Project Title:
Citizen AI - Intelligent Citizen Engagement Platform

1. Introduction

• Project title: Citizen AI Intelligent Citizen Engagement Platform

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2. Project Overview

• Purpose: Citizen AI is designed to transform the way governments, municipalities, and communities interact with their citizens. By leveraging Artificial Intelligence, the platform provides real-time communication, automated policy summarization, sentiment analysis, and personalized engagement. It empowers citizens with easy access to services and information while enabling governments to receive structured feedback, identify trends, and enhance service delivery. The platform ultimately fosters transparency, inclusivity, and trust between authorities and the community.

• Features:

Conversational Interface
Key Point: Seamless citizen communication
Functionality: Natural language chatbot for inquiries, complaints, and service requests.

Policy Summarization
Key Point: Clear policy understanding
Functionality: Converts lengthy government documents into concise summaries accessible to all citizens.

Sentiment Analysis
Key Point: Gauge public mood
Functionality: Analyzes citizen feedback and social media data to measure community sentiment on various issues.

Citizen Feedback Loop Key Point:

Structured engagementFunctionality: Collects, organizes, and prioritizes citizen concerns for government review.

Service Automation

Key Point: Efficient service delivery
Functionality: AI-driven ticketing system for issue tracking, complaint resolution, and updates.

Predictive Analytics

Key Point: Anticipating needs
Functionality: Uses historical data to forecast community needs and optimize public resource allocation.

Accessibility Support

Key Point: Inclusivity
Functionality: Multilingual support, voice-enabled interaction, and accessibility features for differently-abled citizens.

User Dashboard

Key Point: Transparency
Functionality: Provides citizens with updates on requests, local initiatives, and real-time data visualizations.

3. Architecture

Frontend (React/Streamlit):
Interactive citizen dashboard with sections for service requests, policy updates, and feedback submission. Accessibility-focused design for diverse user groups.

Backend (FastAPI):
Handles API endpoints for chat, policy summarization, sentiment analysis, and service automation. Ensures scalability and integrates securely with government databases.

AI Integration (LLM Models):
Large Language Models used for summarization, conversational assistance, and predictive insights.

Database & Vector Search (PostgreSQL + Pinecone):
Stores citizen records, requests, and embedded government documents for semantic search.

ML Modules (Forecasting & Sentiment Analysis):
Implements predictive models for demand forecasting and NLP-driven sentiment classification.

4. Setup Instructions

Prerequisites: • Python 3.9+ • Node.js for frontend (if React) • API keys for LLM and vector database • Secure access credentials for government services

Installation: • Clone repository • Install dependencies from requirements.txt and package.json • Configure .env file with credentials • Launch backend (FastAPI) • Start frontend (React/Streamlit) • Access dashboard via browser

5. Folder Structure

app/ – FastAPI backend logic app/api/ – API routes for citizen services, chat, feedback, and document processing ui/ – Frontend UI components models/ – ML models for summarization and sentiment analysis document_embedder.py – Converts government docs into searchable embeddings citizen_feedback.py – Collects and processes structured citizen feedback policy_summarizer.py – Generates concise summaries of policy documents report_generator.py – Creates citizen engagement and service performance reports

6. Running the Application

• Start backend server with FastAPI • Run frontend UI (React/Streamlit) • Citizens log in to dashboard • Submit queries, requests, or feedback • AI modules process and respond in real-time • Authorities monitor citizen feedback and service requests through the admin panel

7. API Documentation

POST /chat/query – Citizen queries answered by AI
POST /upload-policy – Uploads and summarizes documents
GET /search-policies – Returns similar documents to query
POST /feedback – Submits citizen feedback
GET /sentiment – Returns community sentiment insights
POST /service-request – Creates service request ticket

8. Authentication

• Role-based authentication (citizen, official, admin)
• OAuth2 with government credentials
• JWT-based session handling
• Optional biometric login for citizens

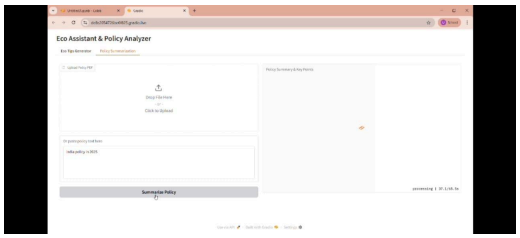
9. User Interface

• Citizen DashboardChat assistant, service request tracking, policy updates
• Government Dashboard: Analytics on citizen engagement, sentiment reports, issue tracking
• Accessibility Features: Multilingual support, text-to-speech, high-contrast mode

10. Testing

• Unit Testing: For NLP summarization, feedback classification
• API Testing: Swagger, Postman, automated test scripts
• Integration Testing: End-to-end service request flows
• Stress Testing: Large-scale citizen queries and document uploads

11.Screenshot



12. Known Issues
• Limited multilingual support in beta version
• Sentiment analysis accuracy varies with informal language

13. Future Enhancements
• Expanded regional language support
• Integration with IoT data for smart city management
• Blockchain-enabled citizen identity verification
• AI-driven participatory budgeting recommendations