

Project Design Phase

Proposed Solution

Date	03 November 2025
Team ID	NM2025TMID01909
Project Name	Medical Inventory Management
Maximum Marks	2 Marks

Overview

The proposed solution is a **comprehensive, digital Medical Inventory Management System (MIMS)** designed to **automate, monitor, and optimize** the management of medical supplies, medicines, and equipment within healthcare institutions.

System Features & Modules

Module	Description	Purpose / Problem Solved
Inventory Management Module	Tracks all medical items, their quantities, and storage details in real-time.	Eliminates manual tracking errors and ensures transparency.
Expiry & Stock Alert System	Generates automatic alerts for low stock and upcoming expiries.	Prevents wastage and stock shortages.
Purchase & Reorder Module	Automatically creates purchase orders when stock hits the reorder threshold.	Ensures continuous supply and reduces delays.
Supplier & Vendor Management	Stores and manages supplier details, contracts, and delivery records.	Simplifies procurement and improves accountability.
Barcode / RFID Integration	Scans items for automatic data entry and updates in the system.	Reduces manual workload and enhances accuracy.
Analytics & Reporting Dashboard	Displays real-time metrics like usage, wastage, purchase trends, and stock status.	Supports data-driven decision-making and budget optimization.
User Role Management	Provides role-based access for admin, pharmacist, nurse, and supplier.	Ensures data security and task clarity.

System Workflow

- Stock Entry:** Items are entered via barcode or supplier invoice.
- Real-Time Update:** Each issue or return updates the central database automatically.
- Monitoring:** The system continuously checks expiry dates and stock levels.
- Alerts:** Sends notifications for low stock or soon-to-expire items.
- Reordering:** Auto-generates purchase orders to approved suppliers.
- Reports:** Generates monthly usage, wastage, and supplier performance summaries.

Technical Implementation

Component	Technology
Frontend	React.js / Angular (Responsive Web UI)
Backend	Node.js / Django / Spring Boot
Database	MySQL / PostgreSQL
Authentication	JWT / OAuth 2.0
Integration	Barcode / RFID Scanning API
Hosting	AWS / Azure / On-Premise Server

Key Advantages

- Automation:** Minimizes manual entries and human errors.
- Efficiency:** Speeds up inventory checks, reorders, and reporting.
- Accountability:** Provides full traceability and audit trails.
- Cost Control:** Reduces wastage and improves purchase accuracy.
- Scalability:** Can be used across departments, branches, or hospitals.
- Accessibility:** Web or mobile access for real-time data visibility.

INVENTORY MANAGEMENT IN HOSPITAL

