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

Team ID	PNT2022TMID20896
Project Name	Project - 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	Bin Inventory Expense	This is the expensive architecture to build as the bins are made up with sensors and other costly devices, so it requires more security settings as it requires more cost if we need to rebuild it.
FR-2	Bin Monitoring	The Dashboard displays real-time data on fill-levels of bins monitored by smart sensors. In addition to 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.. Sensors recognize picks as well; so you can check when the bin was last collected. With real-time data and predictions, you can eliminate the overflowing bins and stop collecting half-empty ones.
FR-3	Waste Collection pathways	The project automates waste collection pathway planning by predicting the bin fill levels, after it reaches the full capacity of the bin it is ready to respond and schedule the waste collection To identify inconsistencies planned pathways and executed pathways are compared.
FR-4	Essentiality	The IOT device must send data to the Smart city waste management team in order to check the level of the dustbin space and the area location where it currently moves , it must send indication level time to time for filling of the waste products ,the localized dustbin may vary from small dustbin to bigger truck as the IOT devices may eligible for both of them
FR-5	Bin distribution	Most optimal bin distribution is ensured , dense or sparse bin distribution areas are identified and all trash types are represented within a stand. Bin capacity or location can be adjusted based on historical data whenever necessary.
FR-6	Result	The garbage bin consist of IOT devices at the top and bottom of the garbage bin which helps to analyze the weight and the amount of space in the dustbin which helps the worker and the waste management to acquire date of waste products dropped by people at individual location in order to maintain an collect and cover a vast area of the city with the report givin by the garbage bins.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	This project helps in efficient and easy collection and disposal of waste; it also helps in keeping the environment clean and hygienic. Thus, preventing us from deadly diseases
NFR-2	**Security**	Without any channel crash the security need to be more particular as this is totally depend upon cloud service. This ensures level of assurance in data collection processing and data collection
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**	Ultra sound technology is used by smart sensors to measure the fill levels in bins several times a day. The sensor sends the data to sensor smart waste management system data-driven daily operations with the help of variety of IOT networks. To monitor the performance and encounter the queries customers are provided with data-driven and decision making prototypes.
NFR-5	**Availability**	Accessible through 24/7 by user and authorizer with proper internet connectivity
NFR-6	**Scalability**	As we are able to monitor the garbage 24/7 using smart waste bin it reduces the number of bins inside town thus it is cost effective and scalable