

CITIZEN AI –

INTELLIGENT CITIZEN ENGAGEMENT PLATFORM

Project Documentation

1. Introduction

Citizen AI is an innovative platform that leverages artificial intelligence to enhance citizen engagement and government service delivery. It provides personalized services, intelligent query resolution, and easy access to information, promoting transparency and efficiency. By streamlining interactions, Citizen AI improves the overall citizen experience and fosters a more responsive government.

Citizen AI is a powerful platform that can revolutionize citizen engagement and government service delivery. By providing a personalized, intelligent, and efficient way for citizens to interact with government services, Citizen AI can improve the overall citizen

experience and promote transparency and accountability.

Citizen AI is an intelligent platform that revolutionizes government-citizen

interactions through AI-driven responses, sentiment analysis and real-time analytics. It provides

personalized services, efficient query resolution and easy access to information, promoting

transparency and trust. This platform enhances citizen engagement, fostering a more responsive

government.

Project Title: Citizen AI - Intelligent Citizen Engagement Platform.

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2. Project Overview

Purpose:

Citizen AI is designed to empower individuals and communities by promoting responsible, transparent, and inclusive use of artificial intelligence. It supports citizens in understanding AI-driven decisions, encourages ethical engagement, and provides accessible AI-driven services that improve governance, education, and social well-being.

Citizen AI is to empower citizens and governments with an intelligent engagement platform that fosters transparent communication, participatory governance, and community collaboration. By leveraging AI and real-time data, the platform helps governments understand citizen needs, gather feedback, and provide personalized services, while enabling citizens to

actively participate in decision-making.

Citizen AI bridges the gap between citizens and officials by offering policy

summaries, feedback loops, service updates, and predictive insights for improved governance.

Ultimately, this assistant enhances civic trust, inclusivity, and responsiveness in modern smart societies.

Features:

Conversational Interface:

Natural language chat for citizens and officials to ask questions, get updates, and access services.

Policy Summarization:

Transforms lengthy government documents into simplified, actionable insights.

Citizen Feedback Loop:

Collects, analyzes, and reports citizen feedback to inform public policies and service delivery.

Community Engagement Insights:

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Community Engagement Insights:

LLM Integration (IBM Watsonx Granite):

For natural language queries, report generation, and policy simplification.

Vector Search (Pinecone):

Stores and retrieves public policy and citizen documents for semantic search.

ML Modules:

Forecasting citizen service demand and detecting anomalies in public sentiment.

4. Setup Instructions

Prerequisites:

- ❑ Python 3.9 or later
- ❑ pip and virtual environment tools
- ❑ API keys for IBM Watsonx and Pinecone
- ❑ Internet access to access cloud services

Installation Process:

- ❑ Clone the repository
- ❑ Install dependencies from requirements.txt
- ❑ Create a .env file and configure credentials
- ❑ Run the backend server using Fast API
- ❑ Launch the frontend via Stream lit
- ❑ Upload data and interact with the modules

5. Folder Structure

- ❑ app/ → All backend logic (FastAPI routes, models, utils).
- ❑ ui/ → All citizen-facing frontend components (Streamlit pages).
- ❑ tests/ → Unit/API tests.
- ❑ data/ → Example policies, citizen feedback, etc.

📄 docs/ → Documentation and guides

6. Running the Application

📄 Start FastAPI backend

📄 Launch Streamlit citizen dashboard

📄 Citizens upload petitions, submit feedback, or chat with the assistant

📄 Officials view reports, trends, and service prediction

7. API Documentation

POST /chat/ask – Query policy, service, or governance issues

POST /upload-doc – Upload petitions or documents for summarization

GET /search-docs – Semantic search across public records

POST /submit-feedback – Citizens submit structured or open feedback

GET /citizen-insights – Returns aggregated sentiment a

8. Authentication

- ☐ Token-based authentication for citizens
- ☐ Role-based access (citizen, admin, policymaker)
- ☐ Optional OAuth2 integration

9. User Interface

- ☐ Citizen-friendly portal with chat, service forms, dashboards
- ☐ Feedback visualization and real-time updates
- ☐ Downloadable policy reports and service updates

10. Testing

- ☐ Unit tests for citizen queries and policy summaries
- ☐ API tests for service request handling
- ☐ Usability testing with citizen interaction scenarios

11.Screenshot:

Provide screenshot and Demo Link showcasing the application features and

design. Here, The Project Documentation, demo link and screenshot have been added in the

GitHub repository for better understanding of the systems.

12. Objectives

- ☐ Promote ethical and transparent AI adoption in governance and daily life.
- ☐ Improve citizen literacy in AI through interactive education
- ☐ Build a trustworthy AI assistant for citizens, policymakers, and communities.
- ☐ Ensure fairness, inclusivity, and accountability in AI systems.
- ☐ Provide real-time insights into policies, bias detection, and social impact.

13. Scope

Citizens: Personalized guidance, AI literacy modules, easy-to-read policy summaries.

Policymakers: Decision support with forecasting, fairness analysis, and community feedback.

Researchers & NGOs: Data access for bias analysis, ethical AI benchmarking.

Global Applicability: Can be deployed in smart cities, education systems, and digital governance platforms.

14. Problem Statement

❑ With rapid AI adoption, citizens face challenges like:

❑ Lack of AI literacy and awareness.

❑ Difficulty in understanding complex policies and AI decisions.

❑ Risk of bias, discrimination, and misuse of AI.

❑ Limited channels for citizen participation in AI governance.

❑ Citizen AI addresses these problems by providing a transparent, inclusive, and accessible AI ecosystem.

15. Use Case Scenarios

Policy Explanation: A citizen uploads a complex AI-related policy 'n gets a simple summary.

Fairness Checker: A government uploads a hiring dataset 'n tool detects potential gender bias

AI Literacy Hub: A student uses the chatbot to learn about responsible AI.

Community Feedback: Citizens submit feedback on a new AI-based public service 'n

policymakers see summarized insights.

Impact Forecasting: Predicting how automation will affect jobs in a local community.

16. Technology Stack

Frontend: Streamlit / Gradio (interactive dashboards).

Backend: FastAPI (REST APIs, async performance).

LLM Integration: IBM Watsonx Granite for summarization & natural language interaction.

Database: Pinecone (vector DB for semantic search), PostgreSQL (user/feedback data).

ML Models: Scikit-learn, pandas, matplotlib (forecasting, anomaly detection).

Authentication: OAuth2, JWT tokens.

Deployment: Docker, Kubernetes, IBM Cloud.

17. Performance Metrics

☐ Accuracy of Summarization (e.g., BLEU/ROUGE scores for policy summaries).

☐ Bias Detection Precision/Recall (ability to identify unfair datasets).

☐ System Response Time (chatbot latency in ms).

☐ User Engagement Metrics (feedback responses, number of queries).

☐ Scalability (how many simultaneous citizens can use it).

18. Limitations

☐ Dependent on quality of training data 'n risk of AI misinterpretation

☐ Cloud/API dependency may limit offline use.

☐ Bias detection is probabilistic, not absolute.

- ❑ High compute cost for large-scale real-time forecasting.
- ❑ User trust must be continuously built through transparency.

19. Known Issues

- ❑ Limited support for regional languages/local dialects.
- ❑ Large files slow down summarization.
- ❑ Occasional inaccuracies in bias/anomaly detection.
- ❑ Requires stable internet for API-based services.

20. Future Enhancements

- ❑ Multilingual support for all major world languages.
- ❑ Integration with voice-based interfaces for accessibility.
- ❑ AI explainability module (why the AI made a decision).
- ❑ Expansion to IOT devices for smart citizen services.
- ❑ Gamified AI literacy programs for students.

21. References

IBM Watsonx Documentation

EU Guidelines on Trustworthy AI (2020)

UNESCO Report on AI Ethics (2021)

IEEE Ethically Aligned Design Guidelines (2022)

Open AI Responsible AI Practices

22. Conclusion

Citizen AI is a transformative initiative aimed at bridging the gap between

artificial intelligence and society. By making AI transparent, inclusive, and ethical, it empowers

citizens to trust, use, and shape AI technologies responsibly. Through its features-policy

summarization, bias detection, forecasting, and citizen engagement-it creates a balanced

ecosystem where AI serves the people, not the other way around.