

## AI HEALTH DIAGNOSIS

- **Problem Statement ID** – SIH25131
- **Problem Statement Title** – (Student Innovation) - AI-Driven Preliminary Diagnosis & OPD Appointment System
- **Theme** – MedTech / BioTech / HealthTech
- **PS Category- Software/Hardware** – Software
- **Team ID** – -
- **Team Name** – Ad Astra



# AI Health Diagnosis

# The Problem & Our Solution

Addressing critical gaps in rural healthcare with an accessible, intelligent platform.

## The Problem

### The Doctor Deficit

A severe urban-rural divide leaves millions without access to timely medical advice.

Rural India  
**1:11,000**  


WHO Norm  
**1:1,000**  


### The Cost of Delay

Without early guidance, minor issues escalate into crippling financial burdens.

Early Triage  
  
**₹50**

Delayed Care  
  
**₹5,000+**

### The Communication Gap

Most digital health solutions are unusable for 400M citizens due to language and literacy barriers.

Health AI

Please articulate the etiology and progression of your discomfort.  
  
मूँहे लाला नहीं आणा। मेरे सिर मे दर्द हो।

● Invalid input. Please use English.

### The Overburdened System

Public hospitals are overwhelmed, leading to long waits and compromised care for everyone.



## Our Solution

### AI-Powered Triage

Instant preliminary analysis to determine the urgency of care needed.

 Photo/Symptoms →  AI Diagnosis →  Clear Result

90%+ Triage Accuracy

### Seamless OPD Booking

Intelligently books appointments at the nearest government hospitals.



Find & Book Instantly



Reduces wait times from **4 hours to 15 mins**

### Accessible to All

Designed to overcome connectivity and literacy barriers for rural India.

 Multi-lingual

Offline First

 Simple UI

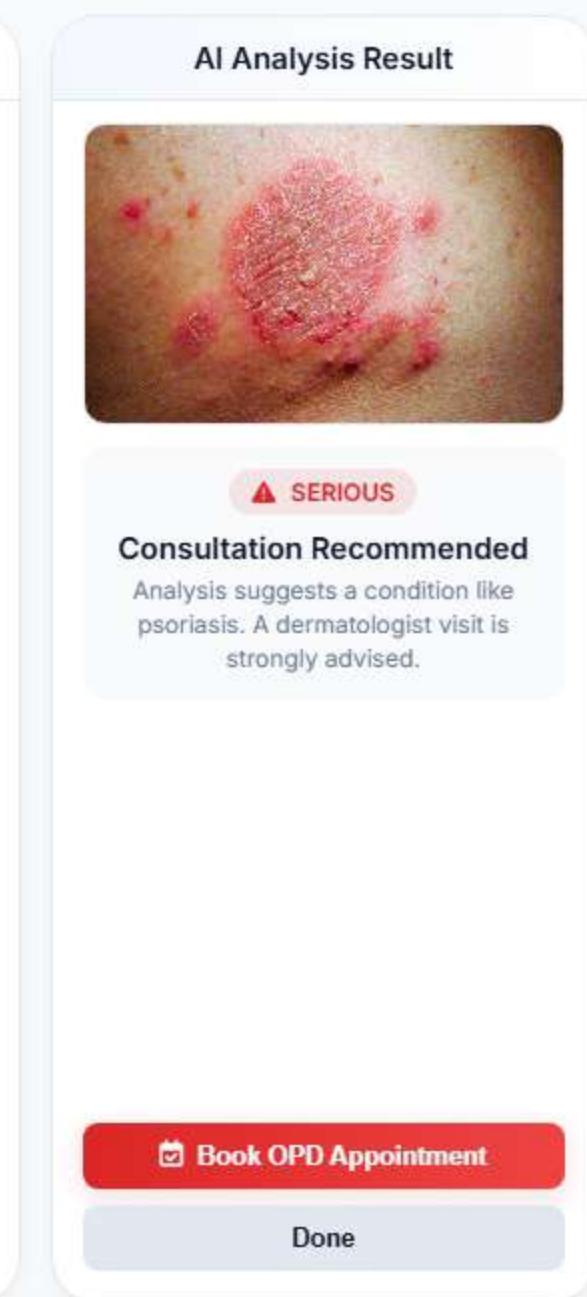
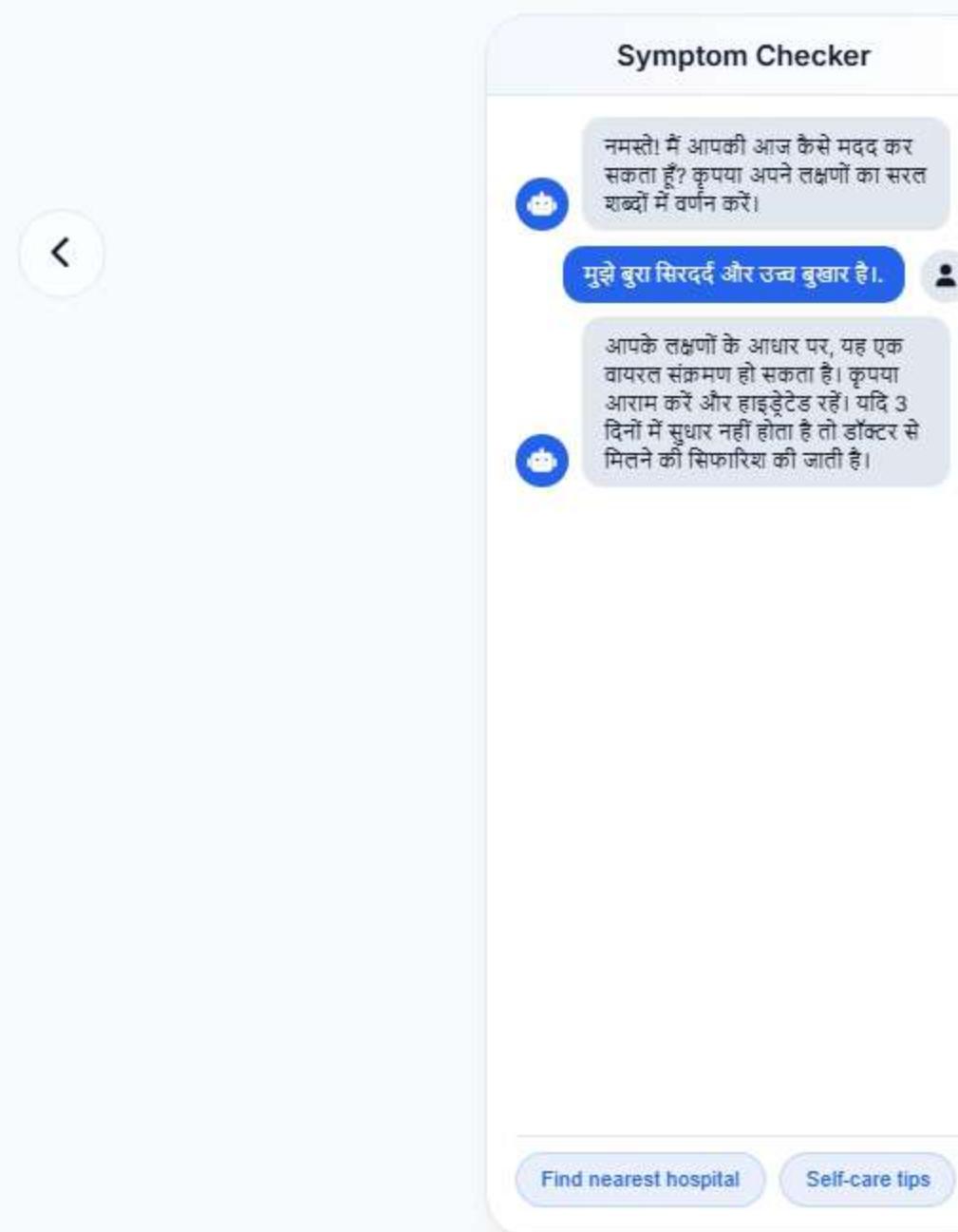
Supports all Indian Languages

# The Prototype & Technical Approach

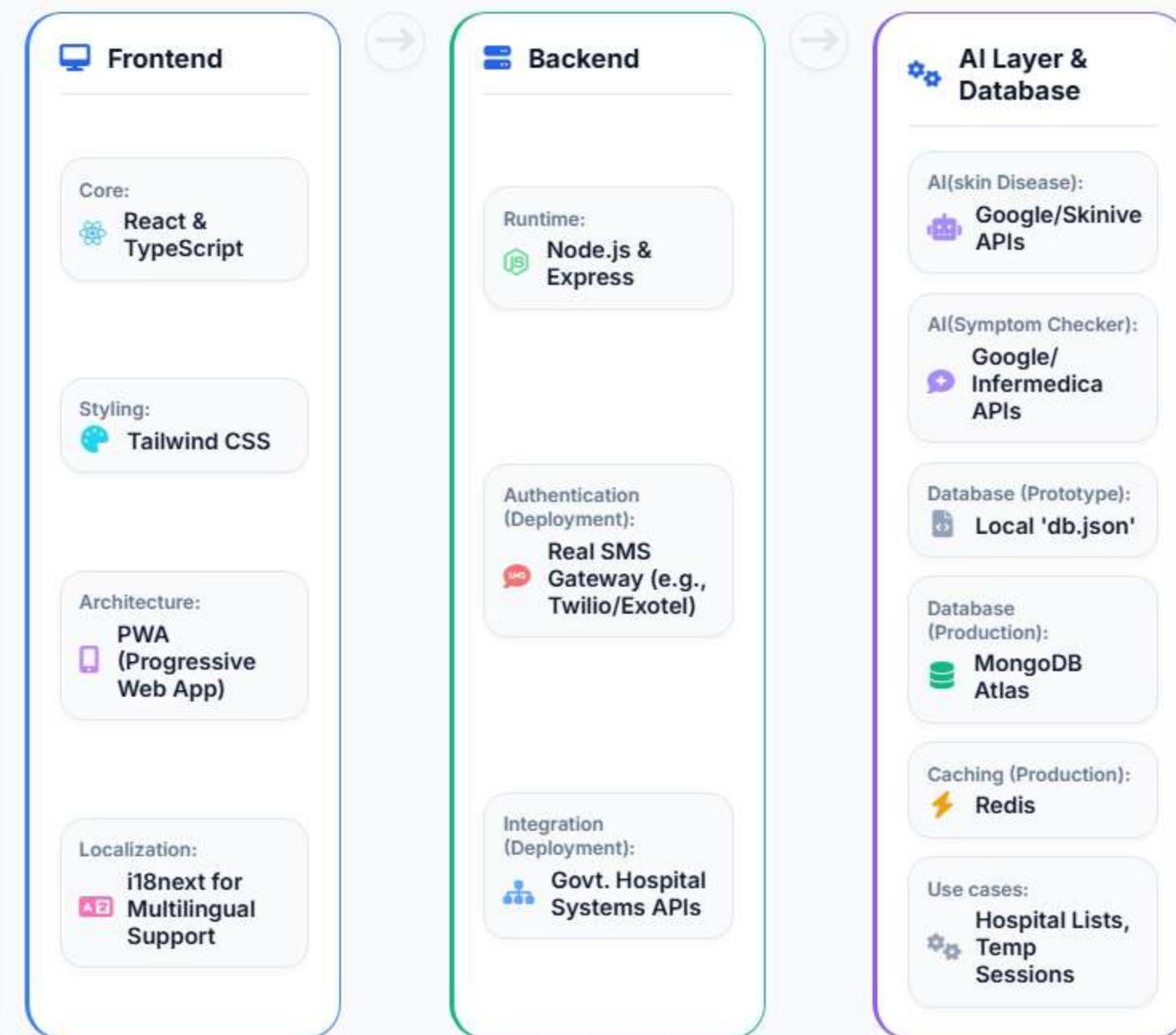
Visualizing the user journey, our prototype in action, and the technical stack powering it.



## The Prototype



## Technical Approach



# Feasibility & Risk Analysis

A balanced look at our practical approach, potential hurdles, and clear mitigation strategies.



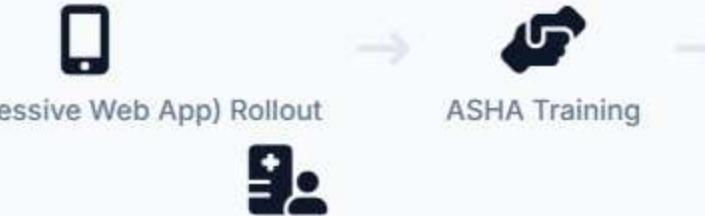
## Technical Feasibility



Built on mature, scalable web tech & Google's robust Gemini API.



## Operational Feasibility



Complements existing workflows. PWA allows for rapid deployment without app store friction.



## Economic Viability

**Low**  
Operational Cost



**High**  
Social Impact

Low-cost serverless architecture. Free for citizens, funded via public health grants.



## Risk & Mitigation

- **AI Accuracy:** Positioned as a preliminary aid, not a final diagnosis.
- **User Adoption:** Multilingual UI & on-ground ASHA worker training.
- **Data Privacy:** Secure backend with JWT authentication & data compliance.

Proactive strategies address key challenges for successful implementation.

# Impact & Unique Features

Highlighting the tangible benefits and core features that set our solution apart.



## For Citizens

- ✓ Immediate, free healthcare guidance
- ✓ Reduces travel costs & anxiety
- ✓ Wait time: days → minutes



## For the Healthcare System

- ✓ Reduces overcrowding & admin load
- ✓ Freed up staff for critical cases
- ✓ OPD wait: 4+ hours → <30 min



## Seamless Journey

- ✓ End-to-end: symptom to appointment
- ✓ Ensures users get access, not just advice
- ✓ Integrated with public hospitals



## Hyper-Local

- ✓ Supports all major Indian languages
- ✓ Simple UI overcomes literacy barriers
- ✓ Designed for rural user needs



## Offline-First PWA

- ✓ Reliable on low-bandwidth networks
- ✓ Core features work with intermittent signal
- ✓ No app store needed for installation



## Public Health Integration

- ✓ Intelligently guides patients to Govt. facilities
- ✓ Optimizes public resource use
- ✓ Builds trust in the public system



# Research & Validation

Our solution is grounded in official data, academic research, and real-world stakeholder validation.

-  **Proof of Concept Validation:** We have secured a [Letter of Concept from New Civil Hospital, Surat](#), confirming the viability of our approach and expressing official interest in a collaborative pilot program to integrate with their OPD systems.
-  **Rural Doctor Deficit:** An ~80% specialist shortfall in rural CHCs validates the need for accessible preliminary care. ([MoHFW, 2021-22](#))
-  **AI Diagnostic Efficacy:** Studies in journals like *Nature* demonstrate AI's dermatologist-level accuracy for skin conditions, while research in *npj Digital Medicine* confirms conversational AI's triage efficacy.
-  **Out-of-Pocket Expenditure:** With OOPE at 47.1% of total health spending, our triage aims to reduce costs by preventing issue escalation. ([NHA, 2019-20](#))
-  **National Strategy Alignment:** Our platform directly supports the **Ayushman Bharat Digital Mission (ABDM)** by providing an accessible entry point for citizens and creating a foundation for interoperable health records.
-  **PWA Viability:** Over 500M rural internet subscribers make a PWA the most effective delivery model, bypassing app stores and ensuring accessibility. ([TRAI, 2023](#))
-  **ASHA Worker Integration:** The solution is designed to empower India's 1 million+ ASHA workers, leveraging their community trust to drive adoption and bridge the digital divide. ([NHM Guidelines](#))