

Project Design Phase Solution Architecture

Date	26 June 2025
Team ID	LTVIP2025TMID37089
Project Name	Sustainable Smart City Assistant using IBM Granite LLM
Maximum Marks	4 Marks

Solution Architecture:

The Sustainable Smart City Assistant is a generative AI-based system powered by IBM Granite LLM, designed to provide intelligent support for urban governance and sustainability.

It features an interactive user interface built using Gradio, where users can log in, select assistant modes, and input natural language queries.

The backend logic, developed in Python, processes these inputs to perform tasks such as eco-guidance, civic complaint classification, and department routing.

The IBM Granite model is hosted via Hugging Face Transformers and supports high-performance inference on CPU or GPU. Deployment is handled through Gradio's share feature or platforms like Google Colab, with scalability options using FastAPI or Hugging Face Spaces.

The system is modular and extensible, making it suitable for future enhancements such as energy monitoring, image integration, or chatbot expansion.

Example - Solution Architecture Diagram:

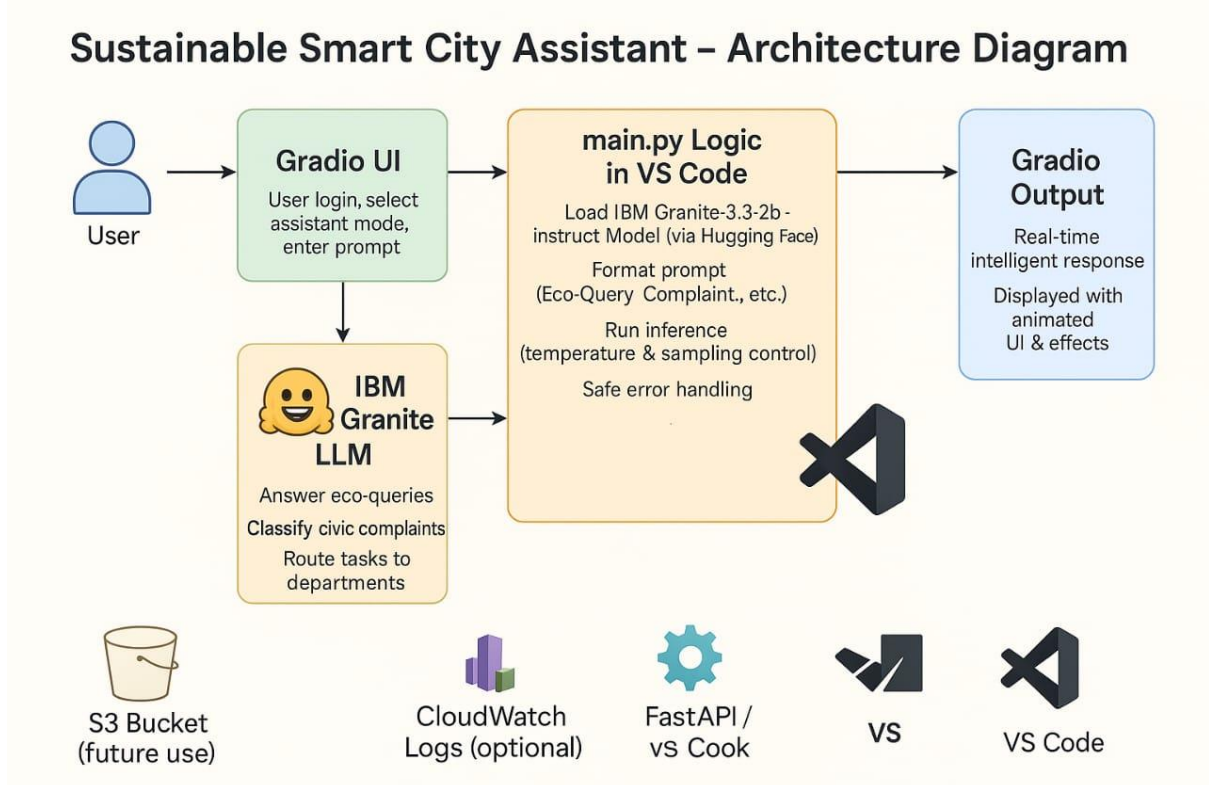


Figure 1: Architecture and data flow of the Smart City Assistant