**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

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| Date | 20 May 2023 |
| Team ID | NM2023TMID13373 |
| Project Name | IoT based smart city waste management system with connected trash cans |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

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| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | User Registration | Registration through Form  Registration through Gmail  Registration through LinkedIN |
| FR-2 | User Confirmation | Confirmation via Email  Confirmation via OTP |
| FR-3 |  | Integration of weather data from reliable sources  Real-time acquisition and processing of weather data  Mapping weather data to lighting control parameters |
| FR-4 | Adaptive Lighting Control | Monitoring ambient light conditions  Adjusting brightness and color temperature based on weather and lighting conditions  Smart scheduling for energy-efficient operation |
| FR-5 | Remote Management | Remote monitoring of street lighting system  Remote control and configuration of lighting settings  Fault detection and remote troubleshooting |
| FR-6 | Energy Efficiency | Energy consumption optimization through intelligent control algorithms  Motion detection for adaptive lighting in low-traffic areas  Integration with renewable energy sources for sustainable operation |

**Non-functional Requirements:**

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

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| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | The system should have a user-friendly interface and intuitive navigation for easy usage by both administrators and end-users. |
| NFR-2 | **Security** | The system should have robust security measures in place to protect user data, prevent unauthorized access, and ensure secure communication |
| NFR-3 | **Reliability** | The system should be highly reliable, with minimal downtime and a low probability of failure, to ensure continuous operation of the street lighting system. |
| NFR-4 | **Performance** | The system should exhibit optimal performance, with fast response times and efficient processing of data, to meet real-time lighting adjustment requirements. |
| NFR-5 | **Availability** | The system should be available and accessible to users at all times, with a high level of uptime and minimal maintenance windows. |
| NFR-6 | **Scalability** | The system should be scalable to accommodate the addition of more street lights and the growth of the overall infrastructure, without compromising performance or functionality. |