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

Date	12 May 2023
Team ID	NM2023TMID01588
Project Name	Smart City waste management system connected with trash can

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Trash Can Monitoring	Monitor trash can fill level Monitor trash can temperature
FR-2	Trash Can Connectivity	Connect trash cans to the internet Establish communication protocol between trash cans and central system
FR-3	Route Optimization	Optimize trash collection routes based on real-time data Generate optimized collection schedules
FR-4	Alerting System	Send notifications to waste management personnel when trash cans are full or need maintenance Send notifications to residents when trash collection is scheduled or delayed
FR -5	Analytics and Reporting	Analyze and report on waste generation and collection trends Provide waste reduction recommendations
FR -6	Mobile Application	Provide a mobile app for residents to report issues with trash cans or request extra collection services Enable residents to view trash collection schedules and notifications

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system should be easy to use and navigate, with clear instructions and intuitive interfaces. It should be accessible to users with different levels of technical proficiency and physical abilities.
NFR-2	**Security**	The system should be secure and protect user data and transactions from unauthorized access or modification. It should comply with industry standards and best practices for data protection, encryption, and authentication.
NFR-3	**Reliability**	The system should be reliable and available for use at all times, with minimal downtime or errors. It should be able to recover quickly from any failures or disruptions, and provide accurate and consistent results.
NFR-4	**Performance**	The system should perform efficiently and respond quickly to user requests, with low latency and high throughput. It should be able to handle large volumes of traffic and data, and optimize resource utilization.
NFR-5	**Availability**	The system should be available for use by users at all times, with minimal downtime or maintenance periods. It should provide high availability and fault tolerance, and be able to handle traffic spikes or sudden increases in demand.
NFR-6	**Scalability**	The system should be able to scale up or down based on changing user needs and business requirements. It should be able to handle growing user bases and increasing data volumes, and adapt to new technologies and platforms.