**Project Design Phase-II**

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

| Date | 25 JUNE 2025 |
| --- | --- |
| Team ID | LTVIP2025TMID31965 |
| Project Name | Citizen AI – Intelligent Citizen Engagement Platform |
| 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 | Conversational Civic Assistant | - Accept natural language queries from citizens - Generate contextual responses using IBM Granite model |
| FR-2 | Sentiment Analysis Module | - Analyze sentiment of each query (Positive, Neutral, Negative) - Store query, response, and sentiment to JSON |
| FR-3 | Analytics & Dashboard | - Visualize aggregated sentiment statistics - Show interaction trends and daily activity via charts |
| FR-4 | Chatbot Personalization (Admin Control) | - Allow switching between models (IBM/Groq) - Customize tone and response detail level |
| FR-5 | Model Fallback Handling | - Detect GPU availability and use IBM Granite - Automatically fallback to Groq API if GPU/model is unavailable |
| FR-6 | Interaction Logging | - Log each session with timestamp - Provide exportable feedback structure |

**Non-functional Requirements:**

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

| **FR No.** | **Non-Functional Requirement** | **Description** |
| --- | --- | --- |
| NFR-1 | Usability | Simple, clean, and interactive UI using Streamlit |
| NFR-2 | Security | Secure model/API tokens using .env; restricted backend access |
| NFR-3 | Reliability | Fallback to Groq API ensures uninterrupted functionality |
| NFR-4 | Performance | Async FastAPI + GPU execution; response within 3 seconds |
| NFR-5 | Availability | Always-on service using model fallback logic and error handling |
| NFR-6 | Scalability | Modular backend; easily extendable for new features or other LLMs |