

## Project Design Phase

### Solution Architecture

Date	27 June 2025
Team ID	LTVIP2025TMID21064
Project Name	Citizen AI – Intelligent Citizen Engagement Platform
Maximum Marks	2 Marks

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#### Solution Architecture

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

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#### Citizen AI – Solution Architecture Description

Citizen AI is a generative AI-based platform designed to revolutionize citizen engagement with government services. The architecture is built using a modular and scalable design to ensure real-time interactions, sentiment analysis, and data visualization.

The backend is powered by **FastAPI** and integrates with **Hugging Face's IBM Granite 3.3-2B Instruct model** via API for generating contextual, personalized responses to citizen queries and complaints.

A **Google Collab-based pipeline** handles the AI interaction and sentiment classification, while **Chart.js** and **JavaScript** drive the dynamic dashboard that displays real-time analytics on citizen sentiment. The front end is built with HTML and CSS, delivering a clean, responsive interface for user engagement.

The system supports:

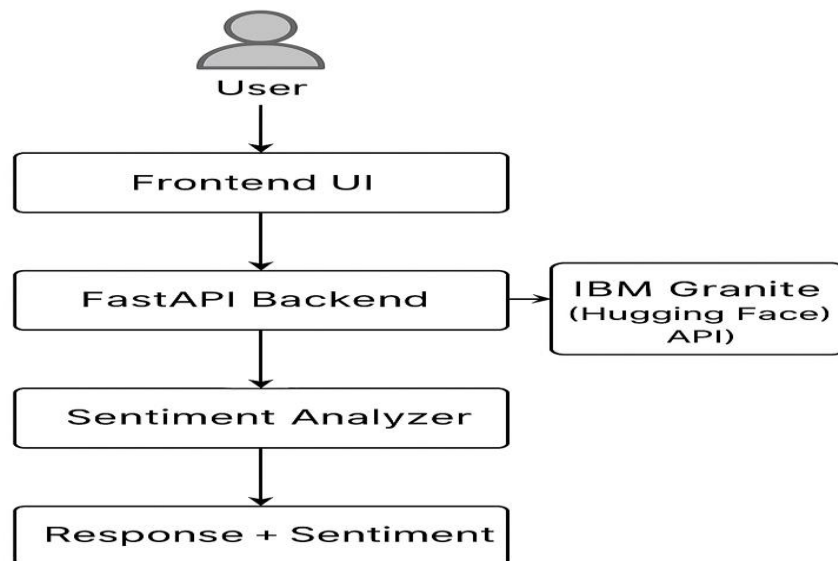
- Live sentiment tracking and dashboard updates.

- Secure, asynchronous communication between frontend and backend via REST APIs.
- Dynamic response generation and analytics visualization.

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### Citizen AI – Solution Architecture Diagram

## **Solution Architecture Citizen AI**



## **Solution Architecture Citizen AI**

**Figure 1:** Architecture and data flow of the Citizen AI intelligent assistant platform.