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A Survey Paper on Integrated Hospital Management System

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ABSTRACT
Hospital Management Systems (HMS) are essential tools in modern healthcare, focusing on efficiency and streamlined operations. Key functionalities include patient registration, appointment scheduling, and doctor availability search. Accessible to administrators, doctors, and patients, HMS offers a customizable, user-friendly interface while emphasizing data protection and fast processing. Ongoing advancements promise to enhance the patient experience and diagnostic procedures, solidifying HMS's role in patient centric healthcare delivery.

KEYWORDS: HMS, CLOUD, HOSPITAL MANAGEMENT, ABHA, PHR, HEALTH CARE, PERSONAL HEALTH RECORD

1. INTRODUCTION

In the current rapidly evolving landscape of healthcare, the demand for proficient and successful management systems within hospitals has become of utmost importance. Hospital Management Systems (HMS) serve as comprehensive resolutions intended to tackle the intricate operational hurdles faced by healthcare establishments. The principal objective of HMS is to streamline administrative responsibilities, optimize resource allocation, and enhance the overall provision of patient care. By incorporating various functionalities such as patient enrolment, appointment arrangement, and physician availability search, HMS not only enhances the efficiency of hospital operations but also heightens the patient encounter. This introduction delves into the crucial necessity for HMS in contemporary healthcare settings and emphasizes its overarching purpose in facilitating smoother workflows and delivering superior-quality care to patients.

2. Literature Survey

“Implementation of a Hospital Management System for real-life” discusses about a detailed study of the current paper-based system and its challenges. The paper-based system is very time-consuming process and has very limited accessibility. as the information can be scattered across various forms and documents it can lead to difficulty in retrieving data and data inconsistency. This study proposes for the implementation of a digital system designed to streamline tasks such as appointment scheduling and doctor management, thereby enhancing overall efficiency and organization within the healthcare facility. [1]

"The Hospital Management System", study shows that, in digital system Data processing is quick and very well for personal and medical uses it aims to automate day-to-day activities and reduce manual handling of records that helps eliminates unreliability and risk of errors of manual information handling. system design consists different module for patient, doctor, and administrator. It provides hospital reports and patient details search facility but front-end need enhancement. [2]

"Personal Health Information Management System and its Application in Referral Management" evaluates the usability and clinical utility of digital systems showed positive results, with improved accuracy and efficiency for patients, doctors, and healthcare providers. Ongoing conditions can regularly update by hospital staff to ensure accurate and useful information for future consultations and treatments. System required technical security, for that we use the HTTPS and Transmission Control Protocol/Internet Protocol (TCP/IP) to fulfil the encryption, objects are protected by user-based authorization, Patients are authenticated by ASP.NET and Patients are restricted to viewing and modifying their own records. Limited access could obstruct collaborative care because it makes it difficult for patients to share their data with another doctor, hindering seamless coordination and potentially leading to fragmented medical care. [3]

"HAMS: An Integrated Hospital Management System to Improve Information Exchange", paper discuss as about how sub-module of a larger system can provide updated information about the status and availability of medical devices, beds, and medical staff during emergencies. is designed to improve information exchange and management in hospitals and healthcare facilities during emergencies. provides real-time updates on the status of a hospital. It has been developed as a web application that ensures universal accessibility across devices, promoting seamless integration and remote access for healthcare professionals, enhancing efficiency and scalability. [4]

"Cloud-based Intelligent Healthcare Monitoring System" paper highlights how Cloud computing offers transformative capabilities for healthcare organizations by providing scalable infrastructure and advanced data analytics for improved patient care and operational efficiency. It is important to assign patient IDs and maintaining a database of critical patient data for effective monitoring and communication with specialists. Cloud computing facilitates secure data storage through robust encryption and compliance measures, ensuring adherence to regulatory standards like HIPAA (Health Insurance Portability and Accountability Act), which helps to secure sensitive health information of patients. [5]

"Survey paper on hospital management system" discusses various designs to streamline operations, leverages Java as the front-end software, ensuring a robust and scalable user interface. Its connectivity with MySQL enhances data management and accessibility, facilitating efficient storage and retrieval of critical information. Additionally, utilizing Java and MySQL offers advantages such as cross-platform compatibility, extensive community support, and robust security features, contributing to the system's reliability and longevity. [6]

"Review on Smart Hospital Management System Technologies" discusses the importance of enhancing patient flow to improve healthcare services. A smart hospital environment can enhance the patient experience and optimize resource utilization. It focuses on reviewing smart health systems, emphasizing the infrastructure of smart hospitals. The need for technology in smart hospital systems is highlighted. the method is also proposed smart hospital systems. Smart systems integrate sensing, actuation, and control functions to analyse situations and make decisions based on available data, ultimately

performing smart actions. A healthcare system is essentially the organization of people to address the health needs of specific populations.[7]

“Impact of application of queuing theory on operational efficiency of patient registration”, this paper addresses the prevailing challenges faced by hospital administrators, specifically regarding issues such as overcrowding and prolonged queues during patient registration. The research investigates the use of queuing theory as a solution to enhance operational efficiency in healthcare settings. Queuing theory, widely employed in various industries, including healthcare, offers a systematic approach to analysing waiting times, resource utilization, and system performance. Through synthesizing existing literature, the potential of queuing theory in identifying bottlenecks and improving patient registration processes. The results of this study provide valuable insights for hospital administrators and researchers who aim to optimize resource allocation and enhance patient satisfaction by implementing queuing theory methodologies. [8]

"Cloud-based Secure Multi-Owner Hospital Management System" discusses that in the present era, the digitalization of the Healthcare sector has become an integral aspect of the system. Technology has bestowed upon the healthcare community a range of powerful tools to enhance patient care. With the availability of e-Health Records to physicians, they can conveniently access comprehensive medical histories of patients, thereby enabling them to make well-considered medical decisions. However, the storage of confidential health information on cloud servers is susceptible to potential exposure or theft, necessitating the development of methodologies that ensure the privacy of Personal Health Records (PHRs). The existing hospital system lacks a multi-hospital appointment booking system. The proposed system effectively addresses certain shortcomings of the current system. Through the application, patients can search for the nearest hospitals and obtain information on the number of nearby hospitals along with their ratings, reviews, and waiting times. Patients can then send appointment requests to hospitals and receive confirmation through messages. Additionally, multiple doctors can collaborate and provide treatment to the same patients. [9]

“Data sharing in a humanitarian organization: the experience of Médecins Sans Frontières”, author explores data sharing complexities within Médecins Sans Frontières (MSF), notably focusing on sensitive data like sexual violence cases. It highlights MSF's cautious stance on sharing such data, prioritizing privacy, and dignity protection. Proposing the implementation of a managed access protocol, it aims for responsible data sharing for safeguarding the sensitive information. The ultimate objective is to establish an ethically managed open dataset, necessitating a delicate balance between data sharing initiatives and ethical treatment of sensitive information. Continuous exploration and implementation of effective strategies are required to achieve this equilibrium effectively. [10]

2.1 ABHA a digital revolution in India

The ABHA card, also known as the Ayushman Bharat Health Account card, is a significant step towards digitizing healthcare in India. The ABHA card is a government-backed initiative under ABDM It provides a unique digital identity for managing your health records electronically, it makes Easy access to health records, Users can securely store, share, and retrieve comprehensive medical information, including histories, prescriptions, and lab reports, within a unified platform. Healthcare professionals gain access to patients' complete medical histories, that enhancing diagnostic accuracy and treatment efficacy. ABHA number is a 14-digit number that will uniquely identify you as a participant in India’s digital healthcare ecosystem. ABHA number will establish a strong and trustable identity for you that

will be accepted by healthcare providers and payers across the country, user can Link all healthcare benefits ranging from public health programmes to insurance schemes to their unique ABHA number.
ABHA holds immense potential to revolutionize the healthcare industry in India, its impact is currently restricted due to its sole focus on storing medical records of patients. Despite its capability to digitize and centralize health information, the card's scope is limited to this specific function. To unleash its full potential and truly transform the healthcare landscape, future iterations of the ABHA card could be expanded to encompass a broader range of features and functionalities. These could include integration with Hospital Management System it can significantly enhance access to Health Services. [11]

3. Conclusions

Hospital Management Systems (HMS) play a crucial role in modern healthcare, with a primary focus on promoting efficiency and optimized operations. Cloud Computing has the potential to enhance scalability and provide remote access, collaboration, and effective data management with secure data storage. The ABHA card, a government-supported initiative in India, holds the power to transform the healthcare sector through the digitalization of health records. Its scope can be expanded to encompass a wider array of features and functionalities, including integration with Hospital Management Systems.

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