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

Date	15 October 2022
Team ID	PNT2022TMID34114
Project Name	Smart Waste Management 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	**Registration and Login**	➢ User needs to login to the app by using their Gmail. ➢ Registration needs to be done by giving their name, mobile number and their locality. This is the required field.
FR-2	**Subscription**	➢ Plans may vary based on the distance. ➢ A user is charged based on the number of times he/she disposes the waste.
FR-3	**Smart Bin Locations**	➢ Based on the locality entered by the user, nearby active smart bins can be viewed by using Google maps. ➢ The active bins will be highlighted in orange dots.
FR-4	**Bin Monitoring Details**	➢ This process gives a brief description of bins. ➢ When the user presses the orange dot, brief description of the bin will be popped up. It mainly includes the fill level of the bins and the types of waste to be disposed. ➢ When the user clicks the orange dot, he/she will be able to know whether the bin is full or empty. ➢ When the colour of dot changes to red, it represents that the bin is full and when the colour is green, it signifies that the bin is empty or semi filled.
FR-5	**Rating**	➢ Based on the efficient use, feasibility and interactions with the app, user can rate between 1-10.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Usability is a method for improving ease-of-use during the design process. Smart waste management prototype was built using IoT sensors and Cloud based Server running with custom software incorporating specialized algorithms and a graphical user interface. A model was simulated on a local machine network to check if the required goals can be met and if the proposed solution serves the purpose. So it assesses how easy user interfaces are to use
NFR-2	**Security**	➢ Buy reusable water bottles, straws and lunch containers reduce trash and use of non-recyclable plastics ➢ Choose to purchase from companies that value sustainable practices. ➢ Composting the food waste helps to provide you with a beneficial return on your investment of time and effort ➢ Shop eco-friendly with reusable bags
NFR-3	**Reliability**	Waste Management helps business make their supply chain more effective, improve ordering, reduce waste materials and save money. It works best for developing waste to energy recycling and landfill restoration solutions. It is suited for situations where a business
NFR-4	**Performance**	Sensors attached to the trash bin used to measure the fill level of the trash. Measured data is sent to the Cloud for further processing and analysis. By exploiting this data, trash collection can be planned as well as truck routes can be optimized. Thus a reduction in the number of waste collections needed by up to 80%, resulting in less manpower, emissions, fuel use and traffic congestion
NFR-5	**Availability**	By using sensors , cloud server and Real-time GPS assistance directs the garbage truck drivers to the pre-decided route. Hence the waste is collected before bins get filled and unhealthy conditions occur. So the waste is managed smarter and creates a pollution free environment
NFR-6	**Scalability**	The proposed system focuses on the implementation of sensor on preparing a community to effectively manage waste, maximize recycling, minimize waste, reduce consumption and ensures that products are made to be recycled back into nature or the marketplace. Thus it provides to be a user friendly and makes it cheaply available in the market.