

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

Date	11/03/22
Team ID	PNT2022TMID05389
Project Name	Smart waste management for meteropolitan 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.	You can see bin details in the Dashboard – capacity,waste type, last measurement,GPS location and collection schedule or pick recognition.
FR-2	Real time bin monitoring.	The Dashboard displays real-time data on fill-levels of bins monitored by smart sensors.In addition to the % 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.Sensors recognize picks as well; so you can check when the bin was last collected.
FR-3	Expensive bins.	The tool considers the average distance depo-bin-discharge in the area. The tool assigns bin a rating(1-10) and calculates distance from depo-bin discharge.
FR-4	Adjust 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	Eliminate inefficient picks.	The report shows how full the bin was when picked. You immediately see any inefficient picks below 80% full.
FR-6	Plan waste collection routes.	The tool semi-automates waste collection route planning. Based on current bin fill-levels and predictions of reaching full capacity, you are ready to respond and schedule waste collection.You can compare planned vs. 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	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	Security	Use reusable bottles Use reusable grocery bags
NFR-3	Reliability	Smart waste management is also about creating better working conditions for waste collectors and drivers. Instead of driving the same collection routes and servicing empty bins, waste collectors will spend their time more efficiently, taking care of bins that need servicing.
NFR-4	Performance	The Smart Sensors use ultrasound technology to measure the fill levels (along with other data) in bins. Using a variety of IoT networks, (NB-IoT, GPRS), the sensors send the data to Sansone's Smart Waste Management Software System, a powerful cloud-based platform, for data-driven daily operations, available also as a waste management app.
NFR-5	Availability	By developing & deploying resilient hardware and beautiful software we empower cities, businesses, and countries to manage waste smarter.
NFR-6	Scalability	Using smart waste bins reduce the number of bins inside town, cities coz we able to monitor the garbage 24/7 more cost effect and scalability when we move to smarter.