

**Project Design Phase-II**  
**Solution Requirements (Functional & Non-functional)**

Date	18 October 2022
Team ID	<b>PNT2022TMID35389</b>
Project Name	Smart Waste Management System For Metropolitan Cities.
Maximum Marks	4 Marks

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

<b>FR No.</b>	<b>Functional Requirement (Epic)</b>	<b>Sub Requirement (Story / Sub-Task)</b>
FR-1	Detailed bin inventory.	Bins which are seen on the maps by GPSlocation, and it is visited at any time by street view. Bins are visible in maps by different colorcircle. We can see the garbage bin details in the dashboard -capacity, recyclable or non- recyclable waste, waste measurement, GPSlocation and pick recognition.
FR-2	Bin Monitoring	Waste which are filled in bins aremonitored by sensors. Based on the previous data, the toolpredicts when will the bin fill. Smart sensor recognize each and every action takesplace. Hence it will check thelast collected data. With the real time data & predictions, wecan eliminate the overflowing of bins.
FR-3	Expensive bins	It helps us to identify bins that drive upcollection costs. The tool calculate a rating of each bins in terms of collection cost.
FR-4	Eliminates unefficient picks	1.The sensor recognize picks.

		<p>2.By the data filled on the bin, pick recognition, we can show how full the binsyou collect are.</p> <p>3.Eliminates the collection of empty bins.</p>
FR-5	Adjust bin distribution	<p>1.Initially we have to ensure the mostoptimal distribution of bins.</p> <p>2.Identifies area with either dense or sparsebin distribution.</p> <p>3.Based on previous data, we can adjust bin capacity or location.</p>
FR-6	Waste collection routes.	<p>Based on current bin fill-levels and predictions of reaching full capacity, we have ready to respond and schedule.</p> <p>We have to compare planned and executed routes to identify any inconsistencies.</p>

### Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	<p>The device verifies that the usability is a special and important to analyse user requirements which will the design quality.</p> <p>In the design process with user experience as the core, the analysis of users product usability can indeed help designers better understand users potential needs in waste management, behaviour and experience.</p>
NFR-2	<b>Security</b>	<p>1.Use reusable and recyclable bottles</p> <p>2.Avoid non-recyclable plastic container.</p> <p>3.Use reusable bags</p>
NFR-3	<b>Reliability</b>	<p>This project (Smart waste management system) is all about creating better work</p>

		<p>experience for waste collectors and drivers.</p> <p>Waste collector will spend their time more efficiently instead of driving the same collection routes and servicing empty bins.</p>
NFR-4	<b>Performance</b>	<p>By using the various IoT networks, the sensors send the data to smart waste management software system, a cloud platform, for data-driven daily operations, and available waste.</p> <p>User are provided with data-driven decision making, and optimization of waste collection route reduction by at least 35%</p>
NFR-5	<b>Availability</b>	<p>By developing resilient hardware and software we empower the cities and countries to manage waste smarter.</p>
NFR-6	<b>Scalability</b>	<p>Using the smart bins reduce the number of bins inside cities and urban areas because we able to monitor the garbage any time more cost effect and scalability when we move to smarter.</p>