

## Project Development Phase

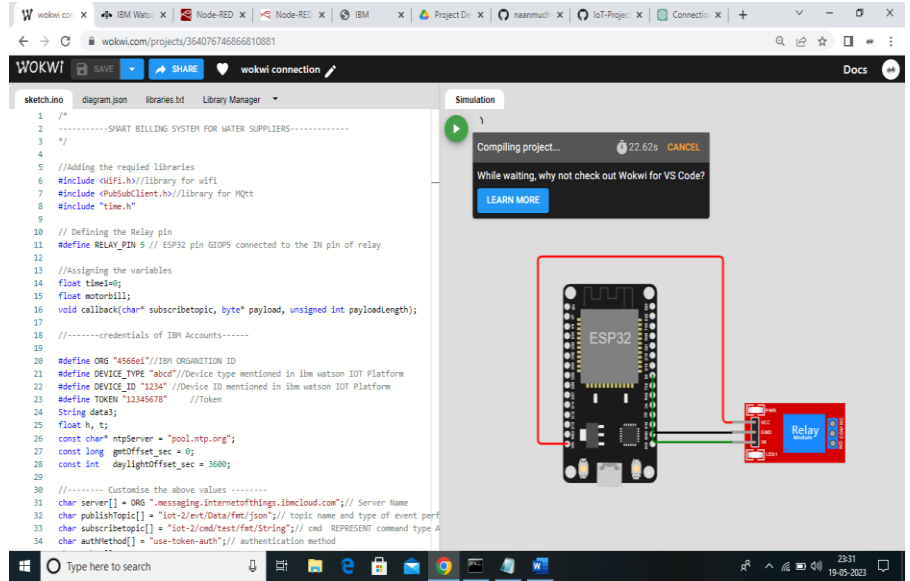
### Performance Test

Date	18 May 2023
Team ID	NM2023TMID01199
Project Name	Smart Billing system for water suppliers

### Performance Testing:

It is a non-functional software testing technique that determines how the stability, speed, scalability, and responsiveness of an application holds up under a given workload. It's a key step in ensuring software quality, but unfortunately, is often seen as an afterthought, in isolation, and to begin once functional testing is completed in most cases, after the code is ready to release.

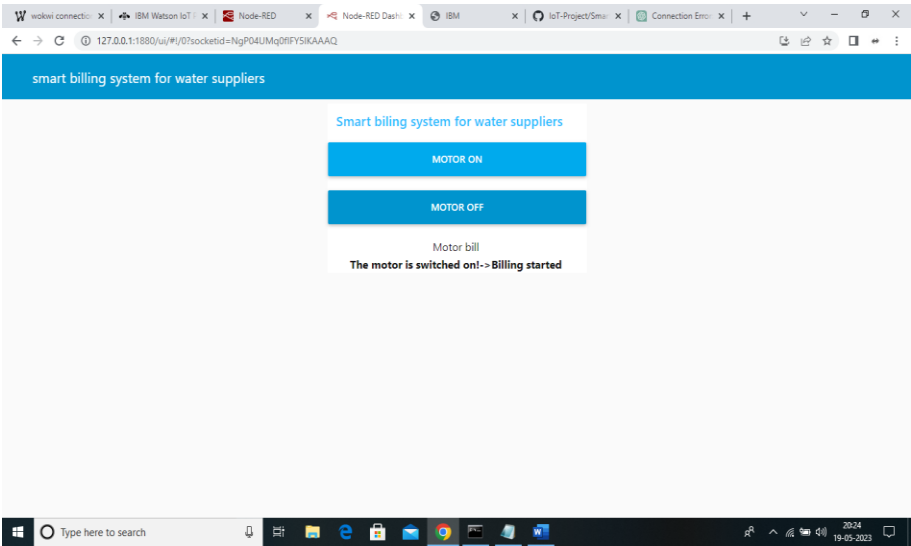
The execution time and the corresponding outputs are tabulated below.

Parameters	Values	Screenshots
Metrics	Wowki Execution time	<p>The Execution time of wokwi simulator for our project is <u>22.62 seconds</u>.</p> 

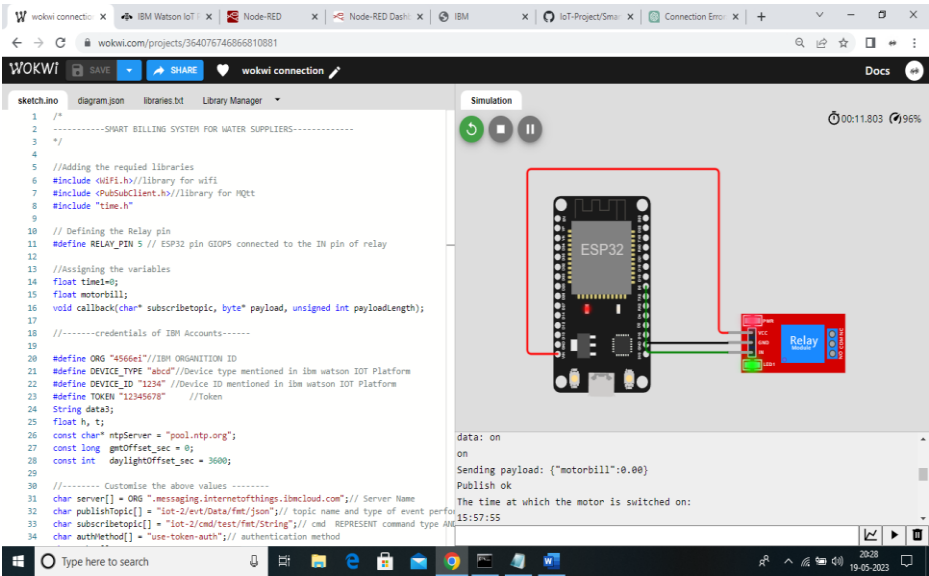
Output  
screenshot

There are many steps involved in the output process. Here I attached screenshots for every steps below.

**Step 1:**  
Turn ON the motor in Web UI (Node-RED)



**Step 2:**  
In wokwi, the relay will be switched ON and starts monitoring



### Step 3:

#### Publishing the data to IBM recent events

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area displays the 'Recent Events' tab for a device with ID 1234. The events are listed in a table with columns: Event, Value, Format, and Last Received. The events are as follows:

Event	Value	Format	Last Received
event_1	{"randomNumber":28}	json	a few seconds ago
event_1	{"randomNumber":62}	json	a few seconds ago
Data	{"motorbill":0}	json	a few seconds ago
event_1	{"randomNumber":80}	json	a few seconds ago
event_1	{"randomNumber":60}	json	a few seconds ago

At the bottom right of the events list, it says '1 Simulation running'.

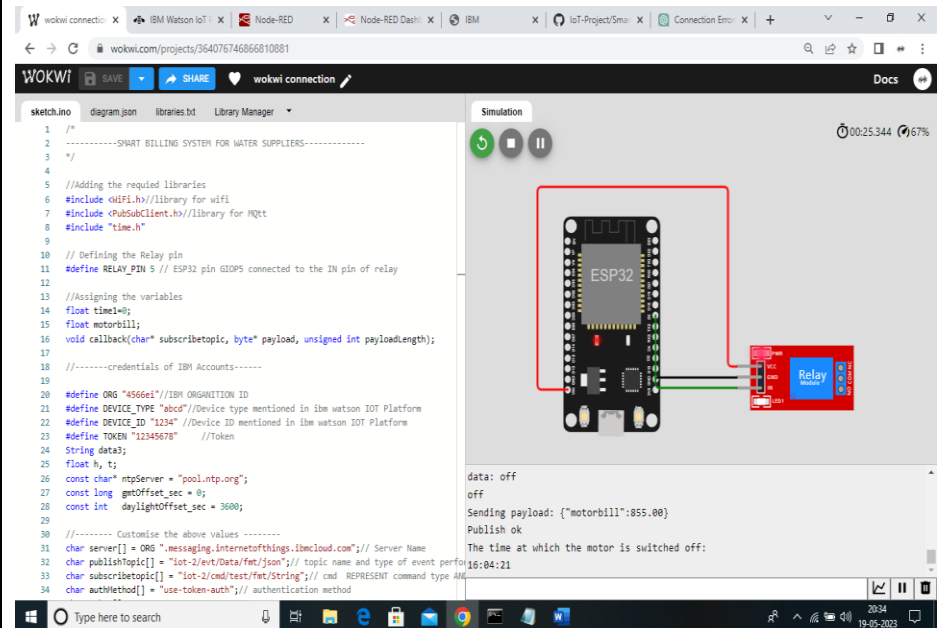
### Step 4:

#### After few moments, the motor is directed to turn OFF in Node-RED

The screenshot shows a web interface titled 'smart billing system for water suppliers'. It features two large blue buttons: 'MOTOR ON' and 'MOTOR OFF'. Below these buttons, there is a section labeled 'Motor bill' with the text 'The motor is switched on!-> Billing started'.

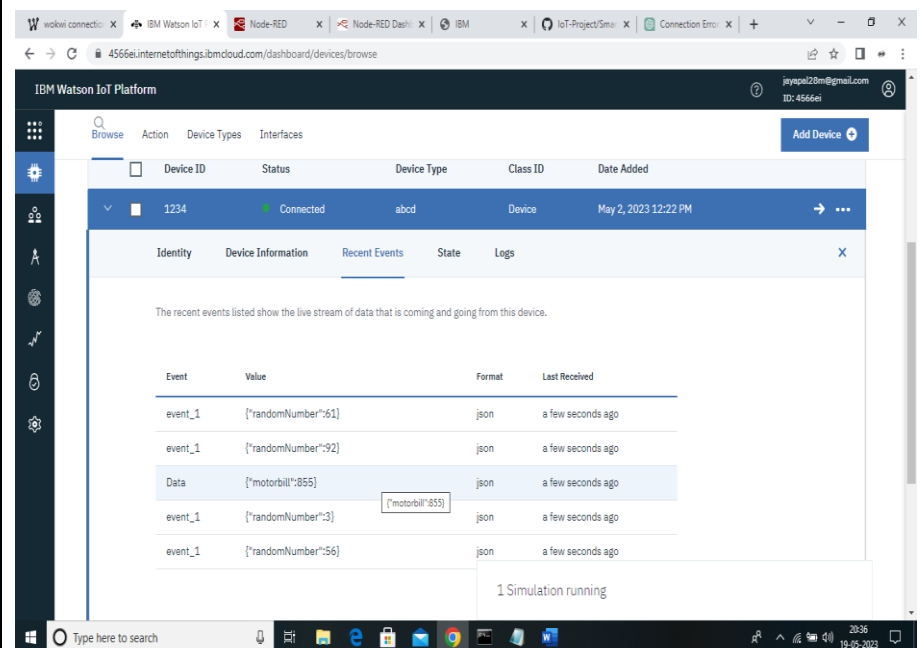
## Step 5:

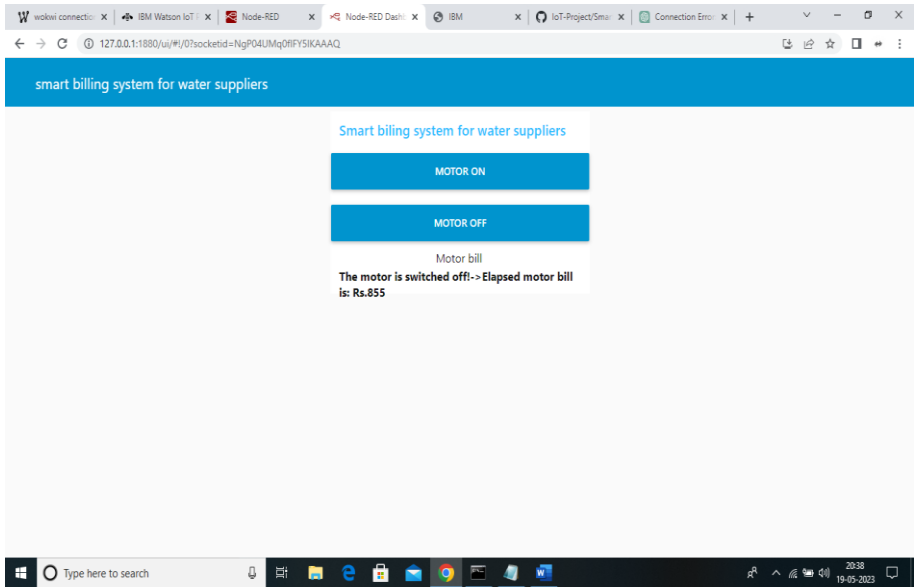
In wokwi, the relay will be switched OFF and generate a bill by using random function generator.



## Step 6:

Publishing the motorbill to IBM recent events



		<p><b>Step 7:</b> Finally got the motorbill in Web UI</p> 
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These performance testing can be done by using the steps as follows.

- Identifying the Test Environment and tools
- Define acceptable Performance criteria
- Plan and Design Tests
- Prepare Test Environment and tools
- Run the Performance Tests
- Resolve and Retest

To make sure that the Performance testing is an iterative process, and it should be conducted at different stages of development and deployment to ensure consistent performance and reliability of the smart billing system for water suppliers.