

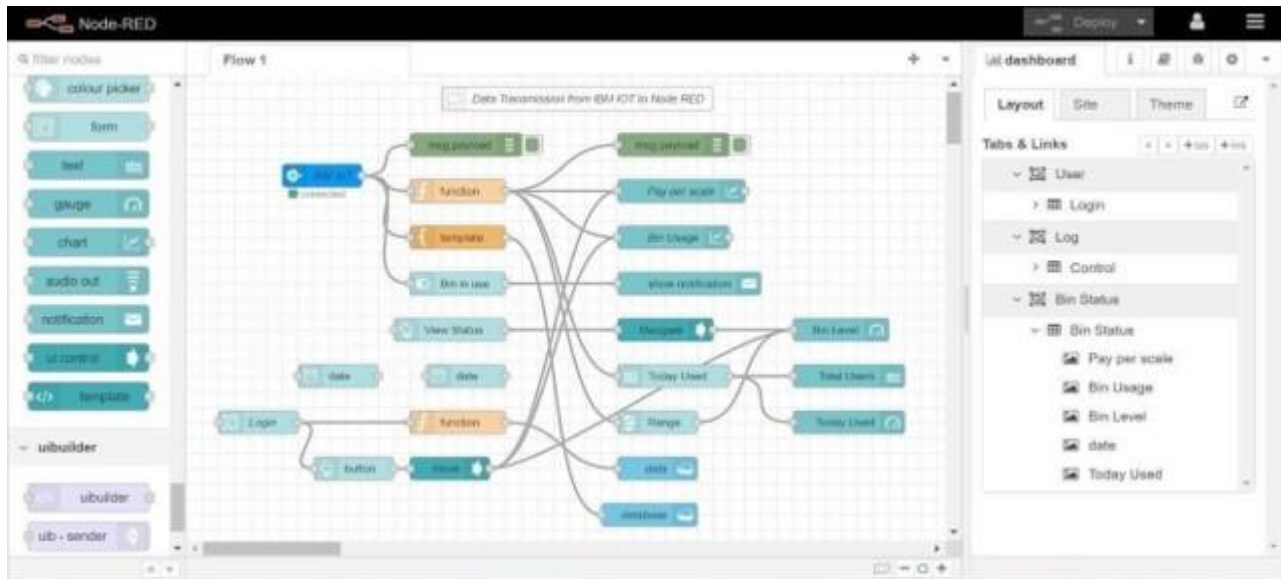
Delivery of Sprint – 3

Date	10 November 2022
Team ID	PNT2022TMID22430
Project Name	Smart Waste Management System for Metropolitan Cities

Functional Requirement – Node red connection to IBM CLOUD

User story : USN – 5

1. Node-RED Connection setup for data transmission from IBM Watson IOT platform to Node-RED dashboard



2. Simulate Wokwi connection to transmit data from wokwi account to IBM Watson IOT platform and then to Node Red dashboard.

The screenshot shows the Wokwi IDE interface. The top bar displays the project name 'WOKWI' and options to 'SAVE' and 'SHARE'. The left sidebar shows the 'sketch.ino' file. The main workspace displays the 'Simulation' tab, showing a 3D model of an ESP32 microcontroller connected to an LCD screen and a speaker. The code in the sketch.ino file is as follows:

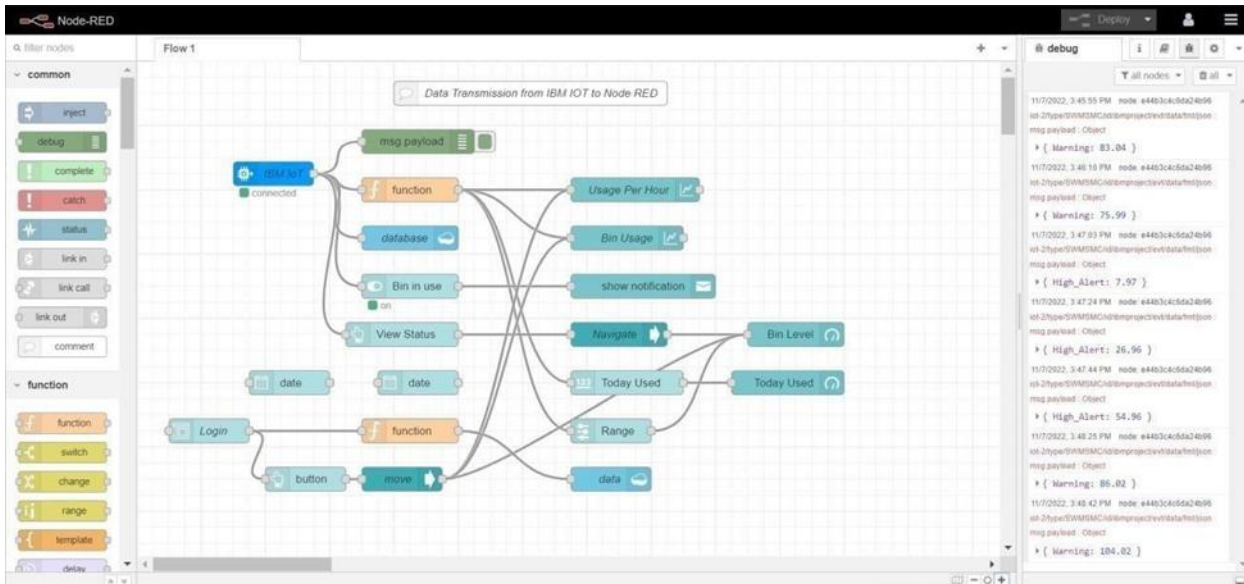
```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <LiquidCrystal_I2C.h>
4 LiquidCrystal_I2C lcd(0x27, 20, 4);
5
6 //----- IBM CLOUD CREDENTIALS-----
7 #define ORG "Smart_waste" // Organisation id
8 #define DEVICE_TYPE "new" // Device type
9 #define DEVICE_ID "098765" // Device ID
10 #define TOKEN "Jaya22430@2002" // Token
11
12 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
13 char publishTopic[] = "iot-2/evt/data/fmt/json";
14 char topic[] = "iot-2/cmd/led/fmt/String";
15 char authMethod[] = "usetoken- auth";
16 char token[] = TOKEN;
17 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
18
19
20
21 WiFiClient wificlient;
22 PubSubClient client(server, 1883, wificlient);
23
24 #define ECHO_PIN 12
25 #define TRIG_PIN 13 float dist;
26
27 void setup()
28 {
29   Serial.begin(115200); pinMode(LED_BUILTIN, OUTPUT);
30   pinMode(TRIG_PIN, OUTPUT); pinMode(ECHO_PIN, INPUT);
31
32   pinMode(2,
33   OUTPUT); pinMode(4, OUTPUT); pinMode(15, OUTPUT);
34   lcd.init(); lcd.backlight(); lcd.setCursor(1, 0); lcd.print(""); wificlient
35   mqttConnect();

```

The bottom status bar shows the temperature as 29°C and the location as Smoke. The system tray includes icons for the Windows logo, a search bar, and various application icons.

3. Data transfer to Watson IOT platform.
4. Data transfer from IBM Watson IOT platform and wokwi to Node red.



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

Event	Value	Format	Last Received
data	{"Warning":28.95}	json	a few seconds ago
data	{"Warning":28.95}	json	a few seconds ago
data	{"Warning":49.98}	json	a minute ago
data	{"Warning":49.98}	json	a minute ago
data	{"Warning":11.03}	json	a minute ago

5. Storing database in IBM cloudant DB.

Databases

Database name Create Database

Your Databases

Name	Size	# of Docs	Partitioned	Actions
login_credentials	13.7 KB	111	No	<input type="button" value="Edit"/> <input type="button" value="Lock"/> <input type="button" value="Delete"/>
noderedwjd20221105	37.4 KB	4	No	<input type="button" value="Edit"/> <input type="button" value="Lock"/> <input type="button" value="Delete"/>
sample	59.4 KB	351	No	<input type="button" value="Edit"/> <input type="button" value="Lock"/> <input type="button" value="Delete"/>
sensor_data	15.7 KB	90	No	<input type="button" value="Edit"/> <input type="button" value="Lock"/> <input type="button" value="Delete"/>

Showing 1-4 of 4 databases. Databases per page 20

↩

sensor_data

⋮

Document ID

Options

{ } JSON

All Documents

Query

Permissions

Changes

Design Documents

Table

Metadata

{ } JSON

Create Document

	id	key	value
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-cde2dd17c519394df...
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-d26c5b40891e13c6c...
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-cde2dd17c519394df...
<input type="checkbox"/>	0198213c192cb2c244cc2433f1...	0198213c192cb2c244cc2433f1...	{ "rev": "1-f96eb0460bc16cfab0...
<input type="checkbox"/>	1a921f21cbe229b86f599acb45...	1a921f21cbe229b86f599acb45...	{ "rev": "1-7226f08794cd47b7c...
<input type="checkbox"/>	1a921f21cbe229b86f599acb45...	1a921f21cbe229b86f599acb45...	{ "rev": "1-1bbdd9a985bd56cf9...
<input type="checkbox"/>	20a854e5445fa818e6c1de049...	20a854e5445fa818e6c1de049...	{ "rev": "1-7226f08794cd47b7c...
<input type="checkbox"/>	20a854e5445fa818e6c1de049...	20a854e5445fa818e6c1de049...	{ "rev": "1-3ad288ecad57f039e...
<input type="checkbox"/>	20a854e5445fa818e6c1de049...	20a854e5445fa818e6c1de049...	{ "rev": "1-1bbdd9a985bd56cf9...
<input type="checkbox"/>	298ed6fhd9b3b815f5ac7c061e...	298ed6fhd9b3b815f5ac7c061e...	{ "rev": "1-4e7240f6e5307a1h9...

Showing document 1 - 20. Documents per page: 20

Save Changes

Cancel

Upload Attachment

Clone Document

Delete

1

2

3

4

5

6

7

8

9

10

11

12

↩

sensor_data > 0198213c192cb2c244cc2433f1802b91

{ } JSON

Save Changes

Cancel

Upload Attachment

Clone Document

Delete

1

2

3

4

5

6

7

8

9

10

11

12

```
{
  "_id": "0198213c192cb2c244cc2433f1802b91",
  "_rev": "1-cde2dd17c519394df774730c495f8b",
  "topic": "iot-2/type/SWMSMC/id/ibmproject/evt/data/fmt/json",
  "payload": {
    "Warning!!": "244.971eft"
  },
  "deviceId": "ibmproject",
  "deviceType": "SWMSMC",
  "eventType": "data",
  "format": "json"
}
```