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

Date	09 October 2022
Team ID	PNT2022TMID10856
Project Name	Project- About 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	**Fitting IoT device in the trashcans.**	The IoT device need to be fixed in the dustbin with Water proof safety. The IoT device is Ultrasonic sensor. To send data to the cloud GPRS/GSM and GPS is used.
FR-2	**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, last measurement, GPS location and collection schedule or pick recognition.
FR-3	**Predictions for bin fulness**	It is a 24-hour monitoring system designed to keep an eye on the dumpster. If either of the containers is full, the dustbin sends an alert message to employees and the cloud. Employees can then empty the corresponding dumpster. Sensors in the bin can also recognise picks. so you can see when the bin was last collected With real-time data and predictions, you can eliminate overflowing bins and stop collecting half-empty ones.
FR-4	**Plan waste collection routes**	You are prepared to respond and schedule waste collection based on current bin fill levels and predictions of reaching full capacity. You can spot inconsistencies by comparing planned and executed routes.

Non-functional Requirements:

Following are the non-functional requirements of proposed solution

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	A smart solution has been presented to increase user experience, usability, and happiness by making waste sorting more straightforward and precise. It seeks to maximise usability while maintaining maximum functionality.
NFR-2	**Security**	Developing and deploying IoT-based smart waste management systems in cities can be a time-consuming and resource-intensive process. Many municipal IT departments will lack the resources and in-house expertise to support such a project.
NFR-3	**Reliability**	Creating better working conditions for waste collectors and drivers is another aspect of smart waste management. operates without issue in a predetermined environment, reducing the need for labour, emissions, fuel use, and traffic congestion.
NFR-4	**Performance**	The system will generate reliable reports, so increasing the system's effectiveness. The number of trips the garbage collection truck needs to make will be reduced by the real-time monitoring of the garbage level made possible by sensors and wireless communication. It will lessen the sum of the costs incurred for garbage collection.
NFR-5	**Availability**	Making the proposed waste management system as affordable as possible is another goal of this project. By doing this, we enable cities, companies, and nations to manage waste more intelligently.
NFR-6	**Scalability**	Using smart waste bins reduces the number of bins within towns and cities because we can monitor garbage 24 hours a day, seven days a week.

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