



# Hospital Management System

Vignesh A<sup>1</sup>, Shrikara Acharya<sup>2</sup>, Varunesh<sup>3</sup>, Jennifer Immanuale<sup>4</sup>

Student, Dept. of Computer Science Engineering, Dayanand Sagar University, Karnataka, India<sup>1-4</sup>

**Abstract:** Hospital Management System" revolutionizes hospital management by introducing a comprehensive and automated solution for streamlined patient care. Through a user-friendly online appointment system initiated by QR code scanning, patients seamlessly engage with the healthcare process. Timely notifications keep patients informed about their appointment status, eliminating unnecessary waiting periods. Hospital Management System" revolutionizes hospital management by introducing a comprehensive and automated solution for streamlined patient care. Through a user-friendly online appointment system initiated by QR code scanning, patients seamlessly engage with the healthcare process. Timely notifications keep patients informed about their appointment status, eliminating unnecessary waiting periods.

The HMS is a direct and digital interaction platform between doctors and patients. Doctors can efficiently write electronic prescriptions on-screen, which are instantly transmitted to the pharmacy for preparation. The integration with pharmacy services ensures that prescriptions are ready for collection precisely when the patient needs them. The pharmacy, in turn, sends notifications to patients, signaling the opportune moment to retrieve their medications.

HMS is a digital platform that enables doctors to write electronic prescriptions on-screen, which are then sent to pharmacies for preparation. This system optimizes the healthcare journey by reducing wait times, improving prescription processing, and enhancing patient satisfaction. It also sends notifications to patients, allowing them to retrieve their medications at the right time. OpdFlow represents a transformative approach to modern healthcare management, enhancing real-time communication and coordination between medical practitioners and pharmacies

**Keywords:** HMS, QR code scanning, appointment status, pharmacy, OpdFlow

## I. INTRODUCTION

Introducing Hospital Management System, a groundbreaking project poised to revolutionize healthcare management. OpdFlow pioneers a seamless and efficient system for hospitals, offering patients a simplified online appointment process initiated through QR code scanning. With a focus on enhancing the patient experience, Hospital Management System employs a robust notification system, ensuring timely updates and reducing waiting times. The platform facilitates direct, digital interactions between doctors and patients, allowing electronic prescription writing on-screen. Notably, OpdFlow integrates seamlessly with pharmacy services, expediting prescription processing and notifying patients when their medications are ready for collection. This innovative approach signifies a transformative leap in healthcare administration, fostering improved accessibility.

Hospital Management System prioritizes patient satisfaction by providing a user-friendly online appointment system, minimizing wait times, and facilitating convenient interactions with healthcare providers.

Efficient Healthcare Operations: The project streamlines hospital operations by automating processes, such as appointment scheduling and prescription management, leading to increased efficiency and reduced administrative burdens

## II. PROBLEM STATEMENT

hospital management system is an innovative solution that aims to improve the efficiency, patient satisfaction, and communication within outpatient departments (OPDs) by automating and integrating key aspects of the OPD workflow. The solution includes patient appointment scheduling, check-in procedures, queue management, patient triage, medical records management, resource allocation, communication and follow-up, and analytics and improvement.

Automated systems streamline the booking process, reduce paperwork, and optimize resource allocation. They also help manage patient queues, ensuring timely patient care. Patient triage uses technology to assess patients based on severity. Overcrowding is a common issue in Hospital Management System, particularly in the Registration Counter, Waiting



Areas, Consulting room, and Dispensary. As outpatient volume and patient flow increase, blockages may increase, leading to increased waiting times. Reducing waiting time and ensuring patients receive the right care at the right time will significantly improve patient outcomes and reduce care costs. Medical records management ensures secure access and swift decision-making, while real-time patient flow data optimizes staff and equipment allocation.

The text emphasizes the importance of efficient appointment scheduling, streamlined check-in processes, a robust triage system, and real-time queue management in healthcare to minimize patient waiting times. It also highlights the need for staff productivity and coordination through digital tools and systems, such as integrated software for scheduling and patient records. Regular training sessions can enhance staff skills in new technologies, time management, and communication. HMS systems aim to improve patient care by streamlining processes, optimizing resource allocation, and reducing wait times. Efficient scheduling systems can reduce wait times for appointments and consultations, while clear communication about appointments and procedures ensures transparency. Comfortable waiting areas with amenities are created, and staff members should exhibit empathy and respect towards patients. To enhance patient flow, continuous training and technology adoption are recommended. Automated systems for patient communication and follow-ups improve patient care continuity, while continuous data collection on patient flow, waiting times, and operational efficiencies enhances the system for better outcomes.

III. DESIGN AND IMPLEMENTATION OVERVIEW

Hospital management system(HMS) Flow Automation Project aims to improve efficiency, patient experience, and staff productivity in hospitals by leveraging technology and streamlined processes. The system integrates QR code technology and seamless notification to streamline the outpatient department experience. It includes patient registration, appointment scheduling, EHR, staff management, inventory management, procurement and purchasing, vendor management, bill generation, and financial reporting. Key features of the OPDFlow include QR-code-based appointment scheduling, real-time consultation updates, in-app prescription management, and pharmacy notification. Patients can schedule appointments by scanning a unique QR code, generating a digital appointment form on the patient's phone. Doctors can access a digital platform to view and manage their appointment queue efficiently. In-app prescription management allows doctors to input prescriptions directly into the system, minimizing delays and ensuring prompt processing. Pharmacy notifications initiate the medication preparation process in real-time.

The system architecture includes an intuitive online platform for patients to book appointments, an algorithm for optimizing appointment slots based on factors like doctor availability, patient load, and urgency, automated kiosks or mobile check-in options, a digital queue management system, AI-based or algorithm-driven triage system, and a secure and centralized electronic health records system.

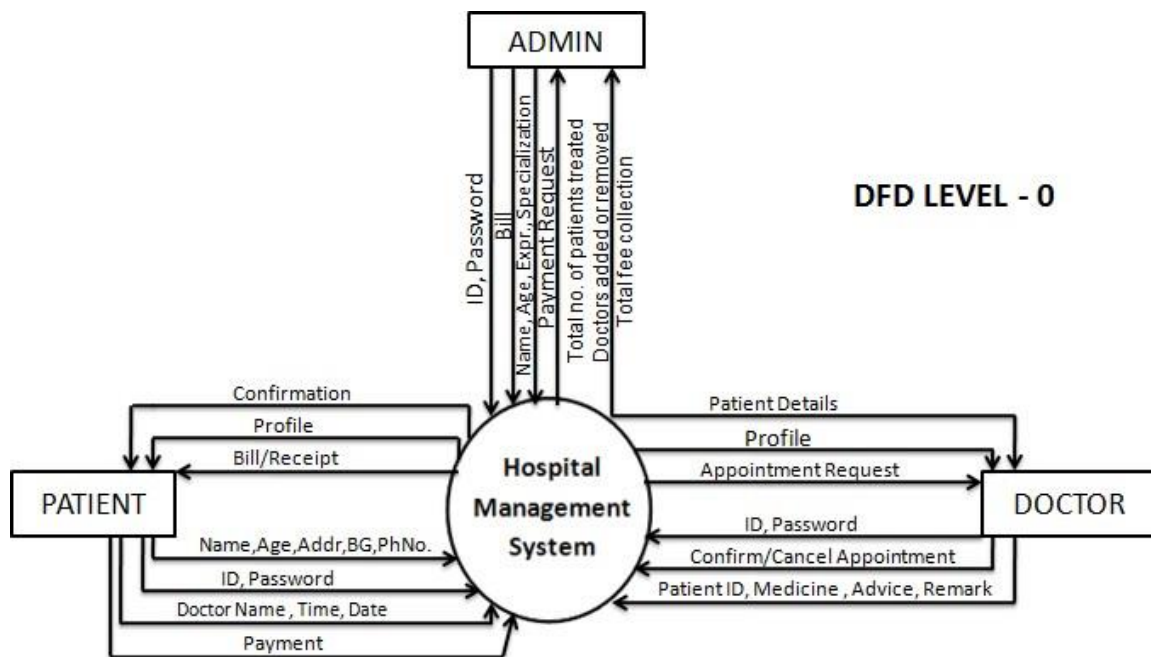


Fig. 1 Hospital Management System

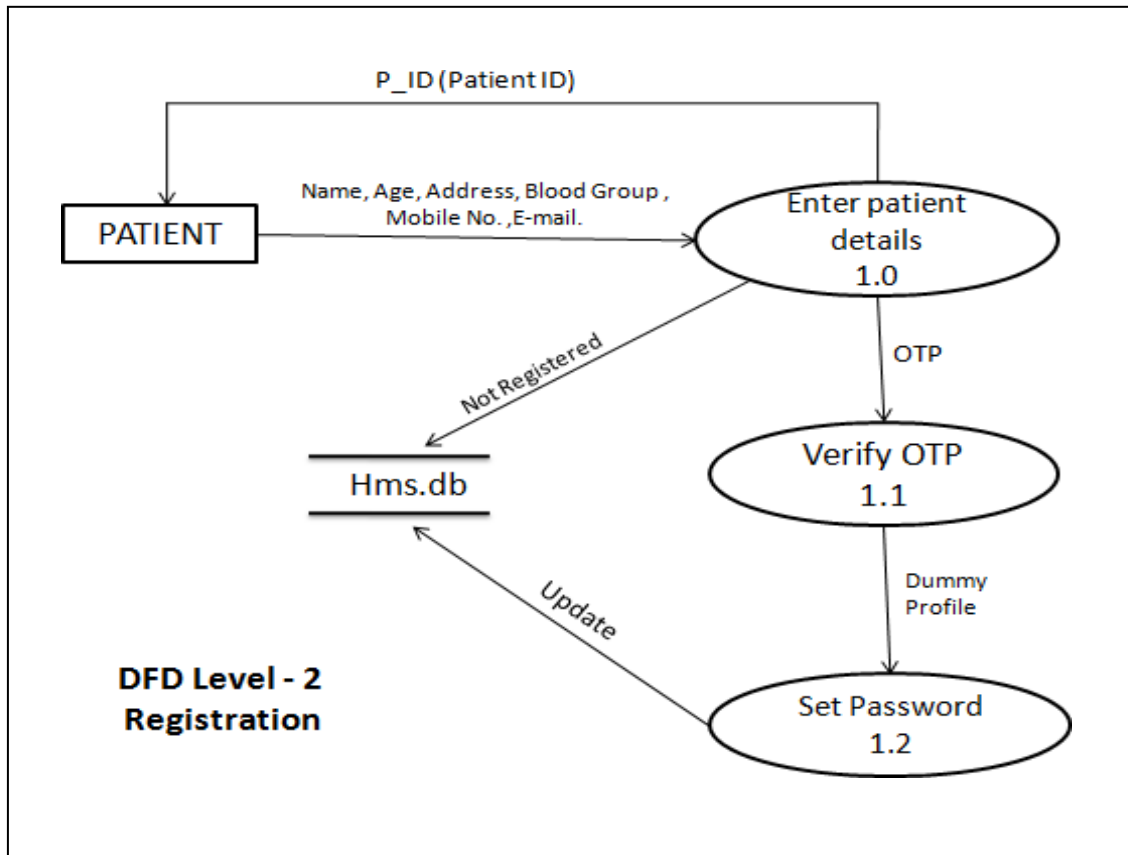


Fig. 2 Hospital Management System Registration

#### IV. METHODOLOGY

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A Hospital Management System (HMS) is a software development project that involves several stages, from planning and design to implementation and testing. The process starts with a requirement analysis to understand the hospital's needs and identify key functionalities. The system design involves creating a detailed system architecture, defining modules and their interactions, choosing appropriate technologies and frameworks, and designing a database schema for information storage. User interface design involves designing intuitive and user-friendly interfaces using wireframing

The development process involves coding system modules according to design specifications, following best practices like code modularity, commenting, and version control. Integration ensures seamless functionality and data flow, while testing identifies and fixes bugs. Testing involves thorough testing to identify and fix bugs

Hardware development for a HMS involves creating and testing physical devices, sensors, or equipment that integrate with the software system to enhance functionality or efficiency. This process involves identifying areas for improvement, conducting research on available hardware technologies, selecting components based on compatibility, reliability, cost-effectiveness, and scalability, and considering the specific requirements of the hospital environment.



Working closely with software developers, the integration of hardware components and the HMS software is ensured through the definition of protocols and APIs for data exchange and interoperability. Rigid testing of the integrated hardware and software system in simulated and real-world hospital environments evaluates performance, reliability, and accuracy.

Compliance and regulation are ensured by ensuring the integrated hardware meets regulatory requirements and standards for healthcare devices and equipment. Iterative improvement is ongoing, incorporating updates and enhancements to improve performance, usability, and functionality.

## V. FUNCTIONAL REQUIREMENTS

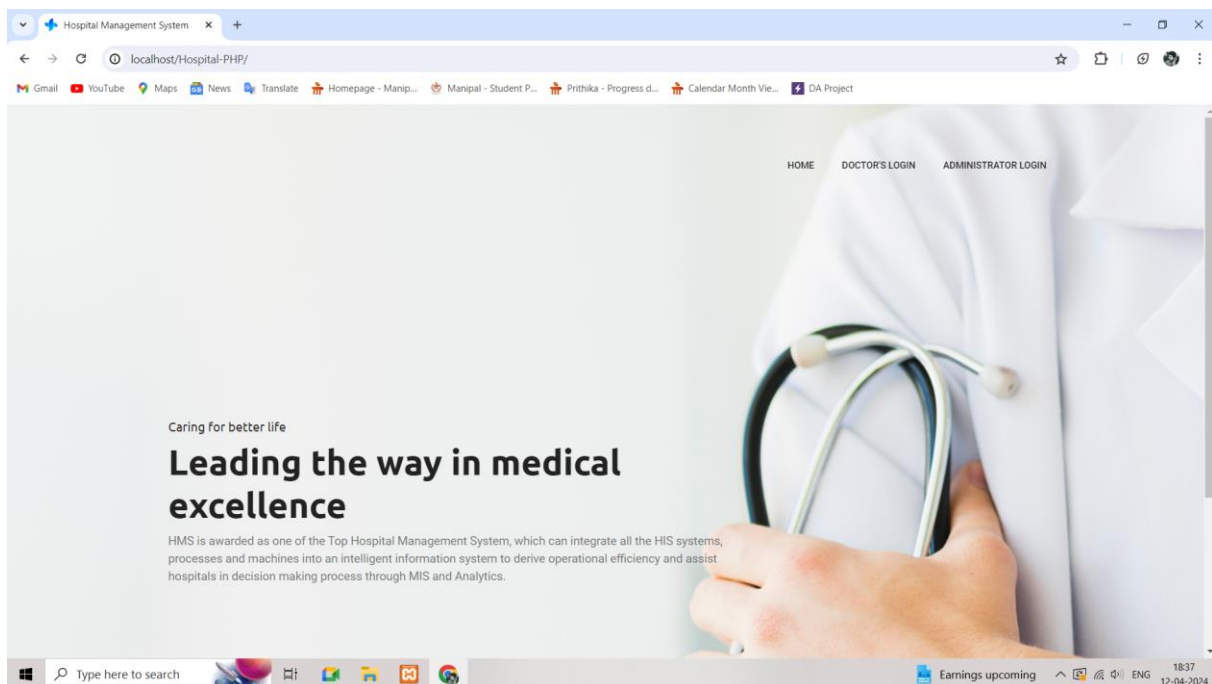
### HARDWARE Requirements

- The Laptop/Desktop PC-Purpose of this is to give information when Patients ask information about doctors, medicine available lab tests etc. To perform such Action it need very efficient computer otherwise due to that reason patients have to wait for a long time to get what they ask for.
- laser Printer (B/W) - This device is for printing patients' info etc.
- Wi-Fi router - Wi-Fi router is used to for internetwork operations inside of a hospital and simply data transmission from pc's to sever

### SOFTWARE Requirements

- Windows 7 or above operating system
- Mysql server - Database connectivity and management ▪
- OS Windows 7/8/8.1- Very user friendly and common OS
- Mysql server

## VI. TESTING AND RESULTS





Search

#	Name	Number	Address	Phone	Age	Category	Action
1	raghu k	8M9EO	2nd cross Ecity	9856321470	25 Years	OutPatient	<a href="#">View</a>
2	varunesh a	OIWFH	#102	123456789	25 Years	InPatient	<a href="#">View</a>
3	SHRIKARA ACHARYA	U3DBE	GB PALYA	9876543210	24 Years	InPatient	<a href="#">View</a>
4	Raju A	K3O2S	1st main, kudlu	7412569698	28 Years	OutPatient	<a href="#">View</a>

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HMS

Enter your email address and password to access admin panel.

Email address

Enter your email

Password

Enter your password

[Admin Log In](#)

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## VII. CONCLUSION

The project was a valuable learning experience that highlighted the importance of planning, design, and implementation. It allowed for creativity and teamwork, highlighting the role of communication and teamwork. The project was successfully completed after extensive efforts and hours, undergoing compiling, debugging, error removal, and bug fixes. It also added more features to the Hospital Management System, making it more reliable and useful. The project highlighted the importance of scheduling and adhering to schedules for effective time management. The project was developed and deployed according to user requirements, and it was found to be bug-free according to the testing standards. There are also few features which can be integrated with this system to make it more flexible.



Below list shows the future points to be consider :

- Getting the current status of patient.
- Including a different module for pharmacy, LAB, Bed Allotment and many more.
- Including a Frequently Asked Questions Section.

We have put in extensive effort into the development of our project, ensuring that we have met most of the user's requirements.

### ACKNOWLEDGMENT

The successful development and implementation of the "HOSPITAL MANAGEMENT SYSTEM" project owes a great deal to the invaluable contributions, guidance, and support from a diverse group of individuals and organizations. We extend our heartfelt gratitude to all those who played a pivotal role in bringing this innovative initiative to fruition.

Firstly, we would like to express our profound appreciation to **Dr. Kousalya G**, our project supervisor, for his unwavering support, insightful guidance, and constructive feedback throughout the course of this project. His expertise and dedication have been instrumental in shaping our approach and ensuring the project's success. We are also immensely grateful to the Department of Computer Science and Engineering at Dayananda Sagar University for providing the academic environment and resources that nurtured our research and development efforts. The encouragement and assistance received from the faculty and staff have been crucial in overcoming the challenges encountered during the project.

Our sincere thanks go to the technical team and developers who worked tirelessly to bring the concept of " HOSPITAL MANAGEMENT SYSTEM " to life. Their technical acumen, creativity, and commitment have been the backbone of this project, translating complex ideas into a functional and impactful system. We are indebted to the emergency services personnel who participated in the trial phase of the project, offering their time, insights, and feedback. Their firsthand experiences and suggestions have been invaluable in refining the system to better meet the needs of those at the forefront of emergency response.

Everyone's belief in the potential " HOSPITAL MANAGEMENT SYSTEM " has been a source of motivation and has enabled us to pursue this ambitious project.

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