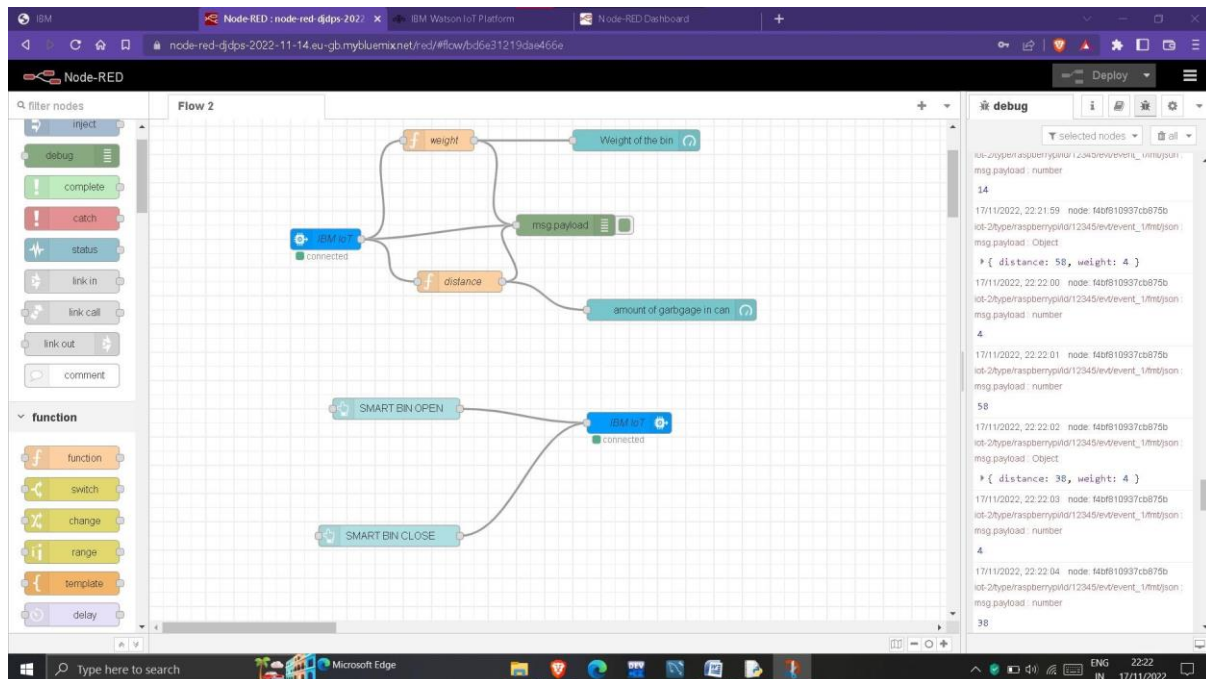


Smart Waste Management System for Metropolitan Cities

SPRINT 4

NODE RED UI:

Node-red-dashboard



The data to nodes in the node-red are provided with the help of the python script via the ibm cloud which is considered to be the data from the data values from the sensor.

To calculate the distance ultrasonic sensor is used, and as well as to calculate the weight, Weight sensor is used.

There are certain assumptions assumed by us, they are

- The length of the trash can is assumed to be 200 cm.
- The maximum weight of the can is assumed to be 2 Kg.
- If the garbage distance goes more than 180cm i.e more than 90% of the trash can , the sensor is has to send to send an alert to the garbage collector.
- If the alert is received, then the garbage collector has to come and collect the garbage.
- The current weight and the garbage distance is to be updated periodically, i.e for 5 minutes .

FUNCTION CONFIGURATION FOR WEIGHT:

The screenshot displays the Node-RED web interface in a browser. The main workspace shows a flow with a 'msg.in' node connected to a 'weight' function node. The 'Edit function node' panel is open, showing the configuration for the 'weight' node. The 'Name' field is set to 'weight'. The 'On Message' tab is selected, and the function code is as follows:

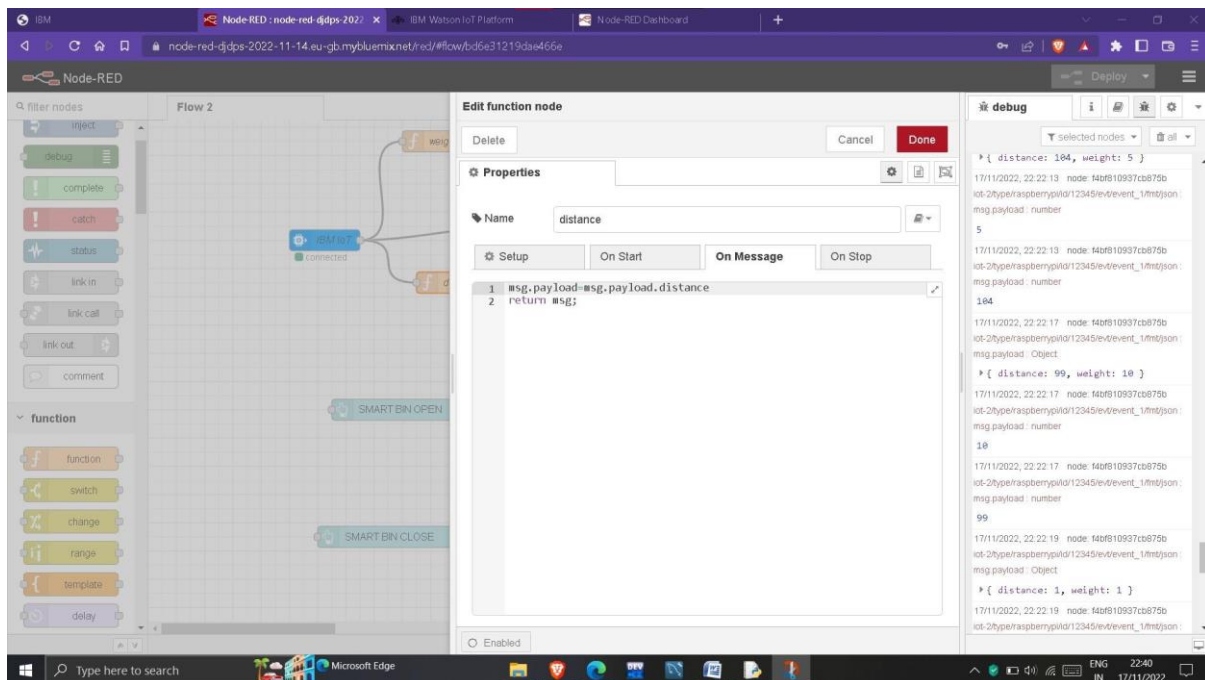
```
1 msg.payload=msg.payload.weight
2 return msg;
```

The 'debug' console on the right shows a series of messages, including the current state of the weight and distance:

```
{ distance: 184, weight: 5 }
```

The interface also shows a sidebar with various nodes and a bottom status bar indicating the system is enabled.

FUNCTION CONFIGURATION FOR AMOUNT OF GARBAGE IN CAN:



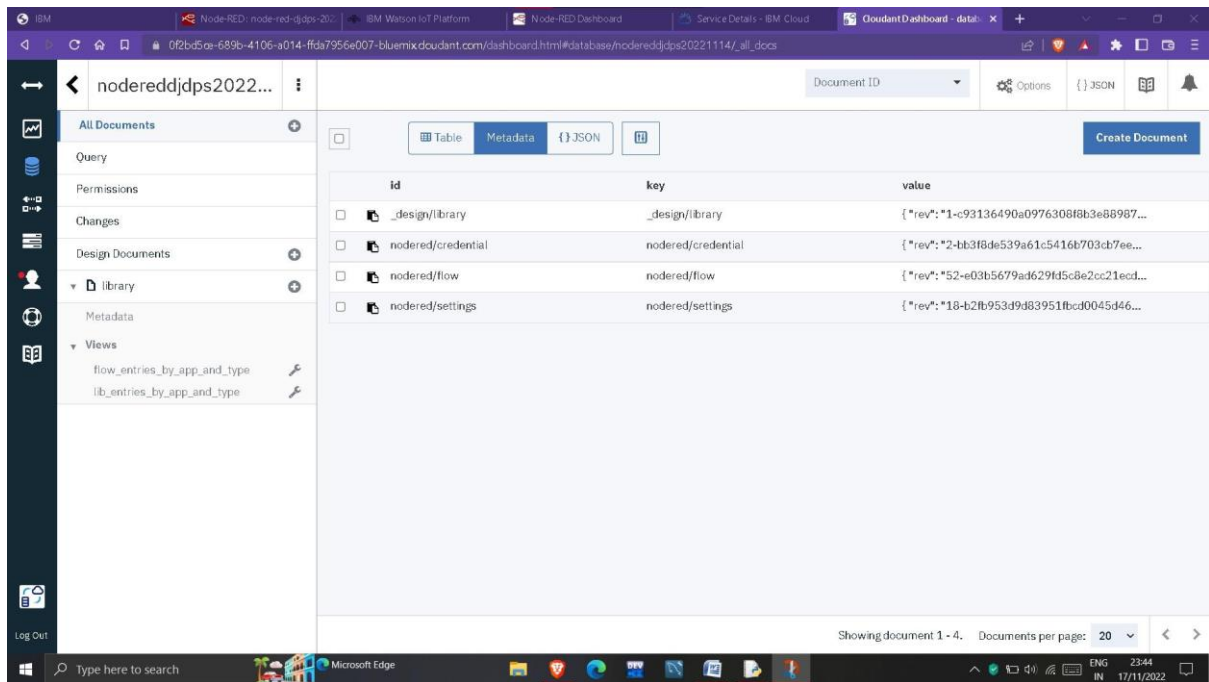
UI :

A simple web page which shows the amount of garbage in the smart bin and indicates free space in the trash bin. Then the web page also displays the weight of garbage present in the smart bin. It can hold a maximum of 10 kg and at the same time the length of the smart bin is 200 cm.

An alert message is sent if the requirements are passed, and then the current co-ordinates of the smart bin is being sent to the garbage collector .

The web page also composed of two buttons, with the help of the buttons we can open the smart bin and as well as close the smart bin. the command from the user is sent to the sensor and the dustbin is closed and as well as opened.

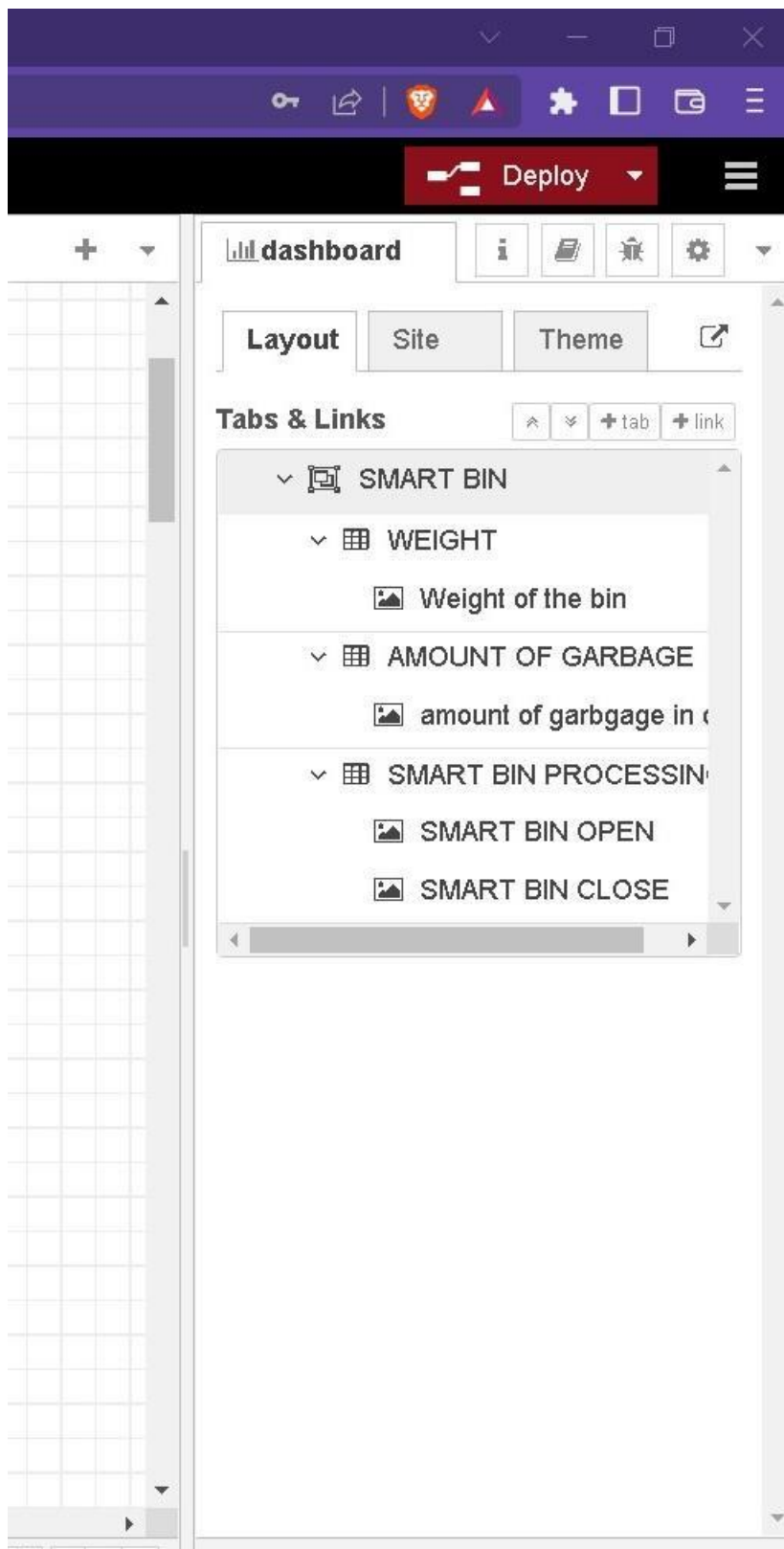
STORING THE DATA IN IBM CLOUDNT DB:



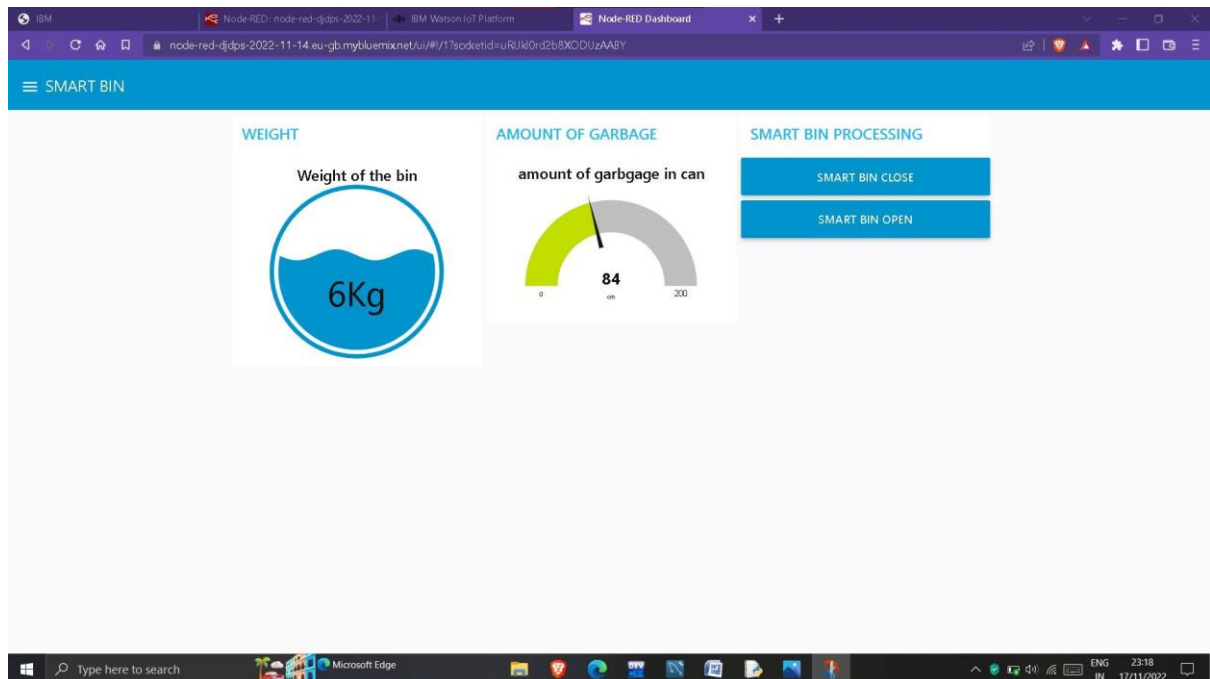
The screenshot displays the IBM Cloudant Dashboard interface. The browser address bar shows the URL: `0f2bd5a-689b-4106-a014-fda7956e007-blumixcloudant.com/dashboard.html#database/nodereddjdps20221114/_all_docs`. The dashboard title is "nodereddjdps2022...". The left sidebar contains navigation options: All Documents, Query, Permissions, Changes, Design Documents, library, Metadata, and Views. The main content area shows a table of documents with columns: id, key, and value. The table lists four documents: _design/library, nodered/credential, nodered/flow, and nodered/settings. Each document has a checkbox in the id column. The value column shows JSON snippets for each document. The bottom status bar indicates "Showing document 1 - 4. Documents per page: 20".

id	key	value
<input type="checkbox"/> _design/library	_design/library	{ "rev": "1-c93136490a0976308f8b3e68987..." }
<input type="checkbox"/> nodered/credential	nodered/credential	{ "rev": "2-bb3f8de539a61c5416b703cb7ee..." }
<input type="checkbox"/> nodered/flow	nodered/flow	{ "rev": "52-e03b5679ad629fd5c8e2cc21ecd..." }
<input type="checkbox"/> nodered/settings	nodered/settings	{ "rev": "18-b2fb953d9d3951fbc0d045d46..." }

DASHBOARD :



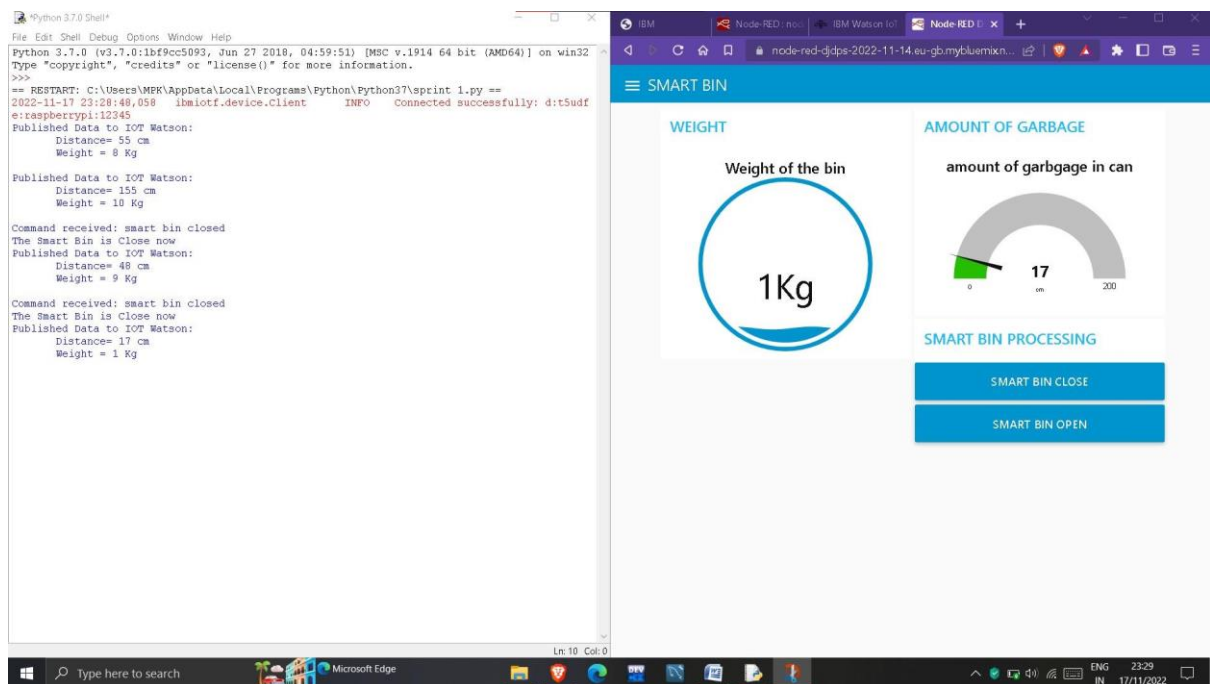
WEB UI :



Here the web page denotes the weight of garbage present in the smart bin and as well as the, length of the smart bin filled with garbage in the above the current garbage weight is 6 kg and as well as the length of smart bin filled with garbage is 200 cm .

There is button for smart bin processing, if we want to open and close the smart bin , we can perform this with the help of the buttons .The data will be sent from the user interface to the sensors and the required operation is performed .

The command from the web user is sent to the sensors successfully:



The command for closing the smart bin is received and it also has been executed successfully.