

IBM-Project-CitizenAI-Documentation

Citizen AI – Intelligent Citizen Engagement Platform

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1. Abstract

Citizen AI is an intelligent citizen engagement platform built using IBM Granite models, IBM Watson, and Flask. It enables governments to interact seamlessly with the public through real-time AI-driven communication. The system provides natural language responses to citizen queries, performs sentiment analysis on feedback, and visualizes insights through a dynamic analytics dashboard. By automating repetitive interactions and offering data-driven insights, Citizen AI enhances service delivery, strengthens transparency, and builds citizen trust in digital governance.

2. Problem Statement

Governments often face challenges in effectively managing large volumes of citizen inquiries and feedback. Traditional

systems lack scalability, responsiveness, and real-time insights, leading to delays and reduced satisfaction. Citizens may feel disconnected from government processes, while policymakers struggle to track public sentiment efficiently. There is a need for an AI-powered engagement platform that streamlines citizen interactions, provides reliable information, and empowers data-driven governance.

3. Objectives

- To provide a real-time AI assistant for citizen–government interaction.
- To analyze and classify public sentiment (positive, neutral, negative).
- To visualize citizen feedback through an interactive dashboard.
- To improve efficiency, transparency, and trust in government processes.
- To deliver a scalable and secure citizen engagement platform.

4. System Design & Architecture

The Citizen AI system integrates multiple components:

- Frontend (Flask Web App): User-friendly interface for citizens to chat, submit queries, and provide feedback.
- Backend (Python APIs): Processes input, connects with AI models, and returns responses.
- AI Models (IBM Granite, IBM Watson NLP): Handle natural language understanding, response generation, and sentiment analysis.

- Analytics Dashboard (Matplotlib/Chart.js): Displays real-time visualizations of feedback, trends, and sentiment distribution.

5. Modules Explanation

◆ Scenario 1: Real-Time Conversational AI Assistant

Provides instant, AI-generated responses to citizen queries regarding services, policies, and civic issues. Available 24/7 for seamless engagement.

◆ Scenario 2: Citizen Sentiment Analysis

Analyzes feedback text to classify sentiment as Positive, Neutral, or Negative. Aggregated results highlight satisfaction levels and problem areas.

◆ Scenario 3: Dynamic Dashboard

Visualizes citizen interactions and sentiment trends in real-time. Provides actionable insights for government officials to improve service delivery.

6. Testing

- Unit Testing: Input → Response accuracy for AI assistant.
- Sentiment Testing: Correct classification of feedback into sentiment categories.
- Dashboard Testing: Accuracy of visualizations and trend tracking.

- Error Handling: Invalid inputs, missing data, or system downtime scenarios.

7. Future Enhancements

- Voice-enabled citizen assistant.
- Multilingual support for diverse populations.
- Integration with SMS and WhatsApp for wider accessibility.
- Predictive analytics for identifying emerging civic issues.
- Blockchain-based secure citizen feedback records.

8. Output

The screenshot displays a web application interface for 'City Analysis & Citizen Services AI'. The browser tabs show 'CitizenAI.py - Colab' and 'Gradio'. The address bar indicates the URL '57a0bf638d4b11d144.gradio.live'. The application has two tabs: 'City Analysis' (active) and 'Citizen Services'. In the 'City Analysis' tab, there is a text input field labeled 'Enter City Name' containing the text 'thanjavur'. Below the input field is a button labeled 'Analyze City'. To the right of the input field, a scrollable box titled 'City Analysis (Crime Index & Accidents)' displays the analysis results. The results are organized into two main sections: '1. Crime Index and Safety Statistics' and '2. Accident Rates and Traffic Safety Information'. The first section provides a detailed overview of the crime rate, population, police force, and common crimes in Thanjavur. The second section provides information on road safety and traffic accidents.

City Analysis (Crime Index & Accidents)

1. Crime Index and Safety Statistics:

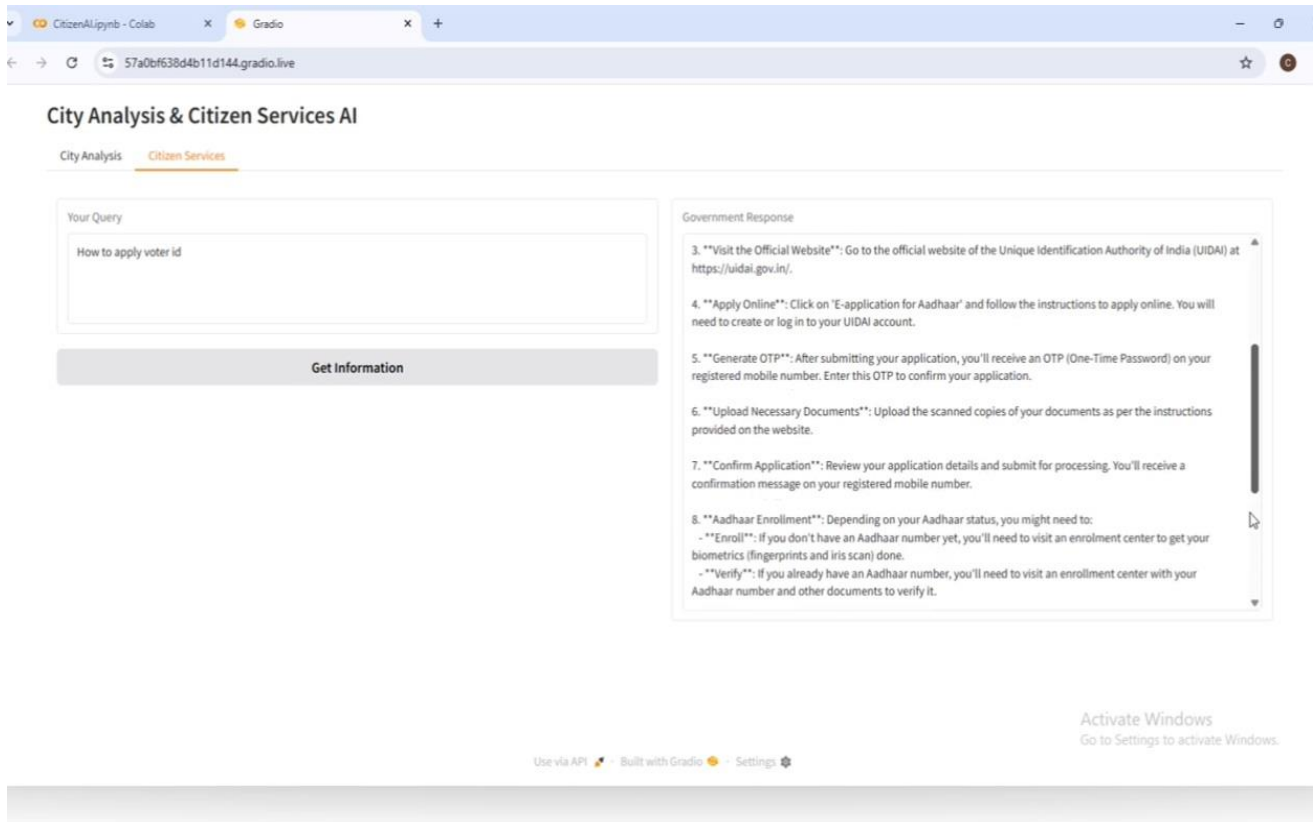
- **Crime Rate:** Thanjavur, being an urban city in Tamil Nadu, India, has a crime rate comparable to other large cities in the country. According to the National Crime Records Bureau (NCRB), the city's Crime Index (2019) was 122, which places it in the Category 'High'.
- **Safety Statistics:** The city has a population of approximately 1.5 million, with a police force of around 1,000 personnel. The police-to-population ratio is approximately 0.07, which is slightly below the recommended ratio of 0.1 (as per NCRB guidelines).
- **Crime Types:** Common crimes in Thanjavur include theft, housebreakings, and motor vehicle thefts. Robberies and offenses against women are less frequent. The incidence of serious crimes like murder, rape, and kidnapping is relatively low compared to national averages.
- **Law Enforcement:** Thanjavur Police Department has been working to improve its response capacity and community policing strategies through initiatives such as the 'Police-Community Partnership' program. They have also modernized their infrastructure and equipped their personnel with advanced technology to enhance crime prevention and detection capabilities.
- **Recommendations:** To further enhance safety, the city administration should consider increasing the police-to-population ratio, investing in more community policing initiatives, and maintaining and upgrading police stations and vehicles.

2. Accident Rates and Traffic Safety Information:

- **Road Safety:** The city's traffic safety is primarily assessed by the number of road accidents, fatalities, and injuries. According to the Tamil Nadu State Traffic Police (STP), there were 1,000 road accidents reported in the city in 2019, resulting in 50 fatalities and 100 injuries.

Use via API • Built with Gradio • Settings

Activate Windows
Go to Settings to activate Windows.



9. Conclusion

Citizen AI represents a step towards smarter governance by combining AI-driven communication, sentiment analysis, and data visualization. It empowers governments to listen to citizens effectively, respond efficiently, and make informed decisions. With future enhancements, Citizen AI can evolve into a trusted digital governance platform that strengthens citizen trust and fosters transparency.