AI for Bharat Hackathon

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Team Name : Zero Code

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Problem Statement : **The "Last Mile" Gap in Government Welfare (** Build an AI-powered solution that improves access to information, resources, or opportunities for communities and public systems.)

Brief about the Idea: Yojna-Setu (is an AI-powered caseworker that helps rural citizens access government welfare schemes through the devices they already own—WhatsApp and basic phones.)

The Core Innovation
Instead of just *answering questions* about schemes, Yojana-Setu *does the work* for the user:
Understands intent from voice notes in local dialects
Verifies documents in real-time using AI vision
Auto-fills applications and catches errors before submission
Tracks status and sends updates via SMS/WhatsApp

How It Works

User speaks: *"My crop was destroyed by rain"* (in Hindi/local language)
AI identifies: Pradhan Mantri Fasal Bima Yojana (Crop Insurance)
AI guides: *"Send me a photo of your land record"*
AI verifies: Checks document quality, extracts data automatically
AI submits: Application created with ID

Why It Matters
Eliminates middlemen who charge ₹500-2000 per application
Prevents rejections by catching errors (blurry photos, missing signatures) instantly
Reaches the unreached through WhatsApp (500M users) and IVR (works on ₹500 phones)

Why it's Matters ?

How is it different from existing ideas?

- Phygital multi-channel (WhatsApp + IVR)
- Proactive intelligence (suggests schemes you don't know)
- Real-time document verification
- Voice-native design (not just voice-enabled)

How will it solve the problem?

Problem → Solution mapping for all 3 core issues:

- Information Gap → AI-powered scheme discovery
- Middleman Tax → Free WhatsApp/IVR access
- High Rejections → Real-time error prevention

USP (Unique Selling Proposition)

Core USP statement: *"The only AI caseworker that works on devices rural India already owns, speaks their language, and prevents rejections before they happen"*

- Zero friction access (no app download)
- Multimodal AI (voice + vision + text)
- Agentic behavior (proactive, not reactive)
- Built for India's reality (low bandwidth, offline mode)

Features

Voice-First Interface

Speak naturally in local language. No typing required.

Smart Document Verification

AI scans docs in real-time for instant quality feedback.

Intelligent Scheme Discovery

Proactively identifies eligible schemes for you.

Multi-Channel Access

Works on WhatsApp, IVR, and Web. No app needed.

Multilingual Support

Multilingual Understands and responds in 8+ Indian languages.

Real-Time Error Prevention

Catches mistakes during filling, before submission.

Persistent Memory

Remembers profile & past applications for auto-fill.

Proactive Notifications
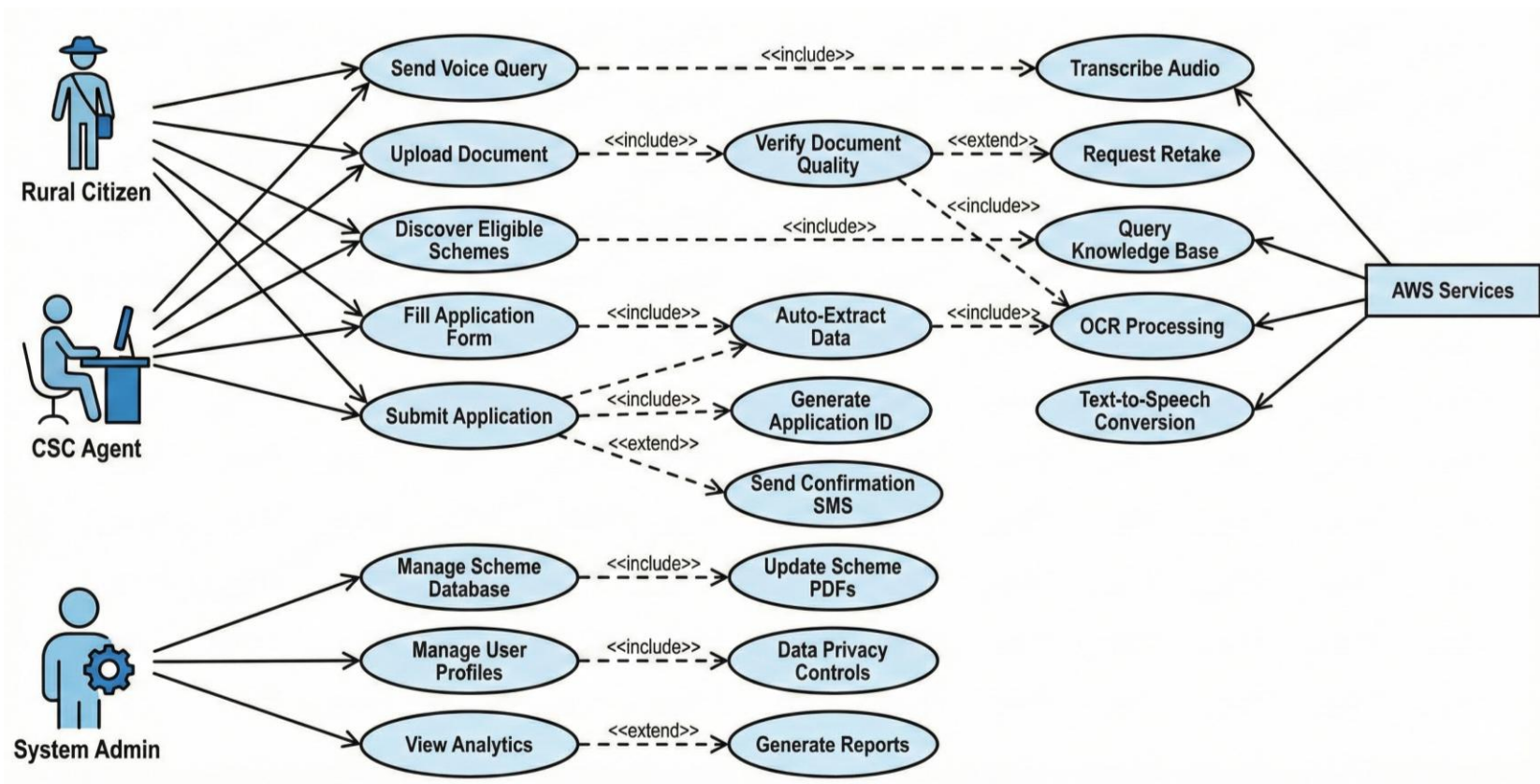
Alerts on deadlines, new schemes, and status updates.

Privacy & Security
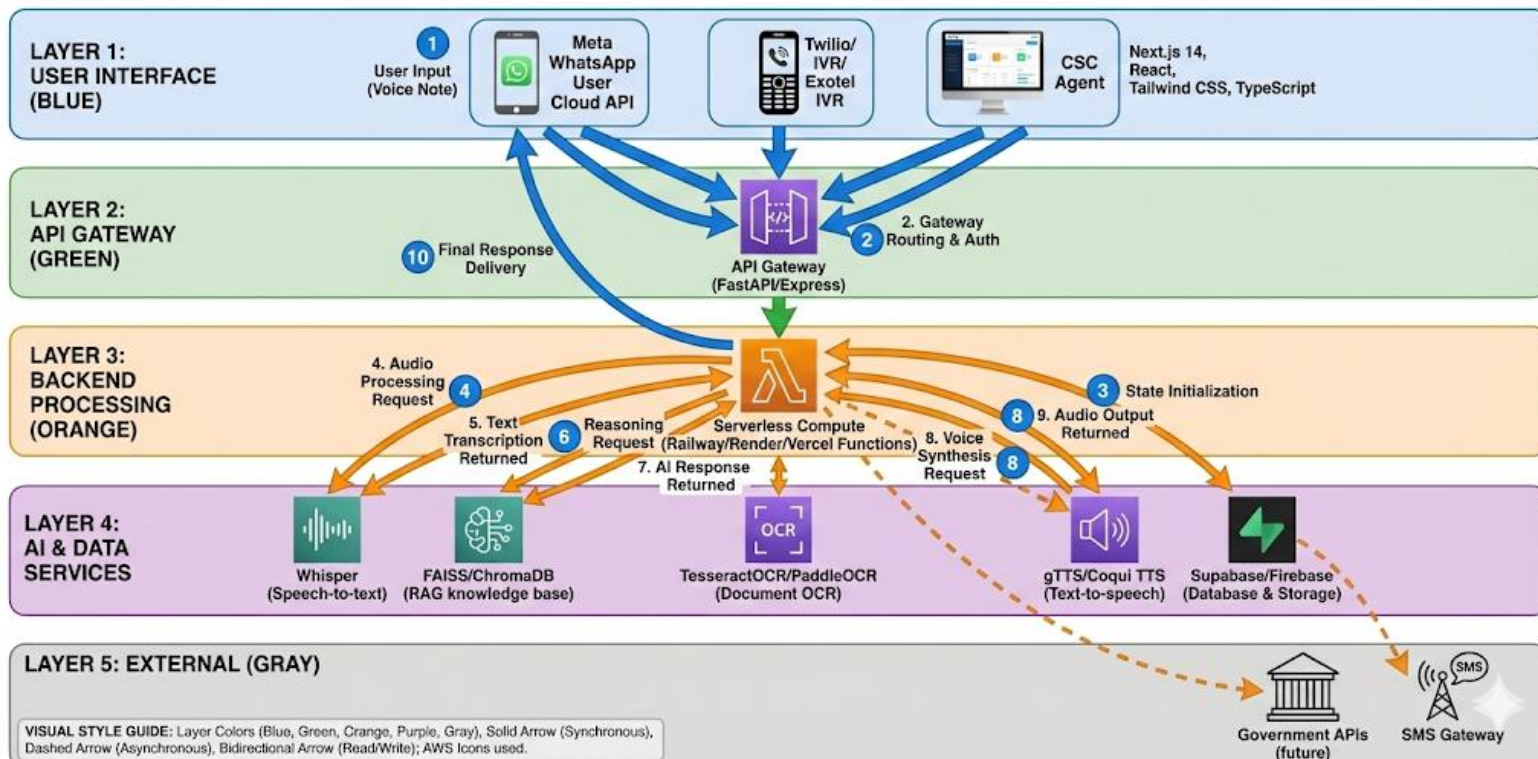
Enterprise-grade encryption and data protection.

Offline Mode

Functions in low/no internet areas (2G, SMS, IVR).

Use – Case - Diagram

Architecture diagram

Technologies to be used in the solution:

1. AI & Machine Learning (5 services)
•**FAISS / ChromaDB** - RAG knowledge base for schemes
•**TesseractOCR/PaddleOCR-** Document OCR and verification
•**Whisper (OpenAI, open-source)-** Speech-to-text (8+ Indian languages)
•**gTTS / Coqui TTS** - Text-to-speech for IV

2. Backend & Infrastructure (3 services)
•**Railway / Render / Vercel Functions-** Serverless compute
•**Supabase (Postgres) or Firebase-** NoSQL database
•**FastAPI / Express (direct REST)** - REST API endpoints

3. Communication Layer (3 services)
•**Meta WhatsApp Cloud API (Free tier)-** Primary interface
•**Twilio Trial / Exotel Trial** - IVR for feature phones
• **Twilo SMS- SMS notifications**

4. Frontend Layer (4 technologies)
•**Next.js 14** - Web framework
•**React** - UI components
•**TypeScript** - Type safety
•**Tailwind CSS** - Styling

5. Storage & Media
•**Cloudinary / Firebase Storage / Supabase Storage** - Document and audio storage
6. Development & Deployment
•**GitHub** - Version control
•**AWS CDK** - Infrastructure as code
7. Monitoring
•**Sentry / LogRocket / Railway Logs** - Logging and alerts

Estimated implementation cost:

One time setup cost is : ₹0

Requirement	Service Used	Estimated Cost (₹/month)
LLM Reasoning	Groq (Llama 3 / Mixtral)	0
Speech-to-Text	Whisper (self-hosted)	0
OCR	PaddleOCR	0
Text-to-Speech	gTTS	0
Knowledge Base	FAISS	0
Backend Hosting	Railway / Render	0
Database	Supabase (free tier)	0
Storage	Supabase / Cloudinary	0
WhatsApp API	Meta WhatsApp Cloud API	0
IVR Calls	Twilio / Exotel Trial	300
SMS Alerts	Fast2SMS	200
Domain (optional)	.in domain	100
Total Monthly Cost		**₹500 – ₹700**

Add as per the requirements for the hackathon.

Low-Cost & Free-Tier Friendly
Implemented using open-source tools and free cloud tiers to ensure near-zero deployment cost during the hackathon.

AI-Driven Automation
Uses AI for speech recognition, intent detection, document verification, and response generation.

Rapid MVP Development
Serverless and managed services enable quick prototyping and faster iteration within limited hackathon timelines.

Language & Accessibility Focus
Supports regional languages and voice-based interaction to improve usability for non-technical users.

Scalable Architecture
Designed to support seamless migration from low-cost MVP to enterprise-grade cloud infrastructure when required.

Multi-Channel Accessibility
Supports WhatsApp, IVR, and Web interfaces to ensure inclusivity for both smartphone and feature phone users

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Thank You