

Sun Fibo Technology

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Abstract—The hospital's management system includes improved profitability, improved administration, and better patient care. The goal of this study is to create a digital management system that will boost the hospital's effectiveness and systems integration standards. It was able to produce a module that would provide some facilities, like booking doctors, booking lab test slots, pharmacy services, and getting health programs. This system consists of an admin handling part, which means admin can manage users, pharmacy systems, health program management, and manage booking of doctor's appointments and lab tests. And through this system, the admin can generate multiple reports according to his needs [7]. A module that would manage the admission bills and pharmaceutical payments; and a module that could monitor the medicine inventory of the hospital pharmacy. Problem statement because hospitals are associated with ordinary people's lives and daily routines the manual handling of the record is time-consuming and highly prone to error. The purpose of this project is to automate, or make online, the process of day-to-day activities. Each phase guided the researchers in the development of the study and helped them organize the workflow of each task. In conclusion, the researchers found that the system could speed up the working progress and productivity of hospital employees. It could also generate hospital reports that could help the users to provide an overview of the hospital transaction within specific date. It also provided the facility for searching for the details of the inquiring patient in the receptionist module. The system could reduce the workloads in the hospital, resulting in better management and working performance. In general, the study resulted in a better improvement of hospital transactions. It has been recommended that there is a need to enhance the frontend design of the system

I. INTRODUCTION

A System is a mobile-based application designed to simplify and improve the overall functioning of healthcare services. In traditional hospitals, managing patient records, doctor schedules, treatment details,

appointments, and billing can be time-consuming and prone to errors when done manually. This system provides a digital solution that makes the entire process faster, more accurate, and well-organized.

The main purpose of the system is to maintain information about patients and doctors in a structured and secure manner. It helps in recording patient details such as medical history, current treatment, reports, and prescriptions. For doctors, it manages availability, specialization, daily appointments, and patient interactions. By storing all information in one centralized platform, it becomes easier for hospital staff to access and update records when needed.

A Doctor and Patient Management System reduce paperwork, saves time, and improves the quality of healthcare services. It ensures quick appointment scheduling, accurate record-keeping, efficient communication between doctors and patients, and better decision-making through reliable data. Overall, this system plays a crucial role in modernizing hospital operations and providing smooth, reliable, and patient-centered healthcare management

II. PROBLEM STATEMENT

A many hospitals and clinics, the management of doctor and patient information is still handled through manual processes such as paper files, handwritten registers, and basic spreadsheets. These outdated methods create several challenges that affect the overall efficiency of healthcare services. Patient records can be misplaced, damaged, or difficult to retrieve quickly, especially during emergencies. Without a centralized database, doctors face delays in accessing complete medical histories, test reports, previous prescriptions, and ongoing treatments, leading to slower decision-making and potential

medical errors.

Appointment scheduling becomes inefficient because staff members have to check availability manually, which can result in double bookings, long waiting times, or improper coordination between patients and doctors. Billing and payment records are also prone to errors when handled manually, causing confusion for both patients and hospital administration.

Additionally, there is no real-time communication between departments, making it hard to track patient movement from OPD to diagnostic labs, wards, or discharge. When data is scattered across multiple departments, maintaining accuracy, privacy, and security becomes challenging. Hospitals struggle with maintaining updated records, generating reports, and ensuring proper follow-up care due to lack of organized digital systems.

Therefore, there is a strong need for a computerized Doctor and Patient Management System that centralizes all information, automates administrative tasks, improves data accuracy, enhances communication, and ensures better coordination between doctors, patients, and hospital staff. Such a system would streamline operations, reduce workload, minimize errors, and ultimately improve the quality of healthcare delivery.

III. OBJECTIVE

- To Digitize Patient and Doctor Records
- To Improve Appointment Scheduling
- To Provide Accurate and Up-to-Date Patient Information
- To Enhance Coordination Between Hospital Departments
- To Reduce Human Errors
- To Save Time and Increase Efficiency

IV. LITERATURE REVIEW

Five Relevant Research Papers

1. Web-Based Hospital / Patient Management Systems
A recent paper titled “Design and development of a web-based patient management information system” describes a system built to handle waiting-queue, reservations, medical records, reminders, and medical action modules. The authors argue that these

functionalities help improve operational efficiency for hospitals compared to traditional manual systems.

Similarly, another study “A Hospital Management System that is Web-Based” outlines a three-tier web application (patients, doctors, administrators) using standard web technologies (PHP, MySQL, HTML/CSS/JS) to support online patient registration, appointment scheduling, doctor/patient record handling, and administrative controls — making tasks more accessible and reducing paperwork.

These works reinforce the value of web-based solutions: centralization of data, easy access across roles (doctor, patient, admin), streamlined workflows, and ability to work across departments without physical paperwork.

Insight: Web-based systems are commonly proposed and implemented, offering clear advantages in accessibility, scalability, and integration making them a strong foundation for any modern hospital management solution.

2. Benefits of Digital / HIS / EMR Systems Efficiency, Accuracy, Better Data Management

Survey-based research in an Indian private-hospital setting (2025) explored perceptions of doctors regarding Electronic Medical Record Systems (EMRS). Respondents highlighted anticipated benefits including improved data accessibility, operational efficiency, digitized lab reports, and e-prescriptions but also pointed out obstacles like limited infrastructure, unreliable internet, staffing constraints, and financial costs.

A broader review on Clinical Information Systems (CIS) shows that such systems indeed improve patient-care workflows, documentation, and general efficiency. At the same time, the review identifies ongoing challenges around data exchange, system integration, and interoperability among different modules / departments.

In addition, research on big data management in healthcare warns about challenges in adopting and managing large-scale patient data though once implemented, these systems support analytics, resource planning, and improved decision-making.

Insight: Digital systems like HIS / EMRS / PMS are widely recognized for improving service delivery, minimizing manual errors, enabling better record-keeping, and facilitating scalability but success depends heavily on infrastructure readiness, integration, and organizational support.

3. Challenges, Barriers and Limitations of Hospital Information Systems

A study comparing academic and non-academic hospitals found that nurses often face resistance when adopting HIS, with common obstacles including negative attitudes toward change, lack of training, and difficulties adapting to new workflows.

Some analysts suggest that implementing a hospital information system (HIS) can involve increased cost and time, especially in the early stages, and might not immediately lead to patient satisfaction.

There are also concerns about interoperability and data exchange — even modern Clinical Information Systems (CIS) struggle to integrate different departmental modules or external systems properly.

Insight: Transition from manual to digital hospital systems is not without drawbacks — user resistance, infrastructural constraints (internet, hardware), training needs, cost, and interoperability remain significant barriers, especially in resource-limited or rural settings.

4. Emerging Directions — Integration, Analytics, and Advanced Data Use

Some recent studies propose not just basic management features (registration, appointments, billing) but also data-driven and analytics-based enhancements. For example: a 2025 study titled “A Hybrid Data-Driven Approach for Analyzing and Predicting Inpatient Length of Stay in Health Centre” uses large patient datasets and machine-learning models to predict inpatient stay duration — which can help hospitals optimize bed usage, plan staff, and manage resources more effectively.

Another area of research is using semantic-web and interoperability technologies to manage and share healthcare data across heterogeneous systems efficiently — helping information exchange, decision

support, and e-health service delivery.

Insight: The frontier of hospital management systems is shifting toward intelligent, analytics-powered, interoperable platforms that not only manage data but also use it proactively to improve resource allocation, planning, and patient outcomes.

V. PROPOSED SYSTEM

1: Digital Patient Registration

Patients can register online or at the hospital digitally. Stores personal details, contact information, and basic medical history.

Doctor Registration and Profile Management

Doctors’ details such as specialization, schedule, and contact are stored.

Enables easy management of doctor availability and appointments.

Appointment Scheduling

Patients can book appointments based on doctor availability.

System prevents double-booking and reduces waiting time.

Patient Medical History Management

Stores past diagnoses, treatments, prescriptions, and lab reports.

Doctors can access complete patient history for better decision-making.

Prescription and Treatment Management

Doctors can upload prescriptions and update treatment details digitally.

Patients can view prescriptions online.

Billing and Payment Management

Generates digital bills for consultations, tests, and treatments.

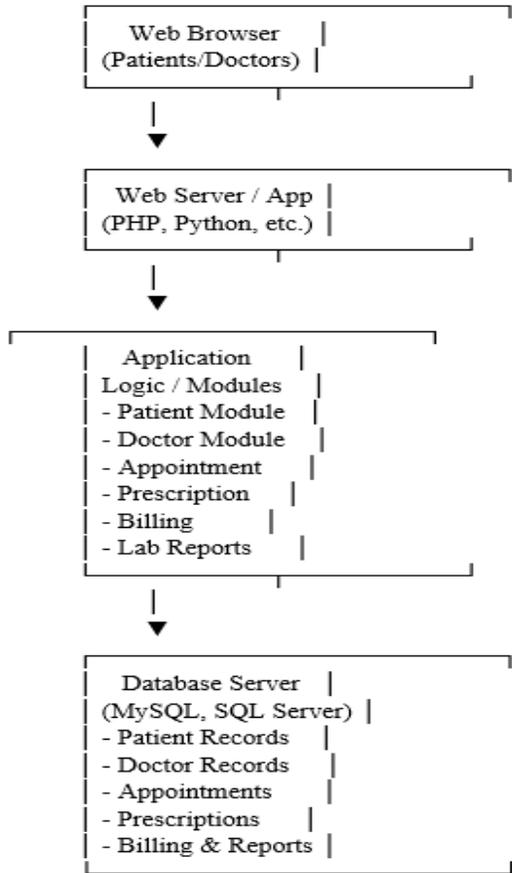
Supports accurate billing and reduces manual errors.

Laboratory and Test Report Management

Stores lab test results and makes them accessible to doctors and patients.

Ensures quick retrieval and tracking of reports.

System Architecture



VI. METHODOLOGY

Phase	Description
Requirement Analysis	The system requires managing patient and doctor information, appointments, prescriptions, billing, and reports efficiently. It should be secure, user-friendly, and accessible to doctors, patients, and hospital staff.
System Design	Decide on a centralized database system accessible by all authorized users.
Development	Technologies (PHP, Java, or Python for backend; MySQL or SQL Server for database; HTML/CSS/JavaScript for frontend).
Testing	Unit testing, Integration testing, User acceptance testing
Deployment	Host on cloud platform ()

VII. CONCLUSION

The Doctor and Patient Management System automates hospital operations, reducing manual work, errors, and delays. It provides a centralized platform for managing patient records, doctor schedules, appointments, prescriptions, billing, and reports efficiently. By improving data accuracy, streamlining workflows, and enhancing communication between

staff, doctors, and patients, the system ensures better healthcare service and patient satisfaction. Overall, it contributes to faster, organized, and more reliable hospital management.

The platform improves:

- reducing errors,
- speeding up appointments
- billing,

ENHANCES PATIENT SATISFACTION
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