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Online Hospital Appointment Booking System

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ABSTRACT

Nowadays hospitals are very busy and number of patients is increasing day by day. Because of this, appointment management becomes a big problem. In many hospitals, booking appointment is still done manually and this creates lot of issues. Patients have to wait long time, sometimes appointment details get wrong, and doctors also waste time. This makes hospital work slow and patients feel uncomfortable. This study talks about different research works related to hospital appointment systems. Most of the studies show that old paper-based systems are not useful anymore. So hospitals are moving to online appointment systems. These systems help patients to book appointments easily using mobile or computer. Doctors can also manage their schedule properly. Some systems even share patient load with nearby hospitals to reduce crowd. Different software tools like PHP, Java, MySQL and cloud systems are used to develop these platforms. Features like reminder messages help patients remember their appointments. During COVID time, online appointment systems helped a lot because people avoided standing in long lines and crowd. Overall, digital appointment systems make hospital work easier.

Keywords: Online Hospital Appointment System, Patient Scheduling, Digital Healthcare Management, Hospital Management System (HMS), Appointment Booking, Doctor Availability, Web-based Healthcare Application, Patient Satisfaction

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1. INTRODUCTION

Healthcare today is changing very fast because the number of patients is increasing, people expect better quality care, and technology is improving all the time. Hospitals and clinics are under a lot of pressure to give quick and good services while dealing with limited medical staff, equipment, and too much paperwork. One big problem in healthcare is patient appointment scheduling, because it affects waiting time, use of resources, staff workload, and how satisfied patients feel. Old appointment systems that use manual registration, paper files, or separate software usually cause long waiting lines, double bookings, lost data, and human mistakes. These problems make hospital work slower and also make patients unhappy. To solve these issues, many hospitals are now using digital hospital management systems and online appointment booking. Research shows that using centralized systems, web-based platforms, cloud technology, and smart scheduling methods can make healthcare services more efficient and easier to access. These systems allow patients to register online, book appointments in real time, get automatic reminders, check doctor availability, and keep medical records safe. During the COVID-19 pandemic, studies also showed that online appointment systems helped reduce crowding in hospitals, lower the risk of infection, and make healthcare more accessible, especially for elderly and weak patients. Even people who are not very good with technology were able to use these systems easily. Because of this, automated appointment management systems are now seen as an important part of modern healthcare. This project focuses on studying how intelligent appointment systems are designed, how they work, and how they help improve hospital efficiency, better use of resources, and patient satisfaction. It also looks at how these systems can support secure, scalable, and sustainable healthcare services for different types of medical institutions.

2. MATERIALS AND METHODS

2.1 Hardware Requirements

- Android smartphone
- Android 8.0 (API 26) or above
- Minimum 2 GB RAM
- At least 200 MB free internal storage

2.2 Software Requirements

- Java Development Kit (JDK 7 or higher)
- Any Java-compatible operating system (Windows, Linux, macOS)

- Command Line Interface or a Java-supported IDE like Eclipse or IntelliJ IDEA

2.2 System Design

The **User Interface Layer** This part is user interface. It gives easy screen for patients, doctors and admin. Anyone can understand and use it without problem. Patient can choose hospital, see department list, select doctor, book appointment, use emergency option and check dashboard. First hospital is chosen and then doctor, so flow is clear and user not get confused..

The **Application Logic Layer** is application logic. This part does all main work in background. It manages hospital selection, shows only related departments and doctors, checks appointment and handles emergency request. After choosing one hospital, all next work happens only for that hospital. This helps system to work smooth and avoids mistake.

The **Backend Data Layer** stores all details like hospital info, doctor data, patient records, appointment and emergency details. Admin controls hospital data and doctors are linked only to their hospital. Patient selected hospital and details are saved safely so it can be used again.

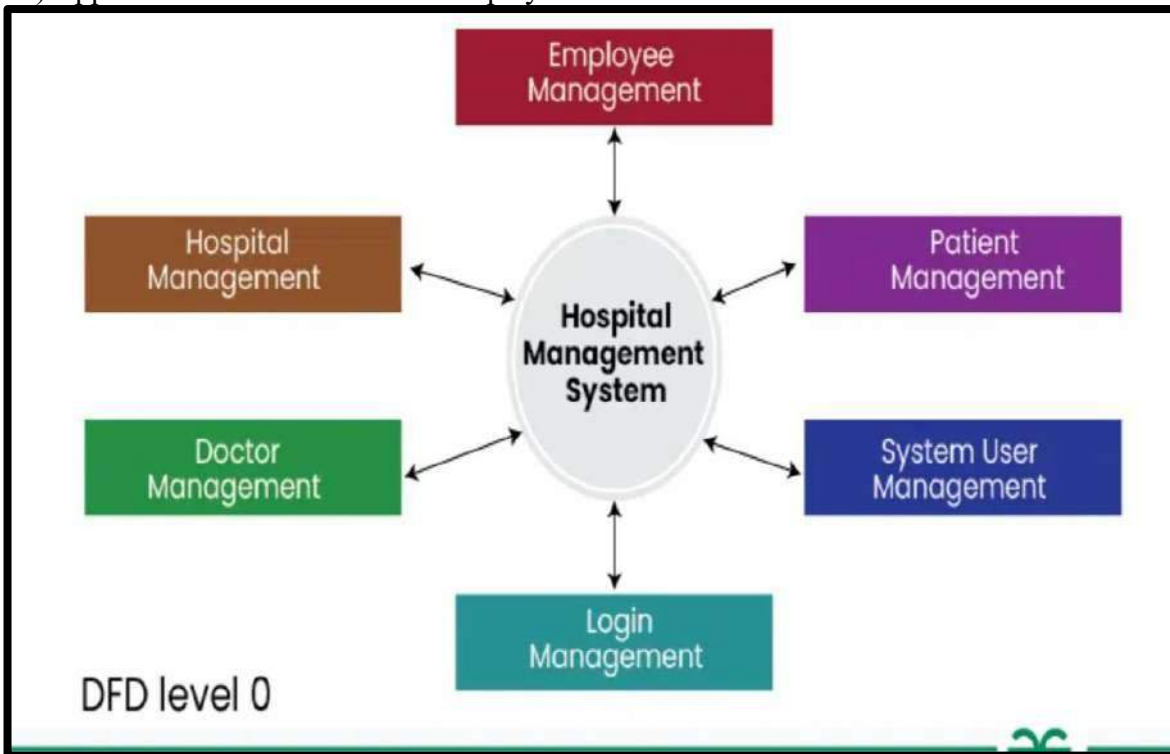
The **Security and Access Control Layer** is security part. This keeps system safe. It gives access based on user type like patient, doctor and admin. It also makes sure users see only their hospital data. Patient cannot open other hospital information, so privacy and data safety is maintained.

Development Methodology

The application workflow includes these steps:

- 1) User opens the hospital management application
- 2) Home page displays normal and emergency appointment options
- 3) User enters district and village details
- 4) System shows nearby hospitals
- 5) User selects a hospital
- 6) User selects disease type / department
- 7) Available doctors are displayed
- 8) User selects doctor and time slot

- 9) Appointment fee is calculated
- 10) Patient details are entered or login ID is verified
- 11) Appointment is confirmed and displayed



3. RESULTS

This hospital management system is made to help users book normal and emergency appointment in easy way. In this system, user can choose hospital and doctor based on place and department. It also shows free time slots and tells how much fee to pay. Patient details and appointment info are saved properly, so less manual work is needed and time is also saved. This system is simple to use and works in good way. In future, more features and database can be added to make system better.



Fig 1.1 Home page

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District: Bangalore
Village: Hosur
Hospital: City Care Hospital
Disease Type: Cardiology

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Is it.

Doctor Fees: \$200
New Patient? Yes
Patient Status: Outpatient
Age: 60
Book Appointment

Ol

Fig 1.2 Normal Appointment

Emergency Appointment

District: Bangalore
Village: Hosur
Hospital: City Care Hospital
Disease Type: Cardiology
Doctor: Dr. Sharma

Time: 11:30
Emergency Fee: \$1500
Book Emergency Appointment
Back

Fig 1.3 Emergency Appointment

Login ID: 4578
Login
Back

Logout as patient on

Patient Login

Fig 1.4 Patient login

OUTPUT:

===== HOSPITAL APPOINTMENT WEBSITE =====

1. Normal Appointment

2. Emergency Appointment

Select option: 1

Enter

District:

Bangalore

Enter

Village:

Jalahalli

Hospitals Near You:

1. Ci

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Care

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: 1

Enter Disease Type (cardiologist / dentist / dermatologist / general):

dentist Available Doctors:

1. Dr Meena

Select Doctor: 1

Available Time Slots:

- 12PM

Enter Date & Time: 12PM

Doctor Fees: ?300.0

Do you want to book appointment?

(yes/no): yes Are you a New

Patient? (yes/no): Yes

Enter Patient Name:

Aishwarya Enter

Patient Age: 20

Appointment
Booked
Successfully! Your
Login ID: 1000

===== APPOINTMENT DETAILS =====

District :
Bangalore
Village :
Jalahalli
Hospital : City
Care Hospital
Doctor : Dr
Meena

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4.CONCLUSION

This hospital management system is made to improve hospital work using software. It helps in making hospital process easy and fast. This system can be used in small clinics, medium hospitals and also in big hospitals. Because its design is simple, it can be changed and updated easily. In future, more features can be added like showing free beds, online doctor consultation, better emergency support and simple data checking. This project shows how software can help hospitals work better and give good service to patients

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