

Abstract

Medical Inventory Management is an essential process in healthcare organizations to ensure the timely availability of medicines, equipment, and other medical supplies. Manual inventory systems often lead to errors, wastage, and inefficiencies such as overstocking or stockouts. To overcome these challenges, this project proposes a computerized Medical Inventory Management System that automates key functions including stock monitoring, supplier management, purchase order generation, and expiry date tracking. The system enhances accuracy, reduces costs, and provides real-time insights, ultimately contributing to efficient hospital operations and improved patient care.

Introduction

Healthcare institutions require an effective system to manage large volumes of medical supplies. Inventory mismanagement can disrupt medical services, delay treatments, and increase operational costs. A digital Medical Inventory Management System offers a structured approach to handle stock-related activities, ensuring that medicines and equipment are available when needed while avoiding unnecessary wastage. This project focuses on developing an efficient system that replaces manual processes with automation, streamlining inventory handling for hospitals, pharmacies, and clinics.

Objectives

- To automate the process of medical stock entry, update, and retrieval.
- To track expiry dates and generate alerts for near-expiry items.
- To maintain records of suppliers, purchase orders, and issued supplies.
- To generate reports for decision-making and future stock forecasting.
- To minimize wastage, reduce costs, and ensure timely supply availability.

Methodology

1. System Design – A user-friendly interface was developed for administrators and staff.
2. Database Management – Centralized storage for medicines, suppliers, and transaction details.
3. Features Implemented –
 - Real-time stock monitoring
 - Expiry alerts and notifications
 - Automated purchase order requests
 - Supplier and distribution tracking
 - Reporting and analytics
4. Testing & Validation – The system was tested with sample data to ensure accuracy, security, and usability.

Results

The proposed system successfully streamlined inventory operations by automating stock management processes. Expiry alerts reduced wastage, while real-time updates ensured accurate stock availability. Reports generated by the system enabled better forecasting and cost management. Compared to manual methods, efficiency improved significantly, and error rates in inventory handling were minimized.

Conclusion

The Medical Inventory Management System provides a reliable, efficient, and user-friendly solution for handling medical supplies in healthcare institutions. By automating stock control, reducing human error, and ensuring timely availability of medicines and equipment, the system enhances operational efficiency and supports better patient care. With further integration of predictive analytics and cloud-based access, the system can be scaled for use across larger healthcare networks.