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

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| Date | 03 October 2022 |
| Team ID | PNT2022TMID04593 |
| Project Name | Project – 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 | Details of the bin | You can see bin details in the Dashboard – capacity, waste type, last measurement, GPS location and collection schedule or pick recognition. |
| FR-2 | Bin Monitoring | With real-time data and predictions we can eliminate the risk of bin overflowing and stop collecting half empty ones. |
| FR-3 | Cost of bins | It helps to identify bins that drive up your collection costs. The tool calculates a rating for each bin in terms of collection costs. |
| FR-4 | Adjusting level of Garbage | Ensure the most optimal distribution of bins. Identify areas with either dense or sparse bin distribution. Make sure all trash types are represented within a stand. Based on the historical data, you can adjust bin capacity or location where necessary. |
| FR-5 | Eliminate insufficient garbage | Eliminate the collection of half-empty bins. The sensors recognize picks. By using real time data on fill-levels and pick recognition, we can show you how full the bins you collect are. The report shows how full the bin was when picked. You immediately see any inefficient picks below 80% full. |
| FR-6 | Planning for waste collection | The application semi-automates waste collection route planning. Based on current bin fill levels and predictions of reaching full capacity, you are ready to respond and schedule waste collection. You can compare planned vs. executed routes to identify any inconsistencies. |

**Non-functional Requirements:**

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

| FR No. | Non-Functional Requirement | Description |
|---|---|---|
| NFR-1 | **Usability** | This Smart Waste Management technology allows to empty bins before they become overflowing with trash or recycling, and before infestation becomes an issue. |
| NFR-2 | **Security** | As the data processed is all about wastes level and bin location there is no fear of attacks in this mechanism. Innovations in waste reduction technologies allow us to better monitor, prevent, and manage our waste. |
| NFR-3 | **Reliability** | Smart Bins help to create a cleaner, safer, more hygienic environment and enhanced operational efficiency while reducing management costs, resources, and road-side emissions. |
| NFR-4 | **Performance** | 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-5 | **Availability** | The system should be available all the time when required. The admin end system should have a high speed connection to receive all data and process all complaints and bin data . |
| NFR-6 | **Scalability** | Using smart bin reduces the number of bins inside cities because we able to monitor the garbage 24/7 more efficient and scalability when we move smarter |