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

| Date | 4 November 2022 |
|---|---|
| Team ID | PNT2022TMID05259 |
| Project Name | SMART WASTE MANAGEMENT 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 | User Registration | ○ User needs to login by using the gmail to resolve the queries<br>○ Registration needs to be done by giving their name, mobile number and locality |
| FR-2 | User Confirmation | ○ Confirmation about the received queries through message. |
| FR-3 | Smart bin location | ○ Bin can be viewed through Google maps.<br>○ Bins can be tracked using GPS |
| FR-4 | Monitoring details | ○ This process gives a brief description about the bins.<br>○ Using Capacitance sensor the level of the bin can be measured<br>○ Ultrasonic sensor is used for opening and closing of the lid for the bin<br>○ Using Moisture sensor it determines whether the waste is moist or dry |
| FR-5 | Truck driver | ○ Truck driver should login to the web portal by giving their name and the id, vehicle number<br>○ After the completion of work they should report to the admin about the waste has been collected.<br>○ Verification is done by admin via Message through the truck driver portal |

| FR-6 | Admin | O Admin should monitor the work which has been done by the truck driver<br>O In emergency situation , admin can allot the truck driver to collect the waste |
|------|-------|---|

**Non-functional Requirements:**

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

| FR No. | Non-Functional Requirement | Description |
|--------|----------------------------|-------------|
| NFR-1 | Usability | IoT device verifies that usability is a special and important perspective to analyze user requirements, which can further improve the design quality. |
| NFR-2 | Security | We propose a Secure Incentive based Waste monitoring system to encourage garbage segregation at the initial level. |
| 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 | The Smart Sensors use ultrasound technology to measure the fill levels.  focuses on solving the previously mentioned solid waste management problems using sensors, intelligent monitoring systems, and mobile applications. |
| NFR-5 | Availability | By developing & deploying resilient hardware and beautiful software we empower cities, businesses, and countries to manage waste smarter |
| NFR-6 | Scalability | Using smart waste bins reduce the number of bins inside town , cities as we are monitoring the whole 24 hours of 7days<br>Smart waste bins are more cost efficient  and scalability |