

Automated Patient and Doctor Handling System

Mukul Shukla, Adarsh Pandey, Rishabh Raj Maurya, Krish Sinha, Aulis Asif, Er. Deepika Sharma
Computer Science Engineering Chandigarh University
Mohali, India

Abstract:- Technological advancements in healthcare have brought significant changes in the delivery of care to patients. This paper proposes the creation of an online platform that provides a convenient and efficient tool for patients and doctors. The platform will streamline the appointment scheduling process, reduce waiting times, and improve patient outcomes while offering a secure space for patients to store their medical history and test reports. The proposed platform has the potential to revolutionize the healthcare industry and enhance the efficiency and effectiveness of healthcare delivery. It is essential to ensure that the platform is designed with patient privacy and data security in mind, in compliance with relevant laws and regulations.

Keywords:- Healthcare, technological advancements, online platform, appointment scheduling, patient outcomes, medical history, data security.

I. INTRODUCTION

The healthcare sector has experienced significant changes in recent times with the development of technological advancements, which have transformed the way medical professionals deliver care to patients.

As part of this development, the proposal suggests creating an online platform that will provide a convenient and efficient tool for both patients and doctors. The proposed platform will enable patients to easily schedule appointments with their preferred doctors, eliminating the need for lengthy phone calls and waiting in long queues. Patients will have the opportunity to view available slots and select a time that suits their needs, which will save them time and effort. This feature will also help doctors manage their schedules better, leading to increased productivity and better patient outcomes.

In addition, the proposed platform will offer a secure space for patients to store their medical history and test reports. By using this platform, patients will have easy access to their previous prescriptions, while doctors will be able to monitor their patients' progress over time. This will enable doctors to make informed decisions and provide better healthcare services to their patients.

Overall, the proposed platform will enhance the healthcare system by streamlining the appointment scheduling process, reducing waiting times, and improving patient outcomes. Moreover, by providing a secure platform to store medical records and test results, the platform will enhance the efficiency and effectiveness of healthcare delivery.

A. Maintaining the Integrity of the Specifications

An automated system for handling patients and doctors must adhere to requirements exactly in order for it to function properly and produce reliable outcomes. In order for healthcare professionals to utilize the system effectively and without problems or mistakes, the system's usability is also essential. Before deployment, the system must be properly tested and verified in order to retain the integrity of requirements. This involves evaluating the system's efficiency, precision, and security. The system should also be created using simple to understand and follow requirements that are short and to the point. The system should be made with a user-friendly interface that is simple to use and intuitive to traverse in order to ensure simplicity of usage. Additionally, the system should be created to reduce the amount of steps needed to execute activities and to give users clear instructions. To guarantee ease of use, users must also get training and assistance. The system should be well explained to healthcare practitioners, and assistance should be provided right away to handle any concerns or problems that may come up. To guarantee ongoing usability and preserve the integrity of the system's requirements, regular maintenance and upgrades are also essential. To guarantee that any system modifications do not affect accuracy, they should be properly tested and confirmed. All things considered, maintaining the integrity of specifications and guaranteeing usability in an automated patient and doctor handling system necessitates a thorough approach that includes extensive testing, clear specifications, user-friendly design, thorough training and support, and routine maintenance and updates.

➤ Product View:

This Automated Patient Information Management System is a standalone system that manages the activities of the Hospital. Due to poor data management, the medical center has significant difficulties in accessing historical data and current data management. The fully functional Automated Hospital Management System to be developed in this project will eliminate the 's disadvantages caused by the manual system while improving the 's reliability, efficiency and productivity. Using data to store patient, staff and inventory data etc. will make data easier to access, search, retrieve and manipulate. Access restrictions provided by access privilege levels increase system security. The system facilitates simultaneous access and convenient management of the activities of medical centers.

➤ Existing solutions:

Automated patient and doctor handling systems come in various options, ranging from basic appointment booking software to advanced systems that combine electronic medical records and patient communication. Some examples of these solutions include:

- Electronic health record (EHR) systems: enable healthcare providers to manage patient care by maintaining complete digital records of medical history. These systems automate several processes, such as scheduling appointments, medication administration, and invoicing, thus enhancing patient safety and reducing the risk of medication errors.
- Practice management software: designed to assist healthcare providers in managing their practices more efficiently by automating appointment scheduling, patient communication, and billing. This type of software streamlines administrative tasks and allows healthcare professionals to focus on providing quality patient care.
- Patient portals: web-based services that provide patients with convenient access to their health records, appointment booking, prescription refills, and communication with their healthcare providers. These portals promote patient engagement and satisfaction by providing patients with more control over their healthcare.
- Telemedicine platforms: facilitate remote communication between patients and healthcare providers through video conferencing or other technologies. Patients who live in rural areas or have mobility or transportation issues find this solution particularly beneficial. Telemedicine can also lower healthcare costs by reducing the need for in-person visits.
- AI-powered healthcare solutions: use artificial intelligence to automate various healthcare processes such as patient monitoring, predictive analytics, diagnosis, and treatment planning. These solutions have the potential to improve patient outcomes and reduce healthcare costs by automating routine tasks and identifying patterns and insights that may be missed by human healthcare providers.

B. Goals/Objectives:

- *Enhance Patient Care*
 - Improve quality of care through automation
 - Streamline appointment scheduling and patient registration
 - Optimize electronic health records (EHR) management
 - Automate patient triage and assessment
 - Enhance doctor-patient communication
 - Optimize prescription and medication management
- *Improve Patient Experience*
 - Provide convenient and user-friendly interfaces
 - Enable easy access to health information
 - Enhance communication and engagement with patients
- *Increase Operational Efficiency*
 - Automate manual processes to reduce administrative burden
 - Optimize resource utilization
 - Streamline appointment scheduling and patient check-in

- Digitize and centralize EHR management
- Automate billing and payment processing
- Enable data analytics and reporting for performance monitoring
- *Enhance Communication and Collaboration*
 - Facilitate effective communication among doctors, patients, and stakeholders
 - Provide telemedicine, secure messaging, and video consultation capabilities
 - Enable sharing and accessing of patient information and treatment plans
 - Support collaborative decision making among healthcare providers
- *Ensure Data Security and Privacy*
 - Implement robust data protection measures
 - Secure storage and transmission of EHR
 - Enforce access controls and authentication mechanisms
 - Comply with relevant data privacy regulations
- *Enable Data-Driven Decision Making*
 - Leverage data analytics and reporting for insights
 - Capture and analyze data on patient demographics, diagnoses, treatments, outcomes, and satisfaction
 - Generate reports for optimizing operations and improving patient care.

Overall, the goals and objectives of an automated doctor and patient handling system focus on improving patient care, enhancing patient experience, increasing operational efficiency, facilitating communication and collaboration, ensuring data security and privacy, and enabling data-driven decision making for better healthcare outcomes.

II. DESIGN FLOW/PROCESS

The design flow of an automated patient and doctor handling system can be broken down into several steps:

- Identify requirements: The first step is to identify the requirements of the system. This can be done by speaking with doctors, nurses, and administrative staff to understand their needs.
- Design database: Once the requirements have been identified, the system's database should be designed to store patient data, medical history, test results, and other relevant information.
- Design user interface: The user interface should be designed to be intuitive and easy to use. It should allow doctors and other medical staff to easily access patient information and update it as needed.

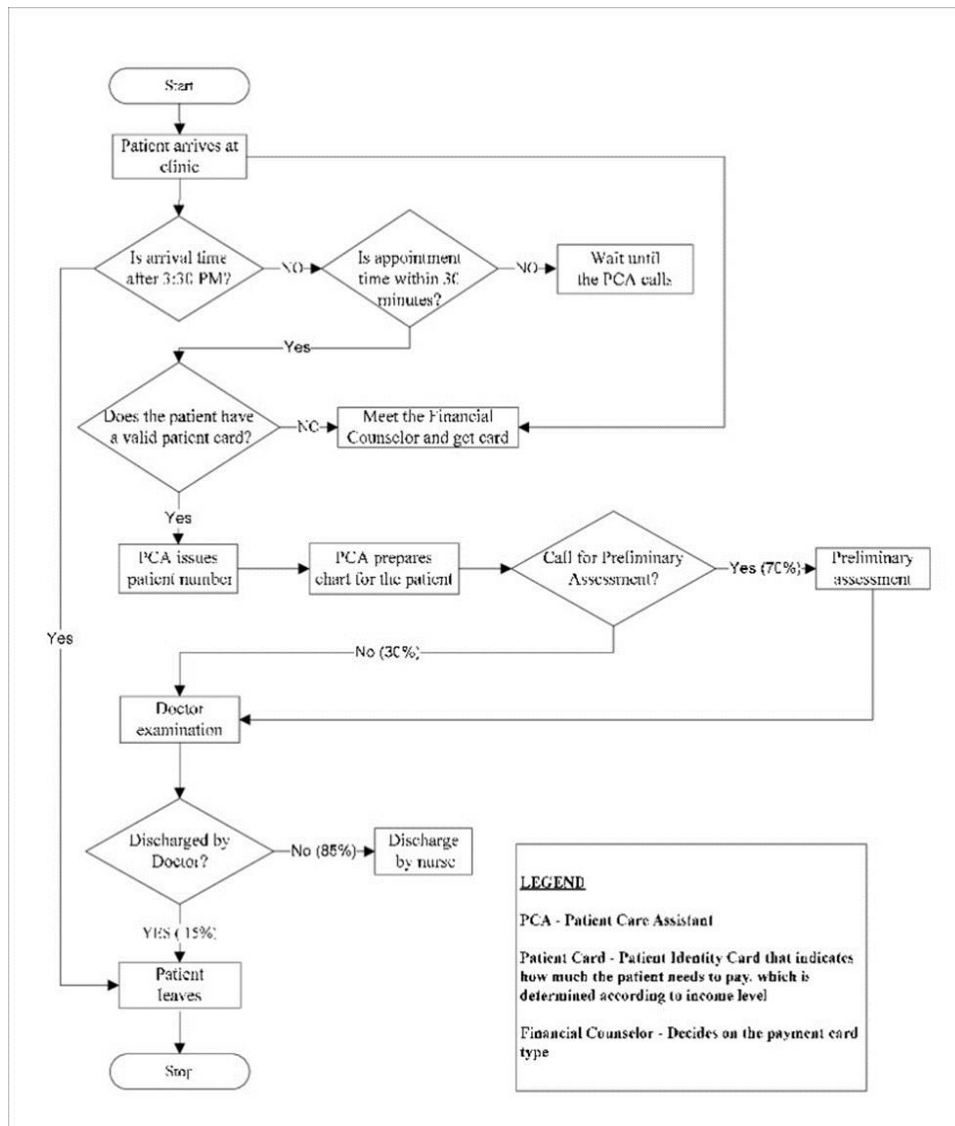


Fig. 1: Design Flow chart

- Develop system modules: The system modules should be developed to handle different aspects of patient and doctor handling. This may include modules for appointment scheduling, prescription management, test ordering and results, billing and insurance information, and communication between doctors and patients.
- Integrate with other systems: The automated patient and doctor handling system should be integrated with other systems used in the healthcare facility, such as electronic health records (EHR) and laboratory information systems (LIS).
- Test and refine: Once the system has been developed, it should be thoroughly tested to ensure that it works as intended. Any bugs or issues should be addressed, and the system should be refined as necessary.
- Implement and train: After testing and refining, the system should be implemented in the healthcare facility. Medical staff should be trained on how to use the system, and any necessary support should be provided to ensure a smooth transition.
- Monitor and maintain: The automated patient and doctor handling system should be regularly monitored to ensure

that it continues to function properly. Any updates or maintenance should be performed as needed to ensure the system's continued operation.

III. IMPLEMENTATION OF SOLUTION

A. SOURCE DATA

During the research work, data collection was carried out in many places. Ingathering and collecting necessary data and information needed for system analysis, two major fact finding techniques were used in this work and they are: (a) Primary source (b) Secondary source

- **Primary Source** Primary source refers to the sources of collecting original data in which the researcher made use of empirical approaches such as personal interview and questionnaires.
- **Secondary Source** The need for the secondary sources of data for this kind of project cannot be overemphasized. The secondary data were obtained by the researcher from magazines, Journal, Newspapers, Library source

IV. METHODS OF DATA COLLECTION

A. ORAL INTERVIEW

This was done between the researcher and the doctors in the hospital used for the studies, and the lab attendance was interviewed. Reliable facts were got based on the questions posed to the staff by the researcher.

B. Study of Manuals

Manuals and report based used by lab attendance were studied and a lot of information concerning the system in question was obtained.

C. Evaluation of Forms

Some forms that are necessary and available were assed. These include admission card, lab form, test result, bill card Etc. These forms help in the design of the new system.

D. INPUT ANALYSIS

The input to the new system is derived from the patient's card. When a patient visits the hospital, he/she fills the patients form from where a card is issued to the patient. This forms the input to the new system designed. The information required for entry into the system includes:

- Patients Name
- Sex
- Address
- Age
- Disease Symptoms
- Date visited

E. PROCESS ANALYSIS

Based on the information collected from the patient, an analysis is carried out. The symptoms are processed to obtain the accurate diagnosis of the sickness. Also the diagnosis will help in the processing of the system to obtain the best emergency health care system to be administered to the patient.

F. OUTPUT ANALYSIS

The output is derived from the processing carried out on the input data. The output is presented in form of reports on a patient's diagnosis and possible treatment to the ailment. The reports are displayed on the screen and can also be printed out as a hard copy

ACKNOWLEDGMENT

An essential component of an automated patient and physician handling system is acknowledgment, which informs users when a job or activity has been successfully accomplished. It can aid in boosting system confidence and lowering the risk of mistakes or misunderstandings. An automated patient and doctor handling system might include acknowledgement in a number of different ways. As an illustration, the system might display a pop-up message or play a sound to indicate that a task has been successfully accomplished. After a job is finished, the system may additionally provide a confirmation screen or message, which may include information about the task that was finished as well as the time and date that it was performed. Utilising status indicators is one another

technique to add recognition into the system. These might include visual signals that inform users of the progress of a task or action, such as icons or color-coded indications. A green indicator, for instance, may show that a job has been successfully finished, whereas a red symbol might show that a mistake has occurred.

In conclusion, including acknowledgment elements in an automated system for managing patients and doctors can assist to boost trust in the system and lower the possibility of mistakes or misunderstandings. Users should be given clear and simple instructions on how to utilize these capabilities by the system, and it should include visual cues or status indicators to give feedback on the status of tasks or actions.

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