GovAI — Transparent Complaint Analysis for Public Services

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Core Idea

GovAI is an **AI-powered civic intelligence platform** designed to revolutionize public service delivery in **Bangladesh** and other developing nations by automating the **citizen complaint-handling process**.

Aligned with the **UN Sustainable Development Goal (SDG) 16 — Peace, Justice and Strong Institutions**, it directly contributes to:

- **SDG 16.6:** Develop effective, accountable, and transparent institutions at all levels.
- **SDG 16.10:** Ensure public access to information and protect fundamental freedoms.

Public grievance portals in Bangladesh receive thousands of complaints daily—spanning issues like **electricity**, **water supply**, **corruption**, and **infrastructure**. However, **manual sorting and routing** create severe backlogs, frequent misclassification, and reduced transparency.

GovAI leverages advanced **Natural Language Processing (NLP)** and **Large Language Models (LLMs)** to automatically **classify**, **prioritize**, and **summarize** citizen complaints, enabling government departments to respond efficiently while promoting **data-driven transparency** through real-time analytics dashboards.

Manual complaint handling often causes:

- Delayed responses and backlogs due to human bottlenecks.
- Misrouted or unaddressed complaints.
- Lack of transparency, resulting in reduced citizen trust.

GovAI addresses these challenges by automating triage, prioritization, summarization, and deduplication for government service complaints.

Problem Analysis

Bangladesh, like many developing nations, faces a systemic governance challenge in citizen complaint management. The key problems are:

- **Overwhelming Complaint Volume:** High influx of complaints across multiple channels exceeds current processing capacity.
- **Manual Triage and Delays:** Complaints often take weeks or even months to process manually, leading to a 30–40% unresolved backlog and nearly 50% misrouting that requires re-assignment.

- **Limited Transparency:** Citizens rarely receive clear updates on status, expected timelines, or departmental accountability.
- **Low Public Trust:** Only about 23% of citizens trust existing grievance systems to deliver fair and timely results.
- **Weak Analytics and Insights:** Agencies lack data-driven tools for prioritization, efficient resource allocation, and predictive analysis to identify recurring issues or corruption risks.

Proposed Solution

To address these governance and service-delivery challenges, **GovAI** introduces an AI-driven automation layer designed to enhance efficiency, transparency, and citizen trust in complaint management.

- **Automatic Categorization:** Intelligently classifies complaints and routes them to the appropriate departments (e.g., electricity, water, roads) using multilingual text understanding.
- **Priority Scoring:** Detects urgency and severity levels through sentiment analysis, critical keyword detection, and contextual cues—ensuring that high-impact issues are addressed first.
- **Smart Summarization:** Condenses lengthy or repetitive complaint descriptions into concise, actionable summaries for faster review by officials.
- **Duplicate Detection:** Identifies and merges redundant or spam complaints through semantic similarity checks using vector embeddings, reducing administrative clutter.
- **Transparency Dashboard:** Offers a live analytics interface displaying complaint trends, departmental performance, and citizen satisfaction metrics—promoting accountability and public trust.

Technology Stack and AI Tools

Component	Technology / Tool	Purpose
Backend	FastAPI	High-performance API for handling complaint data and AI models.
Database	PostgreSQL + Supabase	Stores complaints, user data, and department logs.
NLP / LLM Models	Llama 3, Claude 3, BanglaBERT	Classification, summarization, and sentiment analysis in Bangla + English.
Vector Store	FAISS / Chroma	Semantic similarity search for duplicate detection.
Frontend Dashboard	Next.js	Complaint visualization and analytics interface.
Data Pipeline	LangChain, HuggingFace	Orchestration and fine-tuning of LLM workflows.
Deployment	Docker + Vercel, Railway	Scalable cloud-based deployment.
Optional Tools	Streamlit	Live analytics and monitoring dashboards.

Projected Impact

- **For Citizens:** Faster complaint acknowledgment and resolution, transparent tracking, and improved trust in public systems.
- **For Government Departments:** 60–70% reduction in manual workload, smarter resource allocation through data-driven insights, and stronger accountability.
- **For the Nation:** Establishes AI-powered governance foundations, enhances transparency, and benefits over 20 million citizens across Bangladesh.

Scalability

- Easily deployable across ministries, districts, and union digital centers (UDCs).
- Modular architecture enables flexible scaling of individual AI components.
- Supports multilingual data processing for nationwide accessibility.
- Adaptable for other developing nations with similar governance needs.