

**PROBLEM STATEMENT:**

India’s healthcare system faces a major but often overlooked challenge: administrative burden. From urban hospitals to rural clinics, doctors, nurses, and frontline workers spend hours manually filling forms, transferring patient data across incompatible systems, and interpreting handwritten prescriptions and reports. These inefficiencies cause delays, increase the risk of errors, and consume valuable time—negatively impacting both patient care and staff well-being. In rural regions, limited digital infrastructure and low literacy make the problem worse. With the emergence of GenAI and large language models, we now have a unique opportunity to automate these tasks and significantly enhance the speed, accuracy, and reach of healthcare delivery.

**TARGET AUDIENCE AND CONTEXT:**

Our solution targets three core user groups:

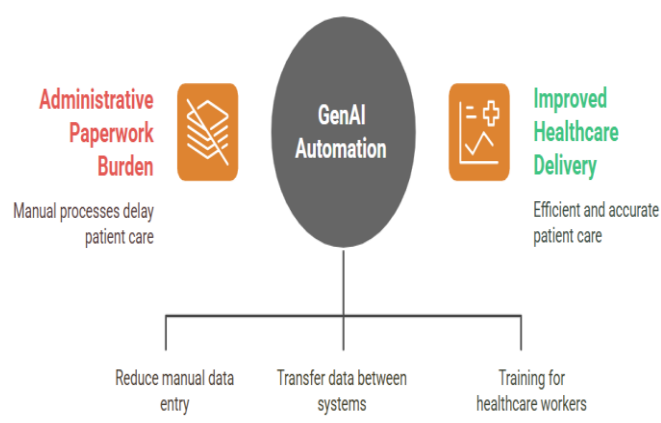
- (1) Doctors and administrative staff in hospitals/clinics struggling with data entry and paperwork,
- (2) rural health workers like ASHA/ANMs who need offline/voice-based tools to manage records, and
- (3) public health authorities requiring system integration between local facilities and national databases (e.g. NDHM).

Most existing health IT systems are fragmented or outdated, with minimal regional language support. These users need accessible, multilingual, low-bandwidth solutions that reduce paperwork, automate record creation, and allow seamless data sharing across public and private providers.

**USE OF GENAI:**

- OCR (e.g., Tesseract) + NLP (e.g., IndicBERT) engine extracts structured fields like patient info and diagnosis from scanned handwritten prescriptions. Tools like LayoutLMv3 and local LLMs enable offline processing.
- Multilingual voice-to-text interface using Whisper/Faster-Whisper and fine-tuned LLMs (e.g., mT5, MedPaLM) lets clinicians dictate notes in Indian languages, converted into EHR-compatible formats. Offline transcription can also be made possible with Vosk or Faster-Whisper.
- Offline rural assistant chatbot (built using DistilGPT2, TinyLlama, or Mistral-7B) helps ASHAs/ANMs record symptoms, retrieve data, and generate referrals via voice or text—optimized for low-connectivity environments.
- Backend mapping model (using GPT-4, Claude, or Gemini Pro) aligns incompatible data systems for NDHM integration. Offline syncing supported via pre-trained models and schema-matching tools like LangChain, schema-aware adapters and prompt-based transformation pipelines.

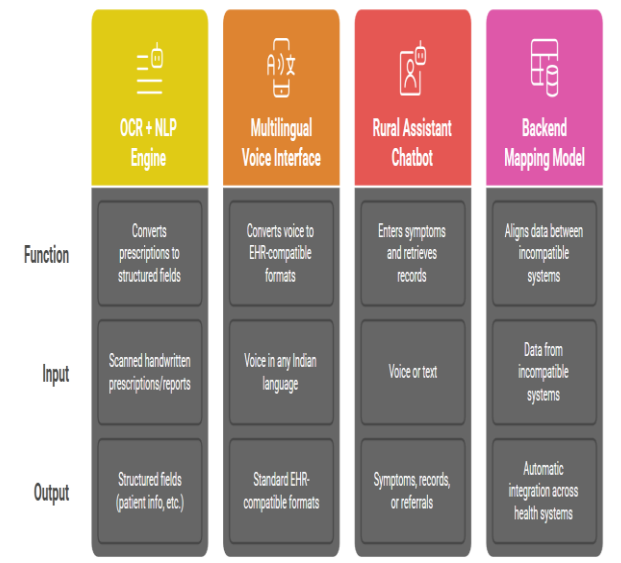
Automate redundant tasks with GenAI



Core user groups



Generative AI Applications in Healthcare



## **SOLUTION FRAMEWORK:**

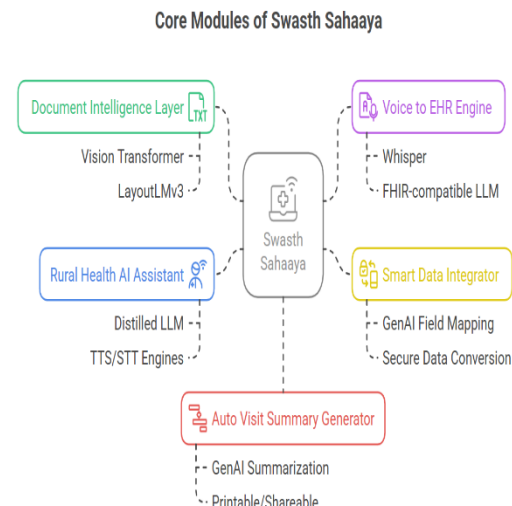
1. Document Intelligence Layer (OCR + NLP): Scans handwritten prescriptions or reports via mobile or desktop using a combination of Tesseract and LayoutLMv3 for OCR. Extracts structured fields such as patient name, diagnosis, and medication using medical NER and LLMs like GPT-4 and IndicBERT. Designed to work offline using lightweight OCR/NLP models for rural or low-connectivity settings.

2. Voice to EHR Engine: Doctors can dictate in English or Indian regional languages. Speech is transcribed by Whisper or Faster-Whisper, then structured into FHIR-compatible records using MedPaLM, mT5, or other healthcare-tuned LLMs. Supports offline deployment using Vosk and distilled models for clinics with limited internet.

3. Smart Data Integrator: Maps and converts patient records across EMRs and NDHM/hospital systems using GenAI tools like GPT-4, Gemini, or LangChain. Handles transformations such as CSV to JSON, enabling secure syncing via APIs. The mapping engine is designed to be offline-capable with pre-trained models.

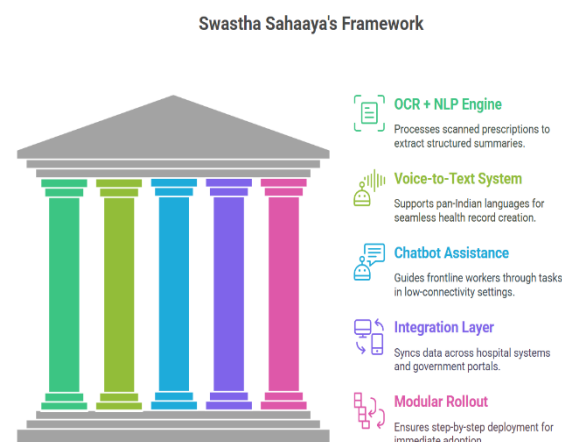
4. Rural Health AI Assistant: An offline-first chatbot built using DistilGPT2, TinyLlama, or Mistral, helping ASHAs and ANMs fill forms, retrieve data, generate referrals, and check symptoms via voice or text.

5. Auto Visit Summary Generator: Generates structured visit summaries—symptoms, diagnosis, treatment, and advice—using GPT-4 or Claude. Outputs are multilingual, printable, and can run offline.



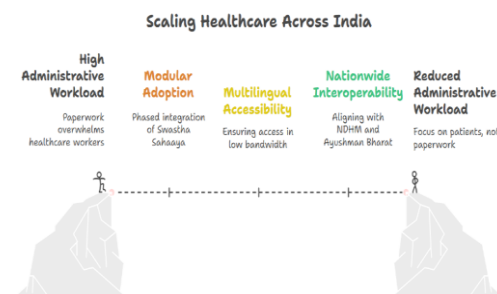
## **FEASIBILITY AND EXECUTION:**

Swastha Sahaaya is modular, lightweight, and ready for deployment. Its OCR + NLP engine extracts structured data from scanned prescriptions. The voice-to-text feature supports pan-Indian languages for seamless health record creation. An offline-capable chatbot assists frontline workers with symptom checks and medicine lookup. A smart integration layer syncs records with hospital systems and government platforms like ABHA and DigiLocker. With modular rollout, and full compliance with Ayushman Bharat and NDHM standards, it's a scalable, inclusive solution built for India's diverse healthcare landscape.



## **SCALABILITY AND IMPACT:**

Swastha Sahaaya is built to scale across India's healthcare spectrum—from urban hospitals to rural clinics. Its modular design enables phased adoption: starting with OCR, voice-to-text, and later integrating system syncs. Multilingual and offline-first features ensure reach in low-bandwidth areas. Aligned with NDHM and Ayushman Bharat standards, it enables nationwide interoperability. It can reduce admin workload by 70%, cut medical errors, and it accelerate care by empowering workers to focus on patients and transforming healthcare for a billion Indians.



## **CONCLUSION:**

Swastha Sahaaya is a GenAI assistant streamlining healthcare admin with multilingual voice input, OCR, and data integration. Its offline support, modular rollout, and NDHM alignment make it ideal for India's diverse needs. As an MLP, a rural-ready AI chatbot can deploy in clinics today, with strong potential for scale, adoption, and sustainability. With government alignment and real-world impact, it holds strong potential for scale, adoption, and sustainable business.

**AI Assistance Declaration:**

- ChatGPT (OpenAI) – for content ideation, phrasing, and documentation assistance.
- Canva – for video editing.