Project Design Phase-II

Data Flow Diagram & User Stories

Date	10 June 2025
Team ID	LTVIP2025TMID30991
Project Name	Sustainable Smart City Assistant Using IBM Granite LLM
Maximum Marks	4 Marks

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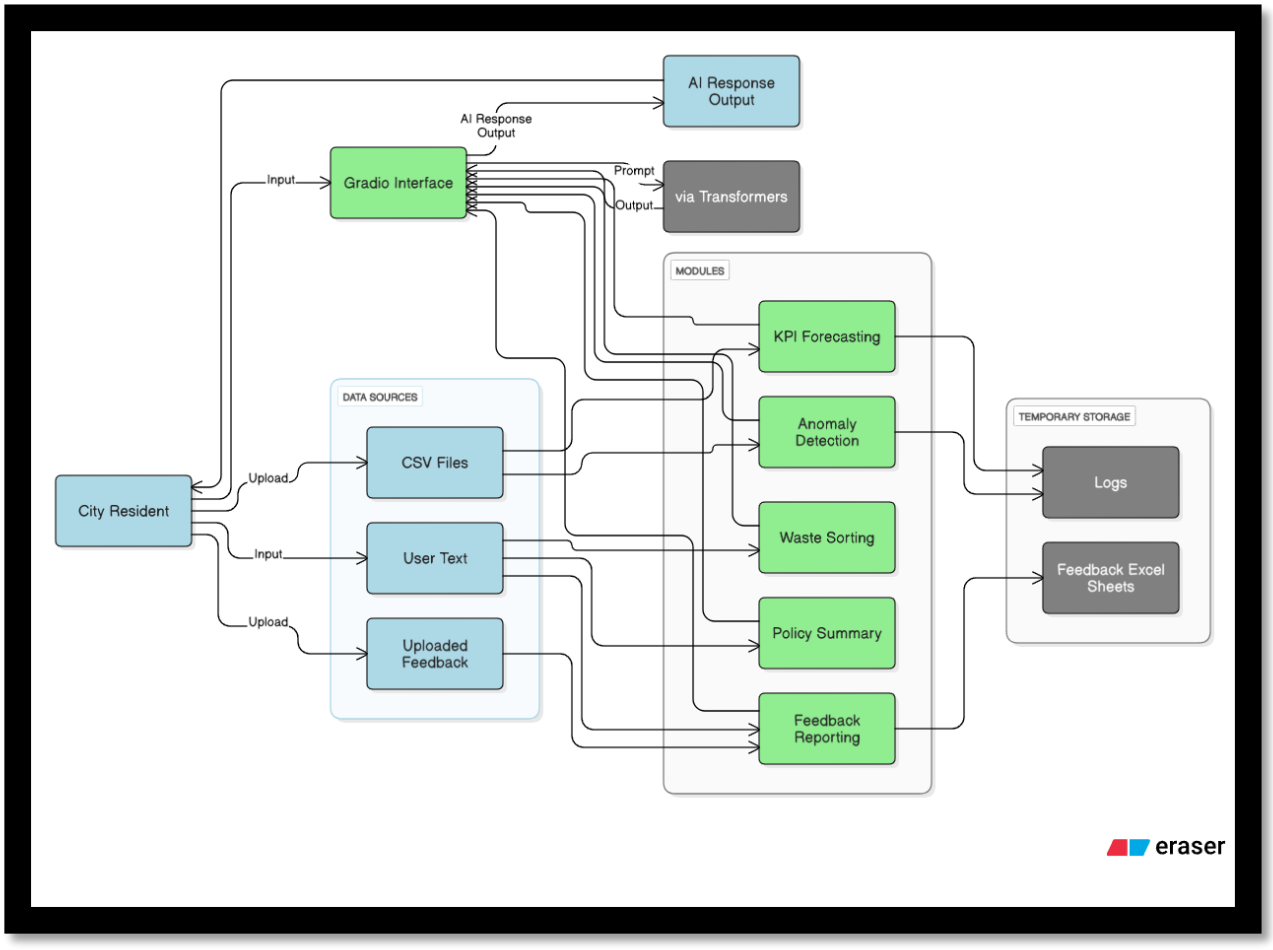
1. Data Flow Diagram (DFD)

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 energy-saving 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

			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
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 eco-living 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