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

Team ID	PNT2022TMID04766
Project Name	SMART WASTE MANAGEMENT SYSTEM IN METROPOLITAN CITIES.

Functional Requirements:
Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Expensive bins.	Depends upon the average waste collected in areas, we can help you identify bins that drive up your collection costs. The tool calculates a rating for each bin in terms of collection costs. The tool considers the average distance discharge in the area. The tool assigns bin a rating (1-10) and calculates distance from discharge.
FR-2	Real time bin monitoring.	The percentage of fill-level, based on the historical data, the tool predicts when the bin will become full, one of the functionalities that are not included even in the best waste management software. It displays real-time data on fill-levels of bins monitored by smart sensors.

FR-3	Detailed about the bin monitoring.	All monitored bins and stands can be seen on the map, and you can visit them at any time via the Street View feature from Google. Bins or stands are visible on the map as green, orange or red circles. You can see bin details in the Dashboard – capacity, waste type, last measurement, GPS location and collection schedule or pick recognition.
FR-4	Bin Distribution.	Ensure the most optimal distribution of bins. Identify areas with either dense or sparse bin distribution. Make sure all trash types are represented within a stand. Based on the historical data, you can adjust bin capacity or location where necessary.
FR-5	To Avoid the delay of pickups.	Eliminate the collection of half-empty bins. The sensors recognize picks. By using real-time data on fill-levels and pick recognition, we can show you how full the bins you collect are. The report shows how full the bin was when picked. You immediately see any inefficient picks below 80% full.

Non-functional Requirements:
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	IoT device verifies that usability is a special and important perspective to analyze user requirements, which can further improve 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, behavior and experience.
NFR-2	**Availability**	By developing & deploying resilient hardware and beautiful software we empower cities, businesses, and countries to manage waste smarter.
NFR-3	**Performance**	The Smart Sensors use ultrasound technology to measure the fill levels (along with other data) in bins several times a day. Using a variety of IoT networks ((GPRS), the sensors send the data to Sensors Smart Waste Management Software System, a powerful cloud-based platform, for data driven daily operations, available also as a waste management app. Customers are hence provided data-driven decision making, and optimization of waste collection routes, frequencies, and vehicle loads resulting in route reduction by at least 30%.
NFR-4	**Security**	Use reusable grocery bags Avoid single use food and drink containers. Use a reusable bottles Purchase wisely and recycle
NFR-5	**Scalability**	Using smart waste bins reduce the number of bins inside town , cities because we able to monitor the garbage 24/7 more cost effect and scalability when we moves to smarter.