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IDC–AMCET NEXUS-2026

ANNAI MIRA COLLEGE OF ENGINEERING AND TECHNOLOGY

Project Title– [OPEN INOVATION] Smart Public Hospital Availability & Appointment Management

Problem Statement– Extreme OPD overcrowding and resource opacity in public hospitals cause critical delays in patient care.

Team Name– : The code warriors

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The Impact

There is no synchronized digital ledger for pharmaceutical inventory, leading to local shortages despite regional availability.

The Gap

Public hospitals lack a real-time tracking system, forcing patients to travel long distances only to find doctors unavailable or medicines out of stock.

Resource Management

This operational strain causes delayed treatments, increased patient frustration, and higher mortality risks in time-sensitive cases.

Inefficiency

Overcrowded Outpatient Departments (OPDs) lead to long wait times, often exceeding 4–6 hours for a single consultation.
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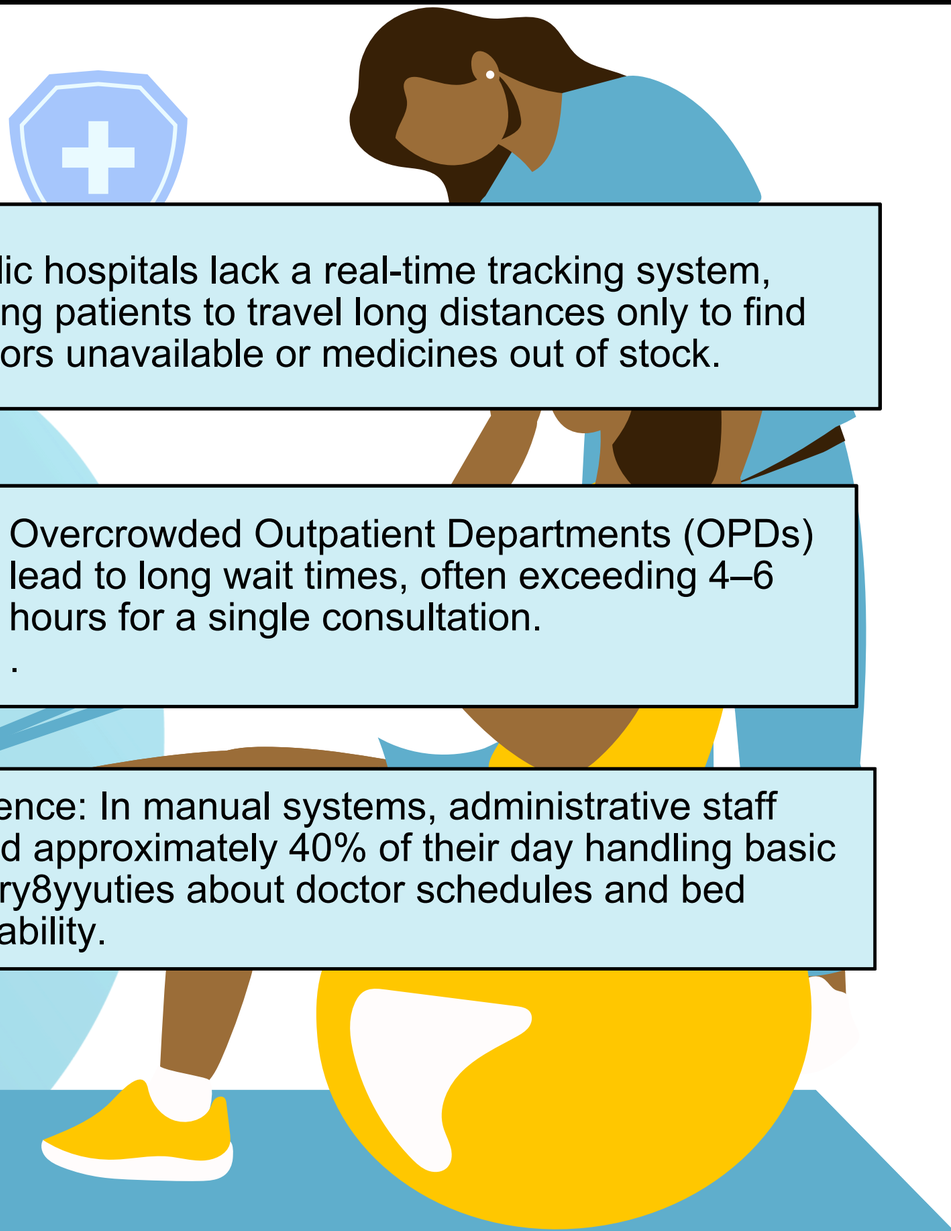
Economic Cost

Thousands of hours in labor productivity are lost annually as citizens wait in queues for basic healthcare services

Evidence

Evidence: In manual systems, administrative staff spend approximately 40% of their day handling basic inquiry8yyuties about doctor schedules and bed availability.



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The Solution:

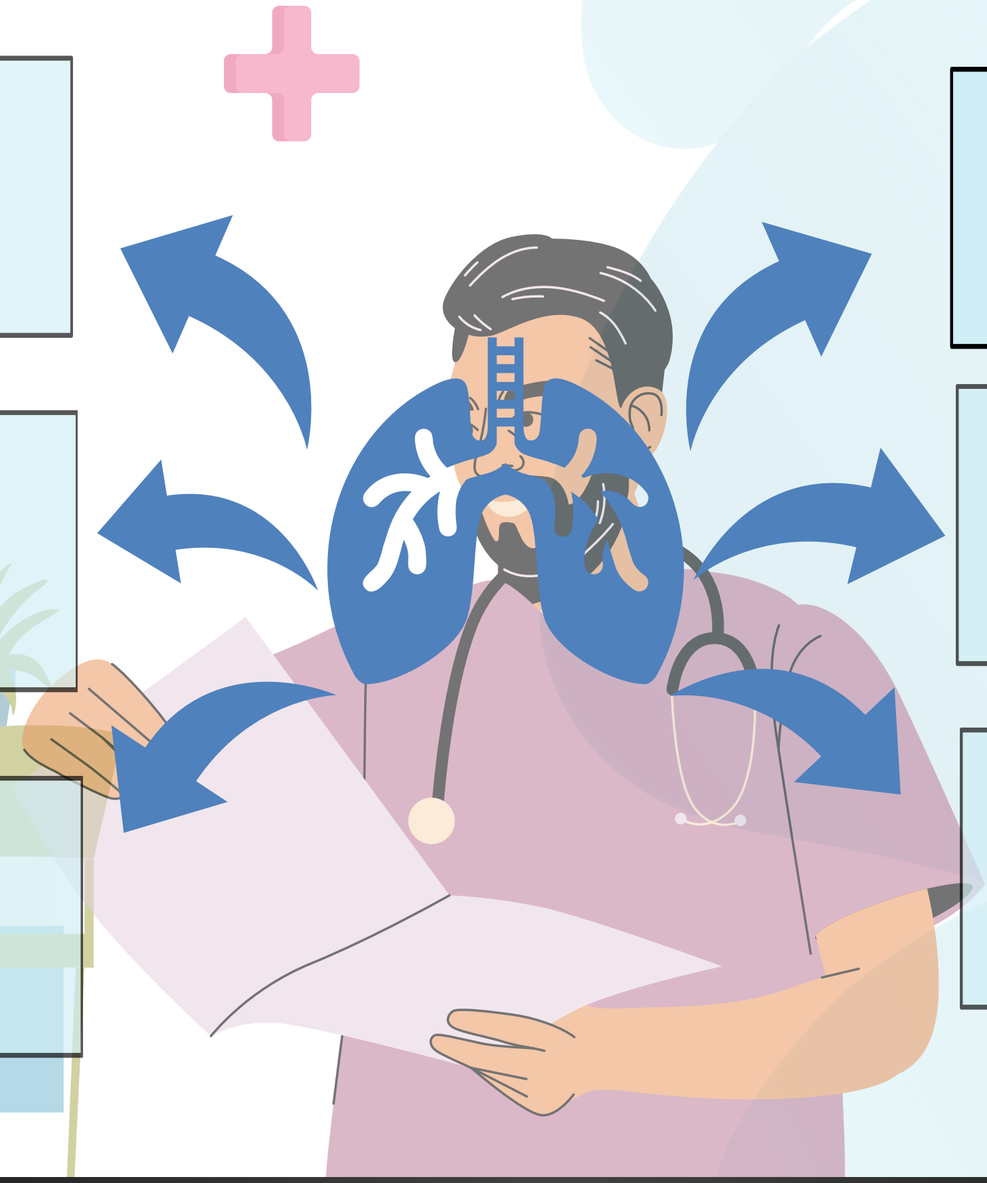
An integrated AI-powered mobile and web platform that provides a "live" dashboard of public hospital resources.

Key Functionality

Users can view real-time doctor attendance, search medicine stock, and book OPD slots through a centralized digital queue.

Vision

Our goal is to redefine how public healthcare handles patient flow and resource visibility, making it as seamless as private care.



Automated Scheduling

The system uses a predictive algorithm to distribute appointments evenly throughout the day to prevent peak-hour overcrowding.

Inventory Transparency:

Direct integration with hospital pharmacies allows patients to verify medicine availability before they leave home.

Emergency Mode:

A dedicated module to show real-time bed and ventilator availability for urgent referrals.

01

1 Our system is 10x faster than traditional manual registration and is the first to integrate pharmacy stock with appointment booking.

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: Built using Flutter for cross-platform mobile access and React for the administrative hospital dashboard.

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A robust Node.js architecture to handle high-concurrency requests during peak morning hours.

Database/Cloud: PostgreSQL for relational data and AWS to ensure 99.9% uptime for critical medical services.

A Proprietary Queueing Algorithm that dynamically adjusts appointment slots based on real-time doctor check-ins.

Integration: Utilization of OpenAI API for a multilingual chatbot to help non-tech-savvy users navigate the booking process.

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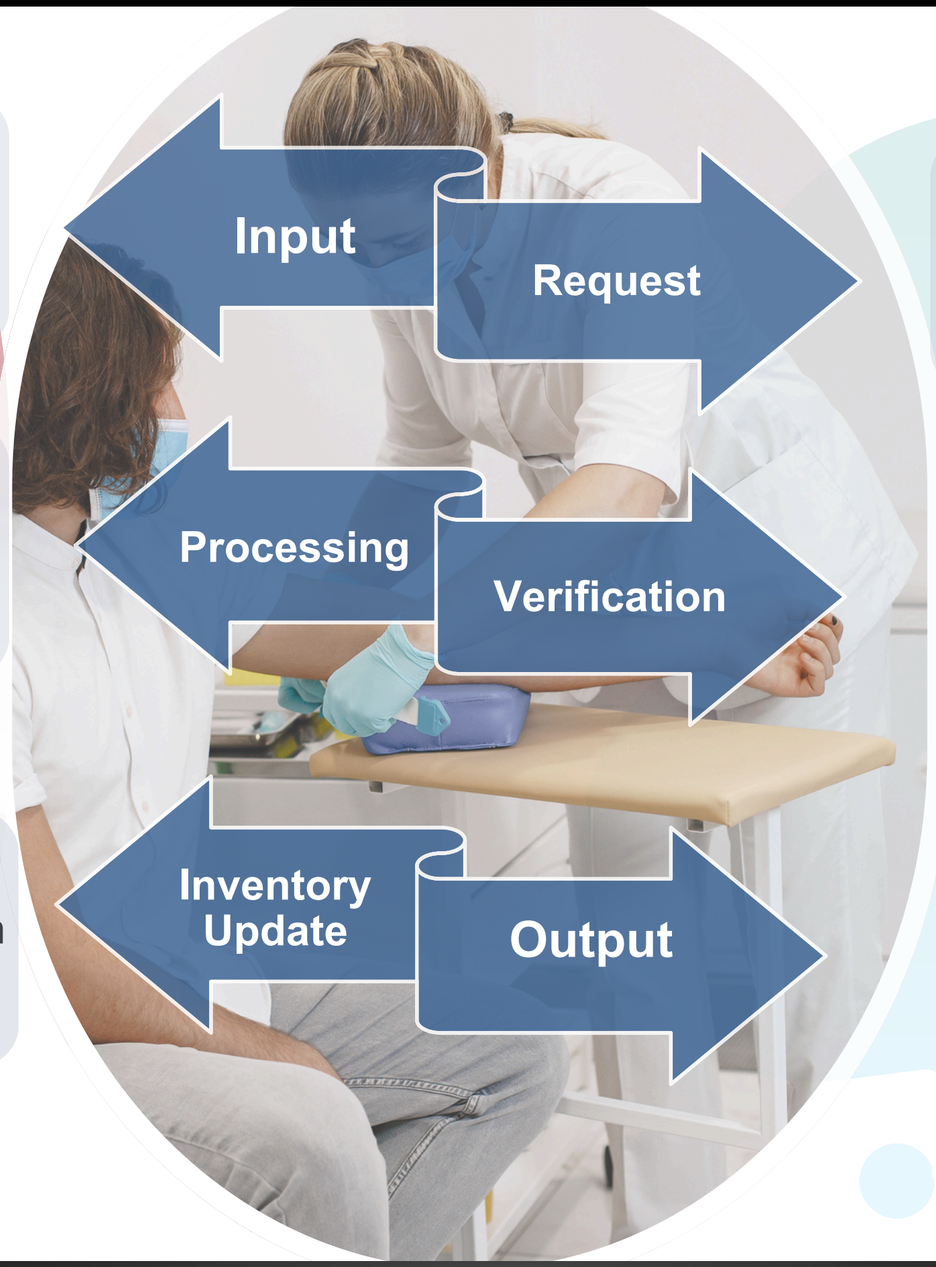
Step 1: The patient selects a specialty or medicine and enters their symptoms or requirements into the app.

Step 3 : The backend allocates a digital token and generates a QR-coded appointment pass using the core logic.

Step 3 : As medicines are dispensed, the database updates in real-time for all other users to see.



Step 2 (Request): The system queries the live hospital database to find the nearest facility with the specific doctor or stock available.

Step 4: Hospital staff scan the QR code upon arrival, automatically updating the live queue status.

Step 6 : The user receives a digital prescription and a follow-up notification on their mobile device.

Technical Feasibility

We have developed a Functional MVP demonstrating the core logic of live queue management and database synchronization.

Market Size

Targeting the Serviceable Obtainable Market (SOM) of urban public hospitals before scaling to rural healthcare centers.

Revenue Model

A B2G (Business to Government) subscription model or a nominal "convenience fee" for premium SMS notifications.

Scalability

The cloud-based infrastructure allows for seamless addition of new hospitals and clinics as the user base grows.

Data Security

Implementation of end-to-end encryption to ensure patient health records remain private and compliant with data laws.

Implementation

Phased rollout strategy starting with a pilot program in one metropolitan district to gather user feedback.

Team Member Details

- [Balaji A]: [Role, Team Leader].
- [Dilli Prasath K]: [Role, UI&UX Designer]
- [Pavalya J]: [Role, Backend]
- [Ashilbasha A K]: [Role, Frontend]
- [Elango S]: [Role, Problrm Analyst]

Reference

The Triage Bottleneck

- Mixed queues for minor and major cases cause chaos and gridlock. This prevents doctors from identifying and treating critical patients in time.

Hidden Hospital Resources

- A lack of live data makes it impossible to see which beds or doctors are actually free. This "blindness" causes some areas to overflow while others sit empty.

Staff and Patient Exhaustion

- Extreme crowds lead to burnt-out doctors and frustrated, untreated patients. When the system is overwhelmed, the quality of medical care drops significantly.

Smart Flow Management

- Moving from paper to digital dashboards helps balance the patient load. This ensures that every patient is sent to the right place at the right time.