# Project Design Phase-II

## Data Flow Diagram & User Stories

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| **Date** | 10 June 2025 |
| **Team ID** | LTVIP2025TMID31087 |
| **Project Name** | Sustainable Smart City Assistant Using IBM Granite LLM |
| **Maximum Marks** | 4 Marks |

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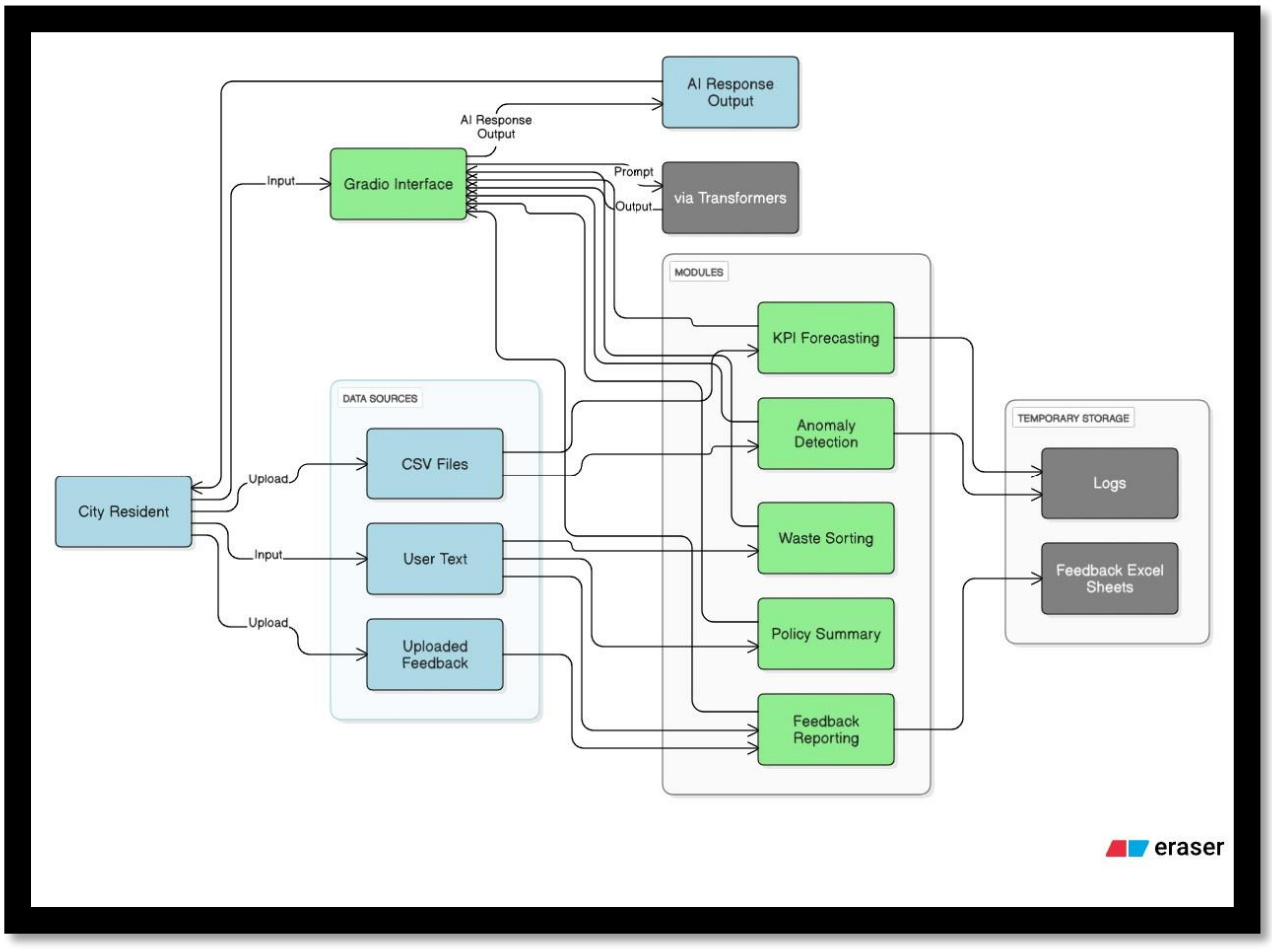
**1. Data Flow Diagram (DFD)**

**Level 0 – Context Diagram**

The context-level DFD provides a high-level overview of the system. It illustrates how users interact with the system and how external entities exchange information with the assistant.




**External Entities:**

- **City Resident/User** – Provides input via Gradio UI tabs
- **Granite LLM** – Processes prompts and returns contextual AI responses

**System Boundaries:**

- Gradio frontend and model-inference logic form the system boundary.
- Data files (CSV, feedback Excel, etc.) are processed within.

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**2. Detailed User Stories**

The following table presents structured and prioritized user stories based on actual features of the assistant. Each story describes how a user interacts with a specific module of the system.

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance Criteria | Priority | Sprint |
|---|---|---|---|---|---|---|
| **Urban Citizen** | Waste Sorting | USN-01 | As a user, I want to enter an item name to receive disposal and recycling instructions. | The system should return proper waste disposal methods with recycling tips for any entered item. | High | Sprint -1 |
| **Urban Citizen** | Energy Consumption Advisory | USN-02 | As a user, I want to describe my energy usage to get personalized energysaving tips. | Based on my input, I receive at least 5 tailored energy conservation recommendations. | High | Sprint -1 |
| **Urban Citizen** | Citizen Feedback Submission | USN-03 | As a citizen, I want to submit public issues under proper categories. | The issue is recorded with category tagging and confirmation message is displayed. | High | Sprint -1 |
| **Urban Citizen** | Green Challenges | USN-04 | As a user, I want to receive a | A new and random task related to eco- | Medium | Sprint -2 |

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| | | | daily sustainability challenge. | lifestyle is generated upon each request. | | |
| **Urban Citizen** | Policy Summarization | USN-05 | As a user, I want to paste a government policy document and receive simplified bullet points. | Summary output includes 3–5 readable points explaining the core contents of the policy. | High | Sprint -2 |
| **Urban Citizen** | Resource Usage Forecasting | USN-06 | As a user, I want to upload usage data and forecast future resource consumption . | A projection of the next period's usage (based on uploaded CSV and linear model) is displayed. | High | Sprint -2 |
| **Urban Citizen** | Anomaly Detection in Usage Data | USN-07 | As a user, I want to detect unusual usage patterns in my uploaded utility data. | If any significant deviations (2σ) are found, the system highlights those as anomalies with details. | High | Sprint -2 |

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| **Urban Citizen** | Eco Tips Generator | USN-08 | As a user, I want to input an environmental topic and get actionable sustainability tips. | The system generates three relevant and practical ecoliving tips based on the input keyword. | Medium | Sprint-2 |
| **Urban Citizen** | Sustainability Q&A Chat | USN-09 | As a user, I want to ask questions about urban sustainability and get intelligent responses. | The system returns relevant, natural language answers using IBM Granite LLM. | Medium | Sprint-2 |
| **Admin (Optional)** | Feedback Data Management | USN-10 | As an admin, I want to download all citizen feedback for record and analysis. | Clicking "Download Feedback" triggers an Excel download with timestamped entries. | Medium | Sprint-2 |