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

Date	03 October 2022
Team ID	PNT2022TMID10141
Project Name	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	Expensive Garbage bins	This architecture is somewhat expensive to build because we are creating bins with expensive sensors and other devices. Therefore, this calls for more security settings and would be more expensive to rebuild.
FR-2	Monitoring System Implementation and Activities	The Google Street View function allows you to visit any bin at any time. All bins are shown on the map. Bins appear as green, orange, or red circles on the map. The Dashboard displays information about each bin, including its capacity, waste type, most recent measurement, GPS location, and pick-up schedule.
FR-3	Guide waste collection routes	Planning is crucial, since we must establish specific routes and sites where bins are collected after they are full. So, clearly sketch out the routes that the truck that collects trash must take. If everyone has a clear plan, there is no need to waste time and fuel looking for places.
FR-4	Separation of all kinds of Waste	Separating various types of garbage requires human responsibility, hence appropriate education must be offered. And dumpsters ought to be placed where they are needed in each site. And in particular, medical wastes need to be disposed of properly.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The use of sensors to gauge the trash can's fill level is the current state of technology in the field of smart waste management. Sent to the cloud for additional processing and analysis, measured data. Truck routes may be made more efficient and trash collection can be scheduled by using this data. IoT

		gadget confirms usability is a unique and important factor. Analysis of user requirements is crucial because it can help the design's quality.
NFR-2	**Security**	The degree of assurance in data gathering, processing, and transmission is ensured by security. Given that this is entirely dependent on cloud services, we must increase security with greater care to prevent channel crashes.
NFR-3	**Reliability**	Bettering the working conditions for waste collectors is a key component of smart waste management. Waste collectors can work more productively by attending to bins that require service rather than driving the same collection routes and filling empty bins. By looking after trash cans and keeping an eye on bin activities, this method is more dependable at all costs.
NFR-4	**Performance**	The Smart Sensors assess the fill levels in bins (along with other data) numerous times per day using ultrasound technology. The sensors transmit data to Sensor's Smart Waste Management Software System, a potent cloud-based platform with data-driven daily operations and a waste management app, using a range of IoT networks (NB IoT, GPRS). Customers are given the necessary data-driven and decision-making prototypes, which let users track performance and address customer needs.
NFR-5	**Availability**	The term "availability" refers to both already existing solutions and new renovation technologies that we include into the system that we are currently creating from scratch. Users were able to operate this system easily because it had a wide range of user-accessible solutions, including sensors, GPS detectors, and other devices. The term "availability" refers to both already existing solutions and new renovation technologies that we include into the system that we are currently creating from scratch.
NFR-6	**Scalability**	The number of bins in the town or city that we will monitor around-the-clock seven days a week and gather data from must be customized. Therefore, we must count all of the bins and provide services to each bin according to a proper rotational schedule.