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

Date	03 October 2022
Team ID	PNT2022TMID40268
Project Name	Project – smart waste management system using iot
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 monitoring	The Dashboard shows data on the amount of fill in bins as it is being tracked by smart sensors. The application also forecasts when the bin will be full based on past data, which is one of the capabilities that even the greatest waste management software does not offer. As picks are also recognised by the sensors, you can determine when the bin was last emptied. You can get rid of the overflowing bins and cease collecting half-empty ones with real-time data and predictions.
FR-2	Bin inventory	On the map, you can see every monitored bin and stand, and you can use Google Street View at any time to visit them. On the map, bins or stands appear as green, orange, or red circles. The Dashboard displays information about each bin, including its capacity, trash kind, most recent measurement, GPS location, and pick-up schedule.
FR-3	Eliminate zero level bins	Get rid of the collection of half-empty trash cans. Picks are recognised by sensors. We are able to show you how filled the bins you collect are by utilising real-time data on fill-levels and pick recognition.
FR-4	Optimize the route to collect	Route planning for rubbish pickup is semi-automated using the tool. You are prepared to act and arrange for garbage collection based on the levels of bin fill that are now present and forecasts of approaching capacity. To find any discrepancies, compare the planned and actual routes.

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 unique and significant perspective to examine user requirements, which can further enhance the design quality, according to IoT devices. The study of customers' product usability can help designers better understand users' possible

		demands in waste management, behaviour, and experience during the design process, which places a focus on the user experience.
NFR-2	**Reliability**	Creating better working conditions for waste collectors and drivers is another aspect of smart waste management. Waste collectors will use their time more effectively by attending to bins that require service rather than travelling the same collection routes and servicing empty bins.
NFR-3	**Performance**	The Smart Sensors assess the fill levels in bins along with other data numerous times per day using ultrasound technology. The sensors feed data to Smart Waste Management Software System, a robust cloud-based platform with data-driven daily operations and a waste management app, using a variety of IoT networks. As a result, customers receive data-driven decision-making services, and waste collection routes, frequency, and vehicle loads are optimised, resulting in at least a 30% route reduction.
NFR-4	**Scalability**	We can add more bins into this system