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

Date	10 October 2022
Team ID	PNT2022TMID16132
Project Name	Smart Waste Management System For Metropolitan Cities.
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

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

FR No.		
		2. By the data filled on the bin, pick recognition, we can show how full the bins you collect are. 3. Eliminates the collection of empty bins.
FR-5	Adjust bin distribution	1. Initially we have to ensure the most optimal distribution of bins. 2. Identifies area with either dense or sparse bin distribution. 3. Based on previous data, we can adjust bin capacity or location.
FR-6	Waste collection routes.	Based on current bin fill-levels and predictions of reaching full capacity, we have ready to respond and schedule. We have to compare planned and executed routes to identify any inconsistencies.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The device verifies that the usability is a special and important to analyse user requirements which will the design quality. 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.
NFR-2	**Security**	1. Use reusable and recyclable bottles 2. Avoid non-recyclable plastic container. 3. Use reusable bags
NFR-3	**Reliability**	This project (Smart waste management system) is all about creating better work

		experience for waste collectors and drivers. Waste collector will spend their time more efficiently instead of driving the same collection routes and servicing empty bins.
NFR-4	**Performance**	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. User are provided with data-driven decision making, and optimization of waste collection route reduction by at least 35%
NFR-5	**Availability**	By developing resilient hardware and software we empower the cities and countries to manage waste smarter.
NFR-6	**Scalability**	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.