UDAL

Centralized Patient & Resource Management System

THEME: PUBLIC HEALTHCARE SERVICE

CENTRALIZED PATIENT & RESOURCE MANAGEMENT SYSTEM

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Core Issue
Wenlock Hospital, lacks a centralized system to coordinate real-time patient flow, OT status, token management, and drug availability. This causes confusion for patients, caregivers, and even staff.

Constraints
- No unified platform to manage OT schedules, cancellations, and token queues
- Display screens underutilized or inconsistently updated
- No real-time sync between departments (Cardiology, OT, Inventory, etc.)
- Delays in patient movement, drug collection, and communication
- Inability to publicly reflect emergency alerts or drug stock outs

Context
With high patient volumes and specialized departments (e.g., Cardiology, OT), Wenlock Hospital needs a smart display ecosystem to show updated patient, procedure, and drug information. This system would reduce anxiety, improve operational efficiency, and ensure timely care delivery, especially in emergency and surgical cases. When systems are fragmented, delays and miscommunications can result in critical errors and patient dissatisfaction

Groundwork to be considered
- What token system or queuing logic works best across departments (Cardiology, Consultation, OT)?
- How can drug inventory sync with main lobby displays?
- What visual structure will be most understandable to the public (patients + staff)?
- What privacy settings and approvals are needed for name-based displays?
- How to integrate emergency codes (Code Blue, Red, etc.) for instant response?

Existing Systems

- 73 LG Digital Display Screens: Installed across the hospital and managed through LG's centralized software.
- Inventory Management System: Tracks drug availability and stock status across pharmacy and dispensing units.
- Token Systems in use (Basic Level): Existing token displays in limited areas (not yet fully integrated).

Resources

- EHospital: https://ehospital.gov.in/ehospitalsso/

  The e-Hospital application is being offered as an as-is product to the government hospitals across the country through SaaS (Software as a service) model. The modules of e-Hospital application which are currently available on cloud are Patient Registration (OPD & Casualty), IPD (Admission, Discharge & Transfer), Billing, Lab Information System, Radiology Information System, Clinic, Dietary, Laundry, Store & Pharmacy and OT Management.

Technical Skills Required

- Systems Design & Architecture:
  - Designing a scalable system that connects different departments (Cardiology, OT, Inventory).
  - Handling real-time data flow for patient queues, emergency alerts, and resource tracking.
- Backend Development
  - APIs for communication between departments.
  - Databases for secure and efficient patient and inventory data storage.
- Frontend/UI Design
  - Simple, clear, and intuitive interfaces for doctors, nurses, and administrative staff.
  - Visualizations for queues, statuses, and emergencies.
- Real-Time Systems
  - Message queues (e.g., RabbitMQ, Kafka) or WebSockets for live updates.
- Cybersecurity & Privacy
  - Role-based access controls (RBAC).
  - Compliance with medical data standards (e.g., HIPAA-like standards for India).

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