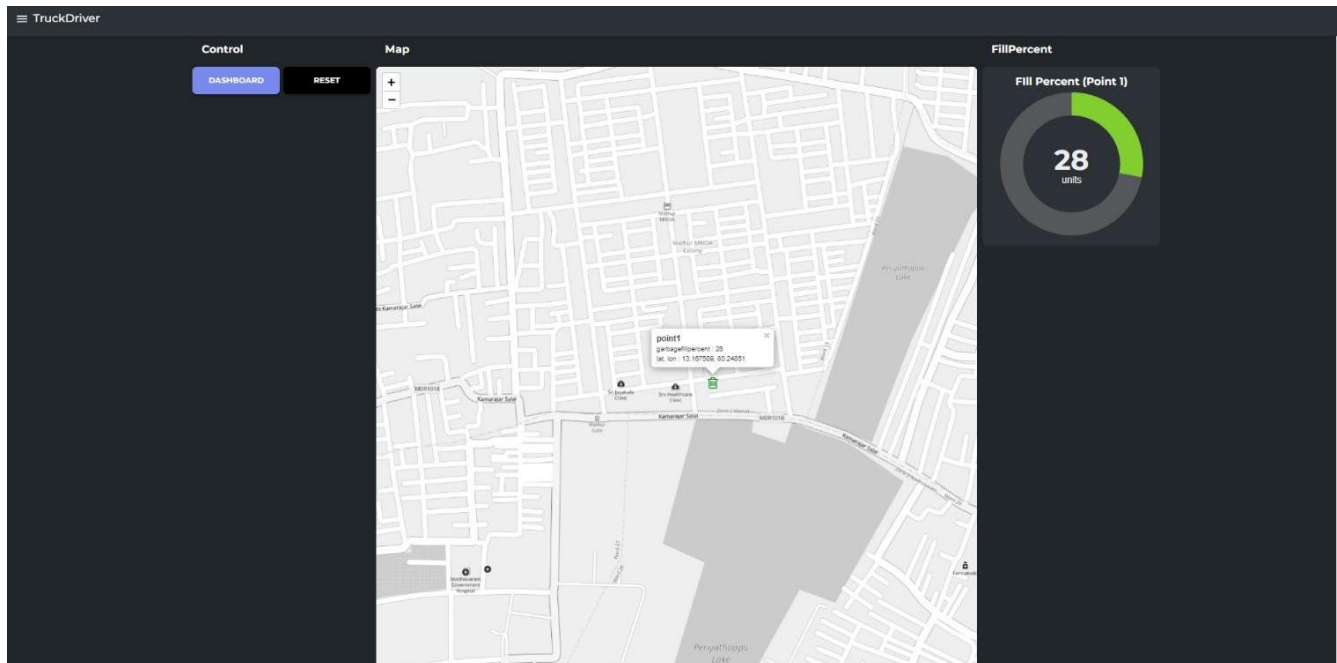
The recent events listed show the live stream of data that is coming and going from this device:

Event	Value	Format	Last Received
status	{"Name":"","point1":"","Latitude":"","Longitude":"","..."}	json	a few seconds ago
status	{"Name":"","point1":"","Latitude":"","Longitude":"","..."}	json	a few seconds ago
status	{"Name":"","point1":"","Latitude":"","Longitude":"","..."}	json	a few seconds ago
status	{"Name":"","point1":"","Latitude":"","Longitude":"","..."}	json	a few seconds ago
status	{"Name":"","point1":"","Latitude":"","Longitude":"","..."}	json	a few seconds ago



Website Output:

This output shows the location of the bin and the value in the gauge. When the BIN value is below the threshold level (i.e., 60 in my case) the icon appears as green.



This output shows the location in Red Icon when the BIN value is greater than 60 and we can also see the notification in the bottom right corner.

