Vision X India

SMART INDIA HACKATHON 2025

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- **Problem Statement ID –** *18*
- **Problem Statement Title-** *Telemedicine Access for Rural Healthcare in Nabha*
- **Theme-** *MedTech / BioTech / HealthTech*
- **PS Category-** *Software*
- **Team ID-**
- **Team Name-** *Vision X India*

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MediKon

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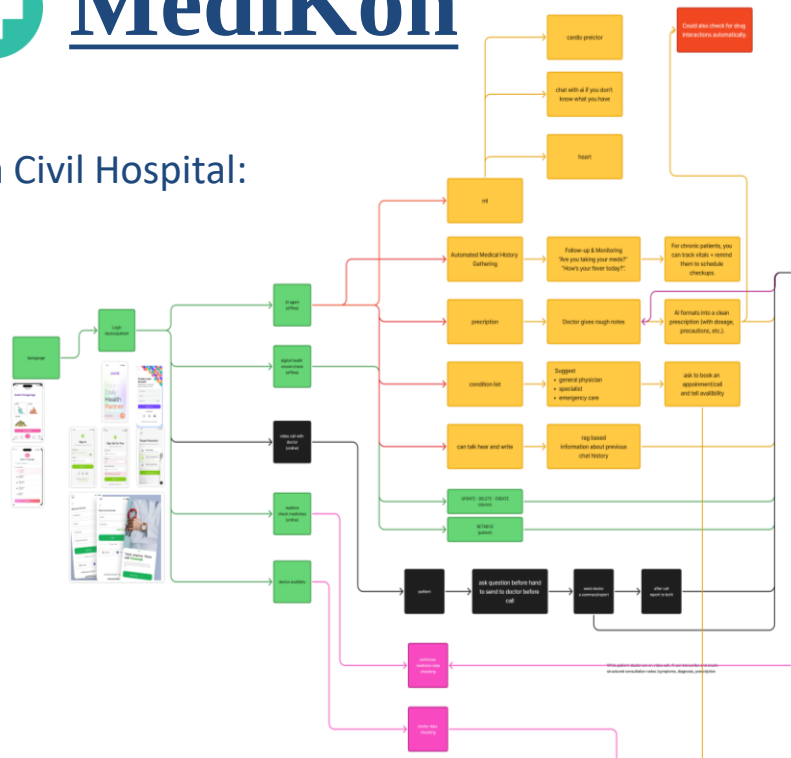
Problem overview

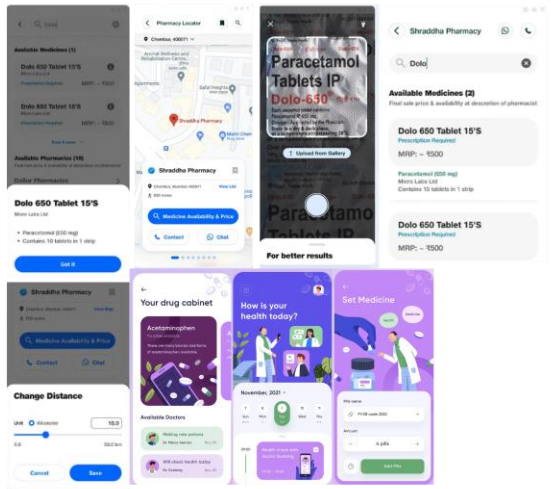
This project tackles rural healthcare issues around Nabha Civil Hospital:

- **Doctor Shortage**: 11 doctors for 23 posts.
- **Access Barriers**: Long travel, poor roads, lost wages.
- **Medicine Gaps**: Frequent stockouts burden patients.
- **Low Digital Use**: Only 31% internet access limits e-health.

Solution

- **Doctor Shortage & Long Travel:** The app bridges the **1:1000 doctor-patient ratio gap** by offering remote consultations, saving patients from **173 villages** travel and lost wages.
- **Limited Medicine Availability:** Our **real-time pharmacy integration** reduces medicine search time from **hours to minutes**, allowing users to instantly check stock at **300+ local pharmacies**.
- **Infrastructure & Records: Digital Health Records** securely store medical data, reducing the need for **millions of paper files** and ensuring accessibility even with **low internet access**.
- **Initial Screening:** The **AI Symptom Checker** is a lightweight tool (< **1 MB**) that provides instant advice, working efficiently in areas with **low bandwidth**.



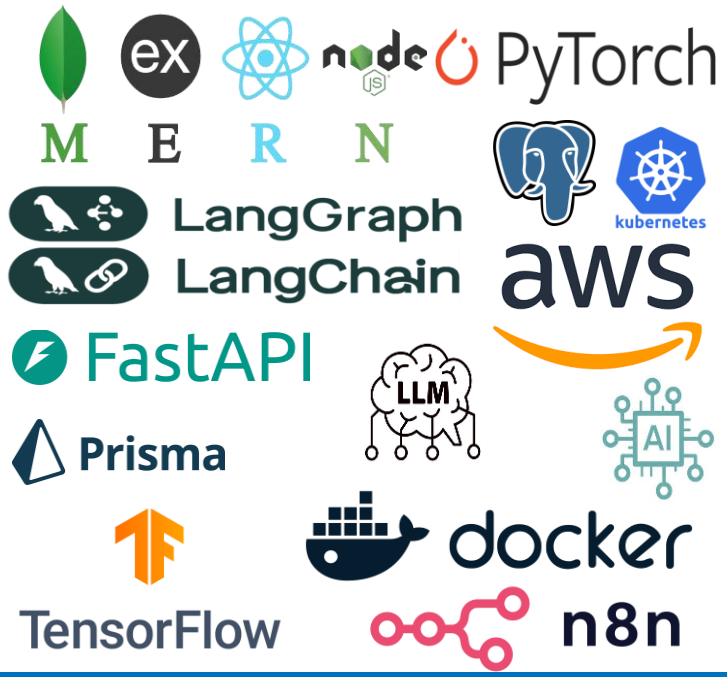


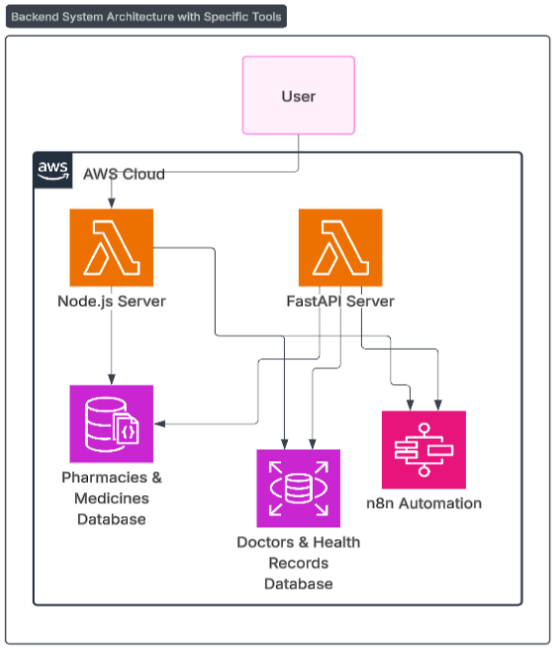
Medication Reminders

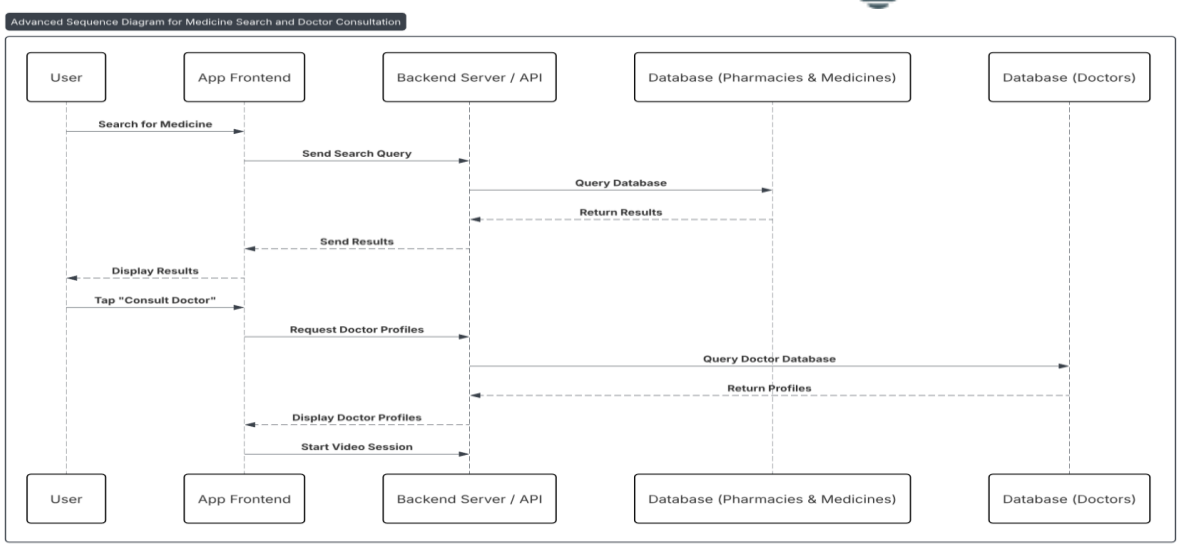
TECHNICAL APPROACH

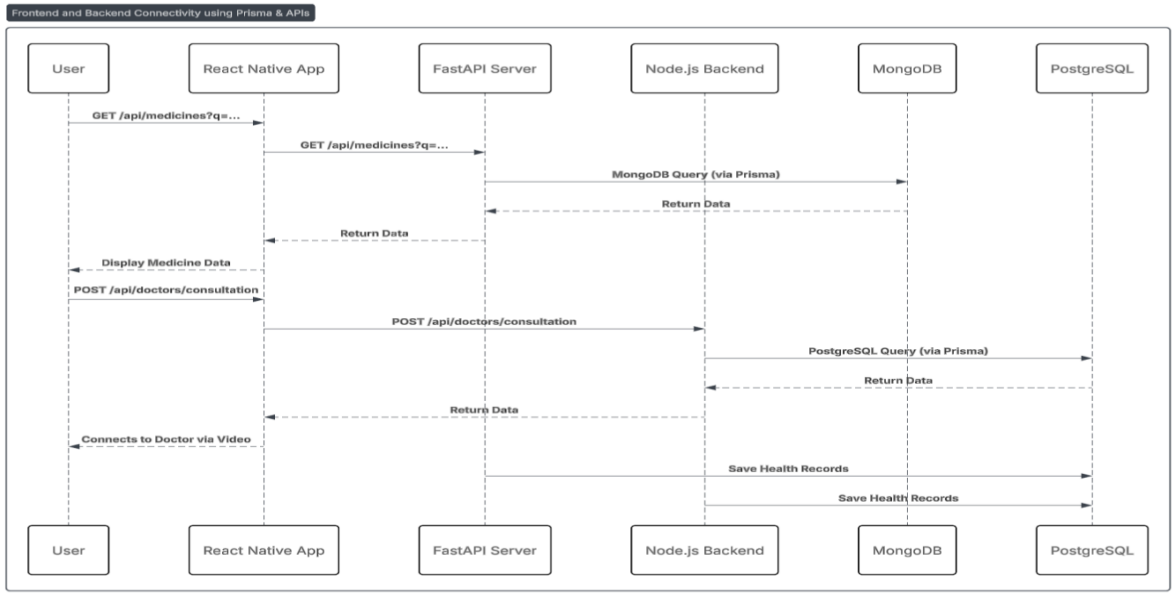
Technical Stack

- **Frontend :** React.js, React Native
- **Backend :** Node.js, Express.js FastAPI
- **AI & ML :** TensorFlow, PyTorch, LangChain, LangGraph, Generative-Ai, LLMs
- **Ollama :** Whisper (OpenAI)
- **Database & Storage :** PostgreSQL, MongoDB, Prisma ORM
- **Deployment & Scalability :** Docker, Kubernetes, AWS
- **Automation & Integrations :** N8n, APIs









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FEASIBILITY AND VIABILITY

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Feasibility

- **Technical Stack:** Uses **React Native, Node.js, and AI/ML models** to provide **real-time** and secure functionality.
- **Scalability:** Deployed on **AWS** with **Docker** and **Kubernetes**, supporting **horizontal scaling** for a large user base.
- **Cost-Effective:** A cloud-based infrastructure ensures **low initial investment**.

Viability (Long Term Success)

- **Large Market:** Directly solves the healthcare gap in rural India.
- **Vast User Base:** Designed for millions of potential users.
- **Multilingual: Multilingual support** (Hindi, Punjabi) increases the app's reach.

Challenges & Strategies

- **Main Challenges:**
  - **Low Digital Literacy:** Lack of familiarity with app usage.
  - **Internet Connectivity:** Reliance on a stable internet connection for core features.
  - **Data Accuracy & Privacy:** Managing **real-time data** and protecting sensitive health information.
- **Solutions:**
  - An intuitive UI and user training via local partners.
  - **Offline-first features** and **low-bandwidth optimization**.
  - **End-to-end encryption** and a robust feedback loop.

Government Support

- **Rural Healthcare Gap:** The **Rural Health Statistics (RHS)** show a severe shortage of doctors in rural areas, validating the need for a **telemedicine** solution.
- **Government Initiatives:** Our project aligns perfectly with the **Digital India Initiative** and the **National Digital Health Mission (NDHM)**, which promote digital healthcare and telemedicine guidelines.
- **Market Growth: TRAI reports** show a rapid increase in rural internet subscribers, indicating a growing market ready for digital health solutions.

Business Potential

- **Subscription:** Charge users for premium features like unlimited consultations.
- **Commission:** Get a small percentage from medicine sales made through the app's pharmacy partners.
- **B2B:** Partner with health insurance companies and other healthcare businesses.
- **Data Analytics:** Sell anonymized health data for research.

Use Cases

- **Teleconsultations:** Remote medical advice from specialists.
- **Medicine Accessibility:** Real-time pharmacy stock checks.
- **Personal Health Records:** Secure digital medical history.
- **AI Diagnosis:** Quick symptom analysis and advice.

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IMPACT AND BENEFITS

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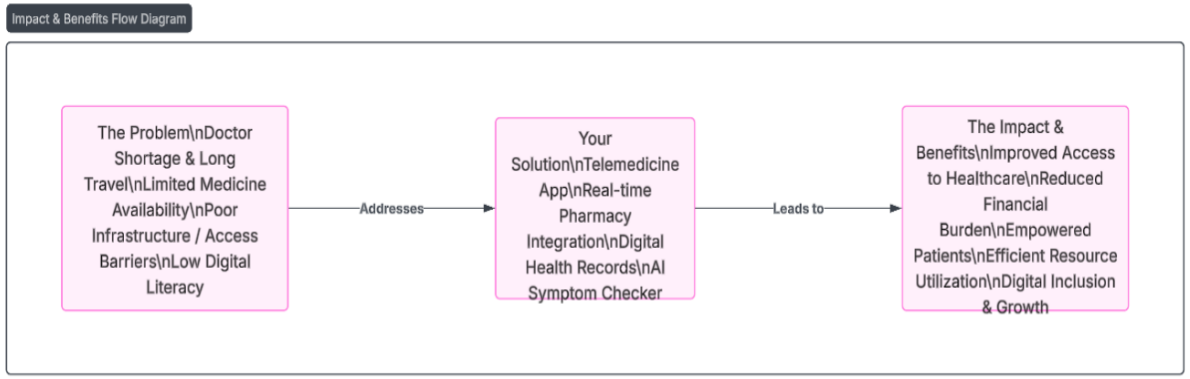


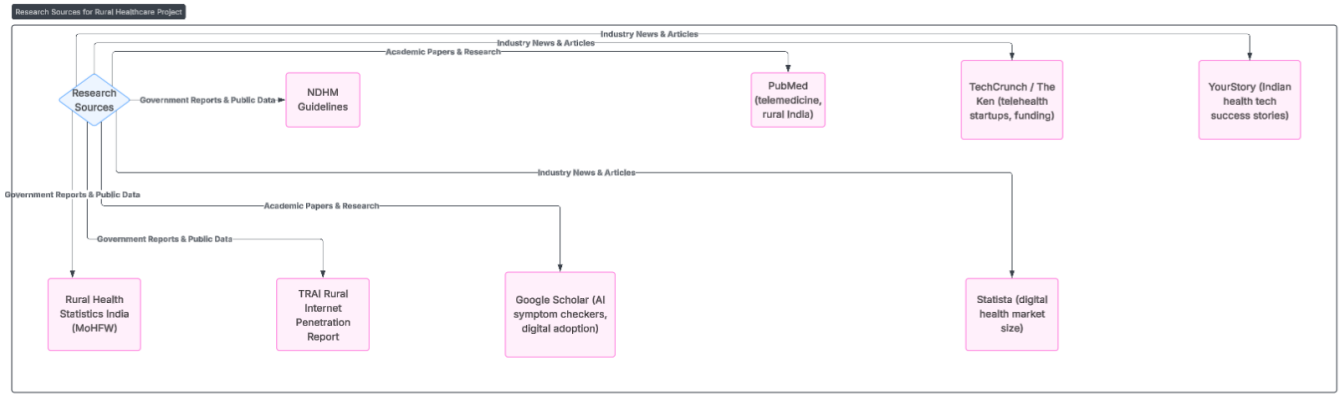
Potential Impact on the Target Audience

- **Improved Access to Care:** Our solution directly addresses the severe **1:1000 doctor-patient ratio** in rural areas. Patients from **173 villages** can now access medical advice without a single trip.
- **Significant Savings:** Patients save an average of **3-4 hours of travel time per consultation** and **₹200-500 in travel expenses**, directly reducing their financial burden and preventing lost wages.
- **Health & Well-being:** By providing **affordable, high-quality teleconsultations** and **real-time medicine availability**, we improve health outcomes, leading to a higher quality of life and community well-being.
- **Challenges & Risks:** Initial implementation costs and **low digital literacy** remain a challenge. However, our solution's intuitive design and local partnerships are aimed at overcoming this.

Benefits of the Solution

- **Social Impact**
  - **Inclusivity & Empowerment**: Our app's 5+ languages support 80% of the non-English speaking population, boosting digital literacy and breaking down language barriers.
  - **Social Equity:** By making healthcare accessible to all, we can significantly reduce health disparities between urban and rural areas.
- **Economic Impact**
  - **Financial Savings**: Patients save ₹200-500 and 2-4 hours on travel time per consultation, directly reducing their financial burden.
  - **Local Economy**: We have the potential to boost local pharmacy revenue by 15-20%, while a 90% reduction in labor-related lost wages improves the local micro-economy.
  - **Productivity:** Our solution increases daily wages by up to 70% by saving valuable working hours for laborers.
- **Environmental Impact**
  - **Sustainability**: Digitizing 1,000 consultations can reduce 50-100 kg of CO_2 emissions.
  - **Reduced Waste**: Our digital system for medical records helps cut paper waste by over 90%.

RESEARCH AND REFERENCES



References & Research Work

- **Government Reports:**
  - Rural Health Statistics (RHS): Ministry of Health and Family Welfare, Govt. of India.
  - TRAI Reports: Data on rural internet penetration and telecom growth.
  - Academic Research:
  - Impact of telemedicine on rural patient outcomes and healthcare access.
  - Studies on the digital adoption of healthcare applications in underserved areas.
  - Industry Reports:
  - Market analysis of the digital health and e-pharmacy sector in India.
  - Case studies on successful scalable cloud architectures (e.g., AWS, Kubernetes).

- **Best Practices:**
  - Guidelines from the National Digital Health Mission (NDHM) for data privacy and telemedicine.
  - Research on user-centric design for low-bandwidth and low-digital literacy environments.

Comparison with systems

Feature	Medikon	Generic Telemedicine App	Pharmacy Finder App	EHR System
Telemedicine & Video Consultations	✅	✅	❌	❌
Real-time Pharmacy Integration	✅	❌	✅	❌
Digital Health Records	✅	❌	❌	✅
AI-Powered Symptom Checker	✅	✅	❌	❌
Multilingual Support	✅	❌	❌	❌
Scalable Cloud Architecture	✅	✅	✅	✅
Offline Functionality	✅	❌	❌	✅

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THANKS FOR WATCHING