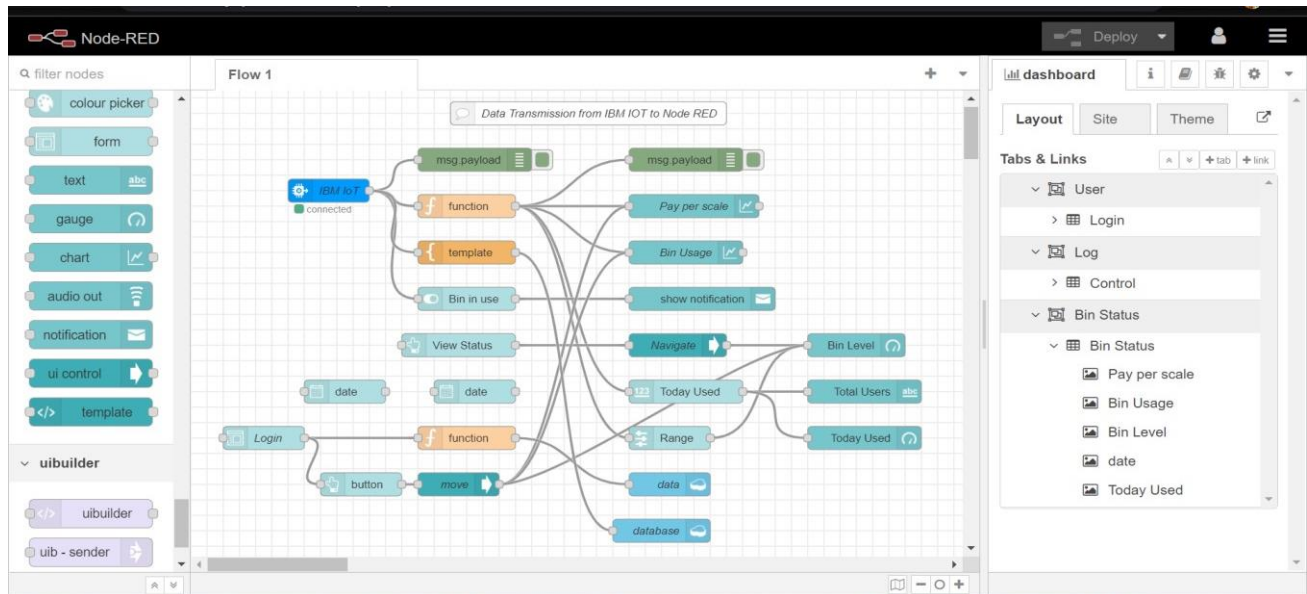
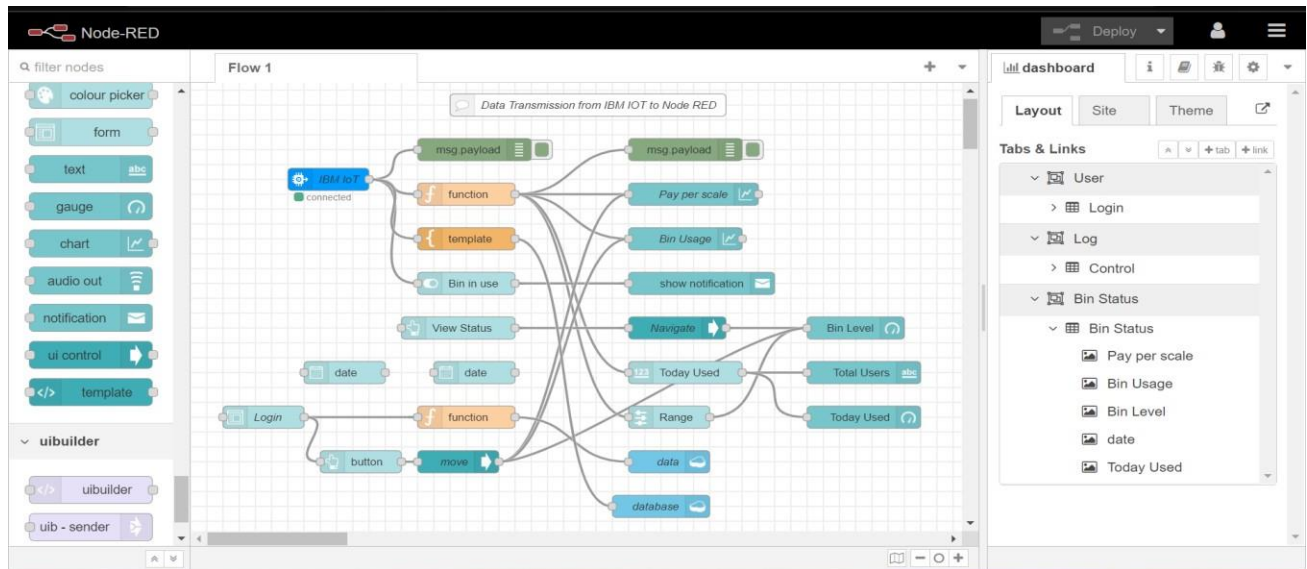


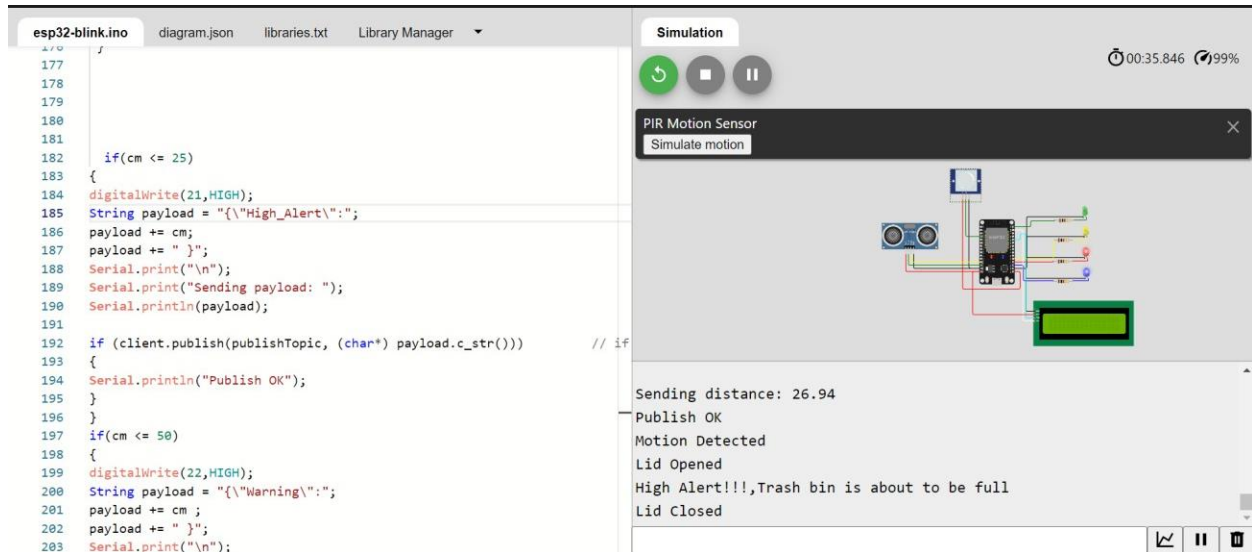
Node Red Connection to IBM Cloudant

Team ID	PNT2022TMID52320
Project Name	Smart Waste Management for Metropolitan Cities - IOT

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



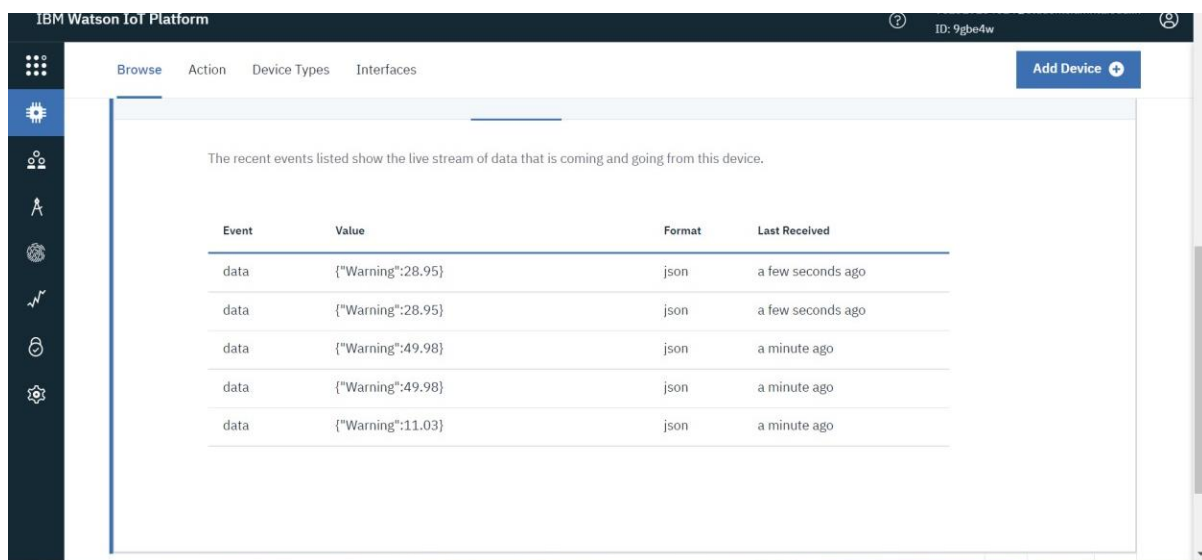
2. Simulate Wokwi connection to transmit data from wokwi account to IBM Watson IOT platform and then to Node Red dashboard.



The screenshot shows the Wokwi IDE interface. On the left, the 'esp32-blink.ino' file is open, displaying an Arduino sketch. The sketch includes logic for a PIR motion sensor, with two distance thresholds: 25 cm for a 'High Alert' and 50 cm for a 'Warning'. The code uses the Arduino IDE's Serial library for debugging and the PubSubClient library for MQTT communication. On the right, the 'Simulation' tab is active, showing a 3D model of the ESP32 board with a PIR sensor and an LCD display. A 'PIR Motion Sensor' control panel is visible, with a 'Simulate motion' button. Below the simulation, a log window displays the following messages: 'Sending distance: 26.94', 'Publish OK', 'Motion Detected', 'Lid Opened', 'High Alert!!!, Trash bin is about to be full', and 'Lid Closed'.

```
177  
178  
179  
180  
181  
182 if(cm <= 25)  
183 {  
184   digitalWrite(21,HIGH);  
185   String payload = "{\"High_Alert\":\"";  
186   payload += cm;  
187   payload += " }";  
188   Serial.print("\n");  
189   Serial.print("Sending payload: ");  
190   Serial.println(payload);  
191  
192   if (client.publish(publishTopic, (char*) payload.c_str()))  
193   {  
194     Serial.println("Publish OK");  
195   }  
196 }  
197 if(cm <= 50)  
198 {  
199   digitalWrite(22,HIGH);  
200   String payload = "{\"Warning\":\"";  
201   payload += cm ;  
202   payload += " }";  
203   Serial.print("\n");
```

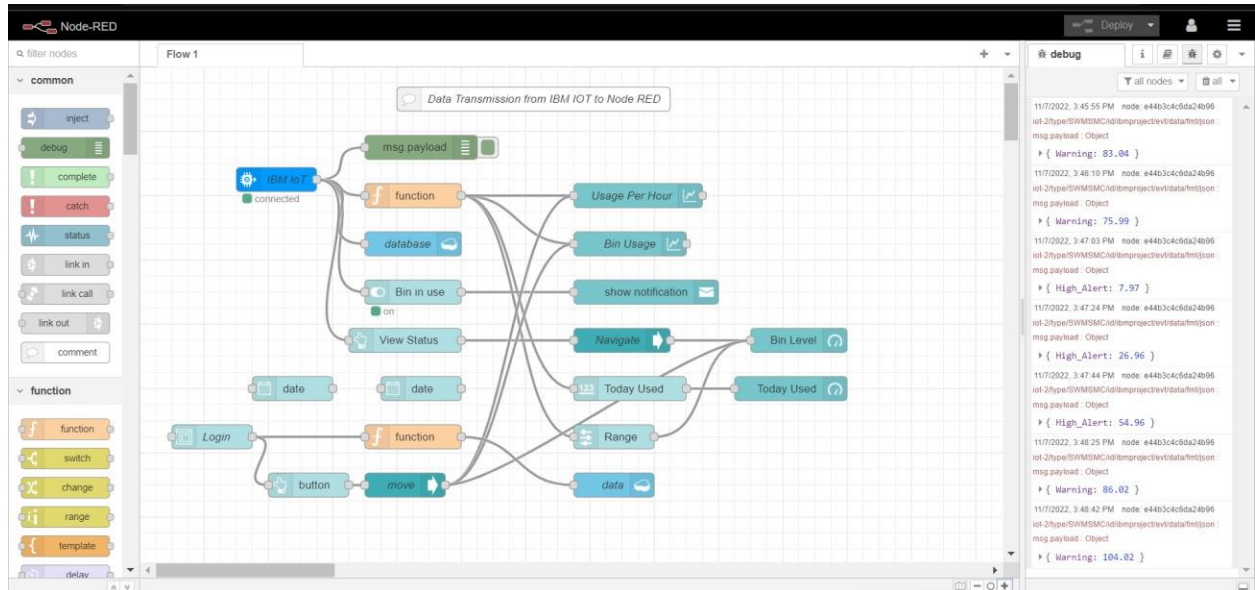
3. Data transfer to Watson IOT platform.



The screenshot displays the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces', along with an 'Add Device' button. The main content area shows a message: 'The recent events listed show the live stream of data that is coming and going from this device.' Below this message is a table with the following data:

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

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



5.Storing database in IBM Cloudbant DB.

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Databases

Database name ▾

Create Database

{} JSON

Your Databases

Name	Size	# of Docs	Partitioned	Actions
login_credentials	13.7 KB	111	No	
noderedwjldy20221105	37.4 KB	4	No	
sample	59.4 KB	351	No	
sensor_data	15.7 KB	90	No	

Showing 1–4 of 4 databases. Databases per page 20 ▾

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