

## **Problem Statement**

In India, especially rural and semi-urban regions, citizens often struggle to register complaints or access public services due to limited digital literacy, language barriers, and bureaucratic complexity. Existing redressal systems are predominantly English-based and difficult to navigate. As a result, issues like non-receipt of subsidies, healthcare lapses, and fraudulent scheme implementations remain unresolved. This lack of accessibility hinders governance transparency and public trust. With over 70% of India's population residing in rural areas, there's a critical need for an inclusive, AI-driven system that simplifies grievance reporting and enables easy access to welfare schemes through native language support.

## **Target Audience & Context**

Our solution targets rural citizens, elderly individuals, low-literacy populations, non-English speakers, and government departments. This demographic often lacks access to high-speed internet and fears interacting with bureaucratic portals. Students struggle to access scholarships, farmers miss agriculture-related benefits, and patients face hurdles in healthcare schemes. Government departments, too, face delays due to unstructured complaints. NGOs and investors need transparency in public fund utilization. By bridging the digital and linguistic divide, our solution can empower citizens and streamline governance, aligning with initiatives like Digital India, Bhashini, and One Nation One Platform.

## **Relevance of the Problem**

Over 70% of India's population lives in rural or semi-urban areas, where digital illiteracy, lack of regional language support, and fear of bureaucracy prevent citizens from accessing basic public services. Government schemes remain underutilized due to low awareness, while critical issues like electricity faults, water shortages, and subsidy fraud go unreported. The absence of transparency in grievance redressal weakens public trust and delays service delivery. Current systems are inaccessible to low-literacy, non-English speakers, and people in remote regions. A multilingual, AI-assisted solution can bridge this communication gap—making governance more inclusive, responsive, and aligned with national missions like Digital India, Bhashini, and AI for Social Good.

## Use of Gen-AI

We propose a Gen-AI powered multilingual assistant that supports voice/text input in regional languages using Speech-to-Text (STT) and Text-to-Speech (TTS) via Bhashini API. It leverages NLP and LLMs to detect user intent, extract complaint details, and generate summaries auto-mapped to relevant departments. Using Retrieval-Augmented Generation (RAG), users receive real-time updates and escalations in local languages. This assistant also recommends suitable government/private schemes based on user context, such as PMAY for housing, PM-Kisan for farmers, or Ayushman Bharat for health. By enabling seamless communication and automation, Gen-AI becomes the backbone of an inclusive, efficient public service gateway.

## Solution Framework / Workflow

Our architecture integrates Gen-AI with Bhashini and IoT to ensure both multilingualism and offline capability.

### Workflow:

1. **Input:** Citizens speak/type in their regional language.
2. **Processing:**
  - STT (if voice), then Bhashini translates to English.
  - NLP classifies intent: Complaint vs. Scheme Inquiry.
  - Data is structured (name, issue, location).
3. **Response:**
  - For complaints: auto-fills grievance form with department mapping.
  - For schemes: recommends personalized schemes with links/info.
4. **Tracking & Alerts:**
  - Users receive status via chatbot/voice in native language.
  - Admin panel updates the complaint status.

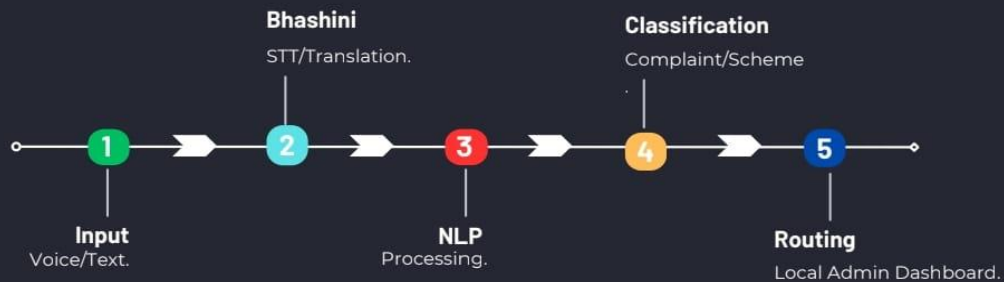
### Offline Support:

- Using an **ESP32 module**, a local hotspot is created.
- Local Node.js + Flask server hosts the grievance form.

## Diagram (Mermaid flowchart):

# Workflow & Technology

Solution Framework: Online + Offline Ready.



Technologically, we combine open-source tools (Flask, Node.js, PHP) with Bhashini APIs for language processing. Offline-first mode is achieved through ESP32 hardware and local hosting. We'll use MySQL for storage, LangChain/OpenAI for LLM integration, and Bootstrap/JS for UI. Deployment requires a basic government partnership or NGO support for region-specific piloting. With minimum compute, the model can run even in low-resource areas. This hybrid approach ensures reach, affordability, and practical implementation.

## Scalability & Impact

This multilingual platform is scalable across India's 22+ official languages. Its modular backend allows integration with state/national grievance portals and databases. NGOs, administrators, and private partners can use the dashboard for issue resolution and policy insights. AI-generated budget utilization reports can be extended to investors and researchers, promoting accountability. Long-term, it can evolve into a national one-stop assistant for all public service queries.

## Conclusion

Our solution, **JanAI Mitra**, is not just a tech tool—it's a voice for the voiceless. By blending Gen-AI with vernacular access and offline connectivity, it meets the most underserved needs. Scalable, cost-efficient, and rooted in empathy, it holds the potential to become India's digital public service companion, with future viability as a civic-tech startup for social governance.