Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Date	06 October 2022
Team ID	PNT2022TMID28953
Project Name	Smart Waste Management System For Metropolitan Cities
Maximum Marks	4Marks

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 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-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.
FR-3	Expensive bins.	The tool considers the average distance depo-bindischarge in the area. The tool assigns bin a rating(1-10) and calculates distance from depo-bin discharge.
FR-4	Adjust bin distribution.	Based on the historical data, you can adjust bin capacity or location where necessary.

		Identify areas with either dense or sparse bin distribution.
FR-5	Eliminate unefficient picks.	Eliminate the collection of half-empty bins. The sensors recognize 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 a reusable bottles Use reusable grocery bags Purchase wisely and recycle Avoid single use food and drink container.
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**	Using a variety of IoT networks (NB-IoT,GPRS), the sensors send the data to Sensono's 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-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 moves to smarter.