

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

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| Date | 23 June 2025 |
| Team ID | LTVIP2025TMID37446 |
| Project Name | Sustainable Smart-city AI Assistant using IBM Granite LLM |
| 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) |
|--------|--|---|
| FR1 | Smart City Chat Assistant | FR1.1: Users can ask questions about sustainability practices |
| | | FR1.2: AI assistant responds with relevant smart city data |
| | | FR1.3: Handles multilingual queries and gives localised answers |
| FR2 | Eco Tips Generation | FR2.1: AI generates daily/weekly eco-friendly tips |
| | | FR2.2: Users can view and bookmark tips |
| FR3 | KPI Forecasting (Energy, Water, Waste) | FR3.1: Users can request future predictions on sustainability KPIs |
| | | FR3.2: Graphical representation of forecast data |
| FR4 | Sustainability Report Generator | FR4.1: AI generates summary reports based on city metrics |
| | | FR4.2: Users can download/share reports |
| FR5 | Interactive Dashboard with Data Visualizations | FR5.1: Real-time data display of smart city metrics (e.g., air quality) |
| | | FR5.2: Filter/search by zones or categories |
| FR6 | User Authentication & History | FR6.1: Login/Register functionality |
| | | FR6.2: User query and report history management |
| FR7 | Admin Interface (Optional) | FR7.1: Manage tip content and monitor user queries |

Non-functional Requirements:

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

| NFR No. | Non-Functional Requirement | Description |
|---------|----------------------------|--|
| NFR1 | Performance | System must respond to user queries within 3 seconds |
| NFR2 | Availability | The AI Assistant should be available 99.5% of the time |
| NFR3 | Scalability | Must support at least 100 concurrent users initially |
| NFR4 | Usability | UI must be accessible, responsive, and mobile-friendly |
| NFR5 | Maintainability | Codebase must support easy updates and integration of new features |
| NFR6 | Security | All data transmissions should be encrypted (HTTPS), with user auth |
| NFR7 | Interoperability | Should integrate external APIs like smart city sensors, sustainability DBs |
| NFR8 | Reliability | AI responses should be consistently accurate and backed by training data |