PROJECT DESIGN PHASE II

SOLUTION REQUIREMENTS – FUCTIONAL & NON FUNCTIONAL

Date	14 October 2022
Team ID	PNT2022TMID16239
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	**Detailed bin inventory**	● We can see the bins anywhere from the street through the GPS location access in the google map. ● User can also see the details of the bins like what type of waste can be put in the particular bin , when the waste to collected according to the fill level of the bin etc,.
FR-2	**Monitoring of bin**	● For monitoring the bins we use an ultrasonic sensors which can monitor the fill level of the bin and to stop the overflow of the waste from the bin. ● When the bins are filled the system will send a message or an alert to the respective teams or authorities for necessary action.
FR-3	**Collection of waste**	● We can also monitor which bin is full and which bin is empty. ● So the waste truck can go and collect the only bin which contains the waste and through this collection process we same time and reduce fuel consumption.
FR-4	**Adjust bin distribution**	● Make sure that the bins are available at different places and distributed according to the requirements of the particular places . ● And also check the segregation of the renewable and non-renewable bins are available.
FR-5	**Schedules for waste collection**	● These devices help optimize the best possible route containing fully filled containers and create smart schedules for drivers. ● The selection also minimizes the need for trash collection staff because their duties are deduced. ● They can also alert the waste management companies or municipalities if an undesirable incident happens such as sudden temperature rise or displacement of the container by their GPS features.

- **Non-functional Requirements:**

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	● Usability of waste treatment is an important part in the smart cities. ● At present there are various waste sorting related smart applications are available,through this applications we can collect the feedback or user experience and we can further develop the design based on the feedback.
NFR-2	**Security**	● The waste collection system plays a major role in shaping and maintaining smart and sustainable cities. ● Using innovation and ingenuity ,we can improve the quality-of life today and secure a greener planet for future generation.
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**	● Smart waste management focuses on solving the solid waste management problems using sensors, intelligent monitoring systems, and more applications. ● IOT solution for solid waste management problems offer municipalities data intelligence and real-time insights.
NFR-5	**Availability**	● We can further develop the system for solid waste management using the data intelligence software and some hardware and make it more available for the future.
NFR-6	**Scalability**	● A versatile scalable smart waste-bins system based on resource -limited and the waste management could potentially lead to great improvements.