FUNCTIONAL AND NON FUNCTIONAL REQUIREMENTS

Team ID	PNT2022TMID48524
Project Name	Smart Waste Management System for metropolitan cities

Functional requirement

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Real time bin monitoring.	The dashboard shows statistics on the amount of fill in the bins as it is tracked by smart sensors. The application also forecasts when the bin will fill up based on past data in addition to the percentage of fill level, which is one of the features that even the finest waste management software lacks. As picks are also recognised by the sensors, you can determine when the bin was last emptied. You can get rid of the overflowing bins and stop collecting half-empty ones using real-time data and forecasts.
FR-2	Eliminate inefficient picks.	Get rid of the collection of half-empty trash cans. Picks are recognised by sensors. We can demonstrate to you how full the bins you collect are using real-time data on fill levels and pick recognition.
FR-3	Plan waste collection routes.	Route planning for trash pickup is semi-automated using the tool. You are prepared to act and arrange for garbage collection based on the levels of bin fill that are now present and forecasts of approaching capacity. To find any discrepancies, compare the planned and actual paths.
FR-4	Adjust bin distribution.	Ensure the best possible bin distribution. Determine which regions have a dense or sparse distribution of bins. Ensure that each form of waste has a representative. You can make any required adjustments to bin position or capacity based on past data.
FR-5	Expensive bins.	We assist you in locating containers that increase collection prices. The tool determines a collection rating for each bin. The tool takes the local average deposal rate into account. The tool determines the distance from depo-bin discharge and rates bins (1–10).
FR-6	Detailed bin inventory.	On the map, you can see every monitored bin and stand, and you can use Google Street View at any time to visit them. On the map, bins or stands appear as green, orange, or red circles. The dashboard displays information about each bin, including its capacity, trash kind, most recent measurement, GPS position, and pick-up schedule.

Non-Functional requirement

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	According to IoT devices, usability is a unique and significant perspective for examining user needs, which may further improve design quality. Analyzing how well people interact with a product may help designers better understand customers' prospective demands for waste management, behavior, and experience in the design process when user experience is at the center..
NFR-2	**Security**	Utilize recyclable bottles. Utilize reusable shopping bags. Spend responsibly and recycle.Eat and drink from limited-use containers.
NFR-3	**Reliability**	Creating improved working conditions for garbage collectors and drivers is another aspect of smart waste management. Waste collectors will use their time more effectively by attending to bins that require service rather than travelling the same collection routes and servicing empty bins.
NFR-4	**Performance**	The smart sensors assess the fill levels in bins (along with other data) numerous times each day using ultrasonic technology. The sensors feed data to Senone's Smart Waste Management Software System, a robust cloud-based platform with data-driven daily operations and a waste management app, using a variety of IoT networks (NB-IoT, GPRS). As a consequence, customers receive data-driven decision-making services, and garbage collection routes, frequency, and truck loads are optimized, resulting in at least a 30% decrease in route length.
NFR-5	**Availability**	By creating and implementing robust hardware and gorgeous software, we enable cities, companies, and nations to manage garbage more intelligently.
NFR-6	**Scalability**	Using smart trash bins allows us to scale up and monitor the rubbish more efficiently, while also reducing the number of bins needed in towns and cities.