INTERNATIONAL JOURNAL OF LATEST TECHNOLOGY IN ENGINEERING, MANAGEMENT & APPLIED SCIENCE (IJLTEMAS)

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

MedConnect: A Comprehensive Web-Based Platform Revolutionizing Healthcare Access and Management

Prof Sunil Sable, Prof Rahul Waikar, Omkar S. Katare, Samarth S. Mahajan, Keya J. Rachh, Vedant U. Nehe

Department of Computer Science & Engineering (AI) Vishwakarma Institute of Technology, Pune, Maharashtra, India

DOI: https://doi.org/10.51583/IJLTEMAS.2025.1410000164

Abstract:A dramatic evolve from conventional broken systems to a straightforward, patientfocused digital solution is required be cause of the increasing demands of attentive healthcare**.**

MedConnect, a innovative web-based healthcare platform created to improve and sped up access to healthcare services, is presented in this paper. Secure and comprehensive patient medical history and its management, easy online appointment bookings and face to face online consultations through Google Meet integration are few of the essential features that MedConnect provides. By giving physicians access to a patient database and powerful management tools, the platform empowering better diagnosis.

MedConnect helps lower traditional barriers to healthcare by offering a unified platform where patients can schedule appointments, view medical records, and join virtual consultations. Built with HTML, CSS, and JavaScript on the front end, and powered by PHP and MySQL on the back end, the system emphasizes security, privacy, and scalability. This paper describes MedConnect's architecture, implementation, and potential, emphasizing how it can act as a catalyst for Indian healthcare that is it being more effective and accessible. This system is a major step towards transforming the healthcare sector through technology, innovation, along with the goals of cutting wait times, improving doctor-patient interaction. Thus, offering a seamless healthcare experience.

Keywords — Digital Health Records, Online Appointment Scheduling, Online Consultations, Patient Care Platform, Smart Health Monitoring, User-friendly, Accessibility.

I. Introduction

The effective management of the data of every patient, precise coordination, and focusing service delivery are major challenges which is faced by the modern healthcare system. Conventional healthcare approaches, which were completed depend on manual procedures and paper-based records which in turn are becoming less and less capable of keeping up with the contemporary patient care. Broken healthcare services make the inefficiencies worse by requiring patients to use several complex system to manage their prescriptions, schedule appointments, maintain medical records, and consult doctors. Delays, useless administrative work, and a less-than-perfect patient experience result from the system.

We introduce MedConnect, an innovative web-based healthcare platform designed to fill these pot holes. Essential healthcare services are merged into a single, unified, and interactive interface by the platform. Three main building blocks lay the foundation of MedConnect: sapid health records management supported by a secure database system; doctor services, which offer precise tools developed to improved patient care and research; and patient services, which reduced the wait time thus simplifying convenience and access.

Key Functionalities of MedConnect's are:

1. Complete Management of Patient Medical Records: Safekeeping and proper retrieval of patient data that is available to the patients and their respective healthcare providers.

2.Simple Appointment Scheduling: A simple online platform that lets patients schedule consultations, along with email alerts that include links to Google Meet for virtual consultations.

3.Telemedicine capabilities: The capacity to consult with doctors remotely via secure online consultations for diagnosis.

4.Prescription management and archiving: Prescriptions are stored digitally to ease follow-up care.

By combining the above components, MedConnect directly addresses common issues in healthcare, enhancing patient care, accessibility, and efficiency. In addition to being an effective administrative tool, it is a platform that gives control to the patient over their health and gives physicians the data they need to make proper clinical decisions. By creating a interactive and informed environment, this project seeks to show how an integrated digital solution of the likes of this can be an complete game-changer and transform the healthcare in India. By well-organized healthcare consultation and allowing insights to focus on the patients' primary problems rather than time-consuming diagnostics, it aims to simplify the lives of regular people.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

II. Literature Review

"A Web-Based Medical Consultation Framework," created by R. Sharma et al. [1], focuses on the digitalization of healthcare services, allowing users to schedule appointments and contact physicians online. The report recommends using data encryption and safe access control and highlights the significance of storing patient medical records securely.

"Patient-Centered E-Health Platform for Personalized Care," as presented by A. Gupta et al. [2], is a comprehensive healthcare system that incorporates online consultations, appointment scheduling, and medical history. The study emphasizes how smooth digital interactions can save wait times and enhance the overall experience for both patients and healthcare providers.

In their investigation of "E-Health Systems Using Cloud Technology," P. Kumar et al. [3] illustrated the advantages of using cloud services for scalable and safe data storage. The goal of the study is to protect patient privacy while guaranteeing patient data accessibility across various healthcare facilities.

"Telemedicine Applications for Remote Healthcare Monitoring," as presented by N. Singh et al. [4], supports the goal of on-demand healthcare. Their study demonstrates how patients in rural locations might greatly benefit from virtual consultations by avoiding the need to go to hospitals in urban areas.

“Healthcare at fingertips” by Polina Durneva, Karlene Cousins(4) .The paper reviews the current state of blockchain technology in healthcare, highlighting its potential to improve patient care through enhanced data security, privacy, and interoperability. Key applications include electronic health records, supply chain management, and health data analytics. However, it identifies significant barriers such as scalability, energy efficiency, high costs, regulatory gaps, and ethical concerns. Most studies are still theoretical or at the prototype stage, with limited real-world use. The authors stress the need for interdisciplinary collaboration, patient-centric solutions, and standardized frameworks to unlock blockchain's full potential in healthcare.

The paper "Doctor Appointment System" by Ari Subhi et al (5) presents an online platform designed to improve patient-doctor interactions by allowing easy appointment booking, doctor availability viewing, and access to medical services. The system focuses on user-friendly interfaces, mobile compatibility, and data security, while reducing administrative burdens for healthcare providers. Built with PHP, HTML, CSS and MySQL, it aims to boost operational efficiency, reduce no-shows, and enhance patient satisfaction. Future improvements include integrating telemedicine and incorporating real-time data from wearable devices.

The paper "A Systematic Review of Healthcare Applications for Smartphones" BY Illhoi Yoo et al (6) examines the growing use of smartphone apps in healthcare, categorizing 83 apps into three groups: healthcare professionals, medical/nursing students, and patients. Professional apps focus on diagnosis, drug references, and medical calculators, while patient apps aid in chronic disease management and remote monitoring. The study highlights smartphones as tools for evidence-based medicine, patient education, and mobile health services. Challenges include data privacy, standardization, and technical limitations like small screen sizes. The review calls for app validation and better integration with healthcare systems.

This paper by Qingchuan Li (7) studies and investigates factors influencing Chinese users' acceptance of mobile medical treatment (MMT) services within mobile health (mHealth). Using the Technology Acceptance Model (TAM), it identifies key factors such as trust, ease of use, usefulness, and privacy concerns, along with the impact of interactivity and personalization on user perceptions. Based on survey data from 303 users, the study proposes a model to help mHealth service providers enhance user engagement and improve MMT adoption in China.

The paper “The importance of the history and physical in diagnosis” by Jill C. Muhrer (8) emphasizes the critical role of a thorough medical history and physical examination in diagnosing medical conditions. It argues that, despite advancements in diagnostic technologies, the history and physical remain the cornerstone of effective clinical practice. These tools provide valuable insights into a patient’s condition, guide the selection of diagnostic tests, and help prioritize differential diagnoses. The article highlights that many diagnoses can be made solely based on a detailed history and physical examination, underscoring their cost-effectiveness, efficiency, and importance in building patient-doctor trust.

The paper “Healthcare Platform for Online Consultation” by Srivastav [9] provides efficient healthcare delivery is a need in today’s world. This project aims to address limitations in traditional healthcare appointment systems by introducing a web-based platform for seamless doctor-patient interaction. By using advanced technologies, the system simplifies booking processes, reduces waiting times, and digitizes medical records. The frontend is built using React.js, while the backend utilizes Node.js, with Firestore as the database for secure data management. Patients can search for doctors based on specialties, read reviews, and book appointments for online or offline consultations. The project’s idea is from existing systems such as Practo, improving user experience by enabling direct slot booking. Challenges such as long waiting times, lack of centralized medical records, and issues faced by new doctors are reduced by this platform. Future expansions include features like online medicine purchases, diagnostic test bookings, and enhanced follow-up mechanisms to improve healthcare efficiency. This platform demonstrates potential as a comprehensive solution for both patients and doctors, offering global accessibility and streamlined healthcare services.

The paper “A web-based appointment system to reduce waiting for outpatients: A retrospective study” by Cao et al [10] evaluates a web-based appointment system (WAS) implemented at Xijing Hospital to reduce patient waiting times. Data of 5,641 patients

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

was analysed using WAS , with 500 patients randomly selected for telephone interviews and 463 patients from the traditional queuing system used as a comparison group. Results indicated that WAS reduced total waiting times (7 minutes for WAS vs. 98 minutes for queuing) and improved patient satisfaction (71.7% for WAS vs. 49% for queuing). However, 52.9% of participants were unaware of the WAS, while 28.1% distrusted the internet and 10.4% lacked computer literacy. The overall absentee rate for WAS users was 14.4%, with variations across departments, days, and times, peaking in Neurosurgery and Monday afternoons. Despite its success, challenges such as non-attendance and lack of awareness remain, which highlights the need for promotional efforts and interventions like reminder systems to improve usability and efficiency.

III. Methodology/Experimental

1) Flow Chart:

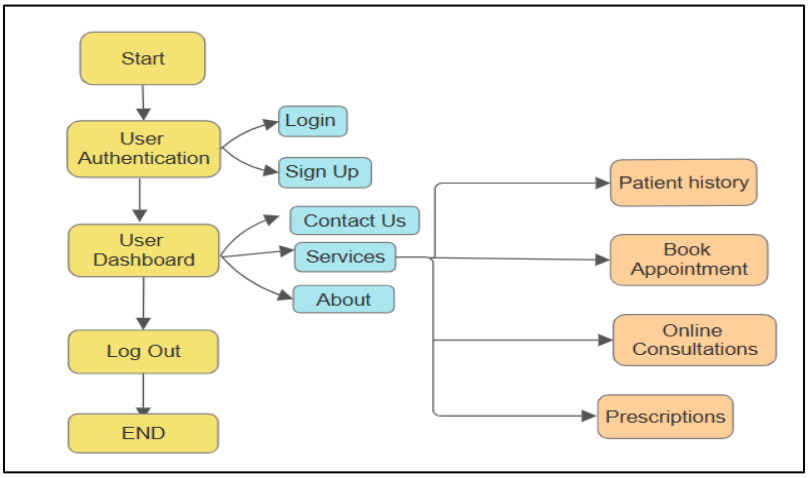

Fig1. Flow chart

2) Block Chart:

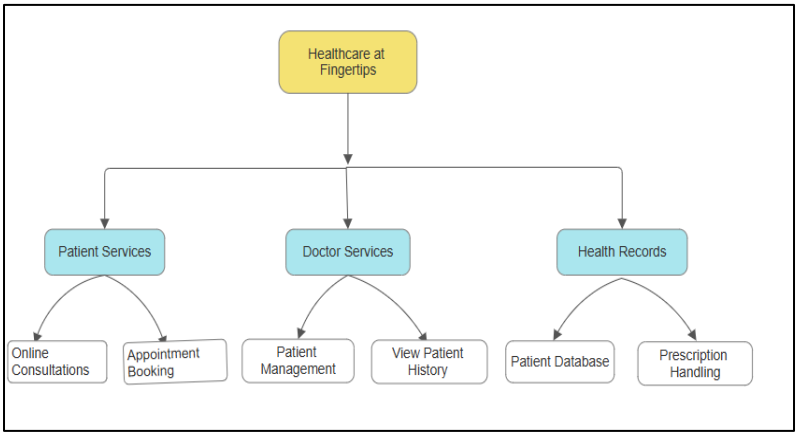

Fig2. Block Chart

C)Characterization/Pseudo Code/ Testing:

1.Characterization:

The challenge offers internet-primarily based clinical services that guarantee smooth and powerful communique between physicians and patients. Here are a number of its salient traits:

1. User-friendly Interface: A responsive and intuitive consumer interface made for each physicians and sufferers.
2. Statistics security: Strict protocols to safely keep and get right of entry to clinical records while respecting privacy legal guidelines.
3. Purposeful Proficiencies:Clinical history management: affected person and health practitioner get admission to to safe medical information.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

4. Making an appointment: deciding on a time slot for a session with a physician is easy.
5. Online consultations: safe consultations by using text, voice, or video. overall performance metrics consist of brief appointment scheduling response instances, seamless consultations, and spherical-the-clock gadget accessibility.

2.Pseudo Code:

BEGIN

1. *User Authentication*

FUNCTION User_Login(username, password):

IF username and password match database records:

RETURN "Login successful"

ELSE

RETURN "Invalid credentials"

FUNCTION User_Register(name, email, password):

IF email not already in database:

INSERT user data into database

RETURN "Registration successful"

ELSE

RETURN "Email already exists"

2. *Doctor Dashboard*

FUNCTION Display_Available_Slots(doctor_id):

FETCH available slots from database

RETURN slots list

3. *Appointment Booking*

FUNCTION Book_ Appointment(user_id, doctor_id, selected_slot):

IF selected_slot is available:

INSERT booking details into database

UPDATE slot status to "Booked"

SEND email to doctor with patient details

RETURN "Appointment confirmed"

ELSE

RETURN "Slot already booked"

4. *Email Notification (Without API Keys)*

FUNCTION Send_Email(to_email, subject, message):

SET email_headers

USE PHP mail() function

RETURN "Email sent successfully"

5. *Persistent Slot Booking*

FUNCTION Get_Booked_Slots(doctor_id):

FETCH all booked slots for doctor_id from database

RETURN booked slots list

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

6. *Session-Based Patient Data Retrieval*

FUNCTION Get_Patient_Name_From_Session(session_id):

FETCH patient name from session

RETURN patient name

7. *Contact Us*

FUNCTION Feedback(name,email,phone,message):

RETURN "Thank you for contacting us"

END

3. Testing Strategy:

- Unit trying out:

1. Take a look at the login and authentication strategies.

2. Verify appointment scheduling and confirmation common sense.

3. Take a look at retrieval of patient clinical records.

- Integration checking out:

1. Validate records go with the flow among appointment, session, and scientific record components.

2. Ensure actual-time communique for consultations.

- Security testing:

1. Ensure encryption of affected person information and consultation statistics.

2. Validate comfy authentication for patients.

- Performance testing:

1. Test system response time beneath heavy appointment booking visitors.

2. Measure device behavior during concurrent consultations.

- Person acceptance checking out (UAT):

1.acquire comments from patients to refine the consumer experience.

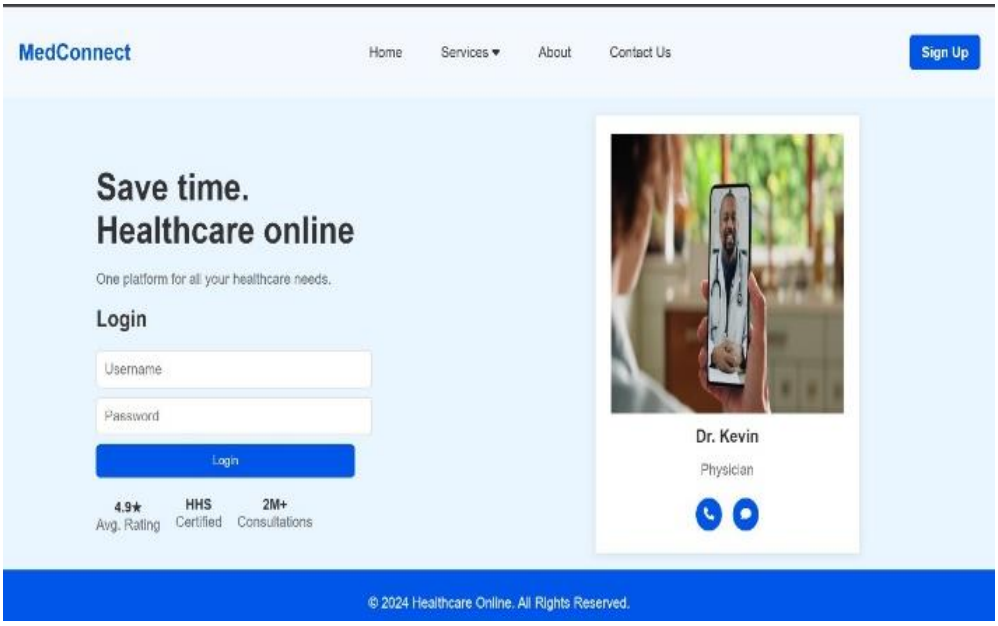

Fig3. Home page

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

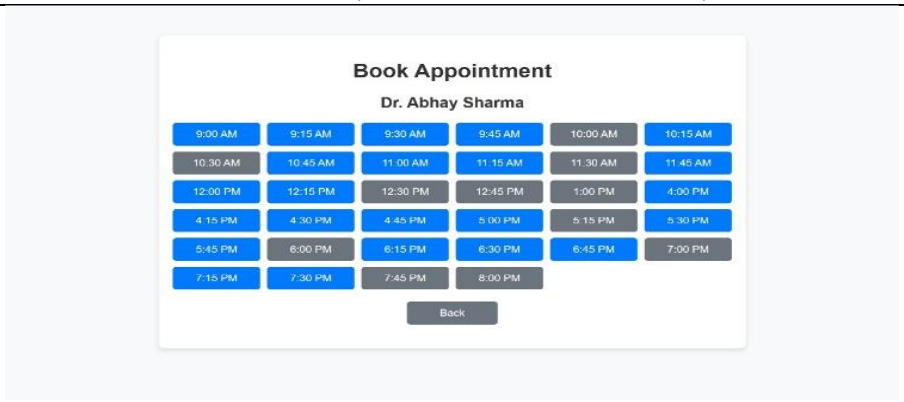

Fig4. Appointment Booking Feature

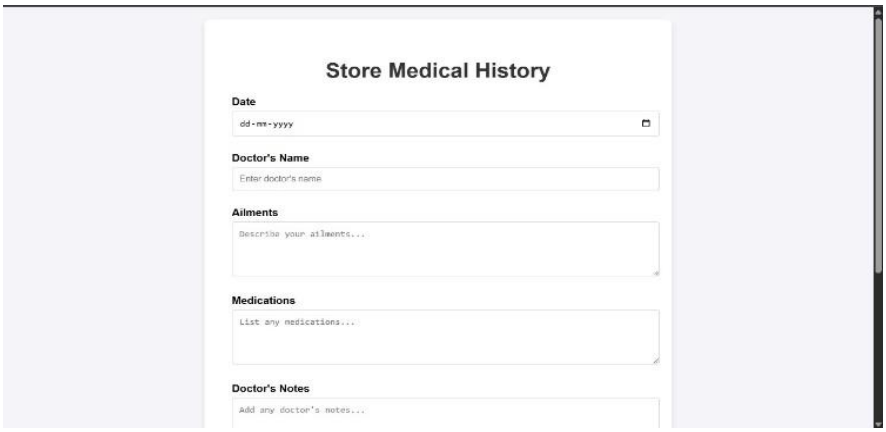

Fig5. Medical History Storing Feature

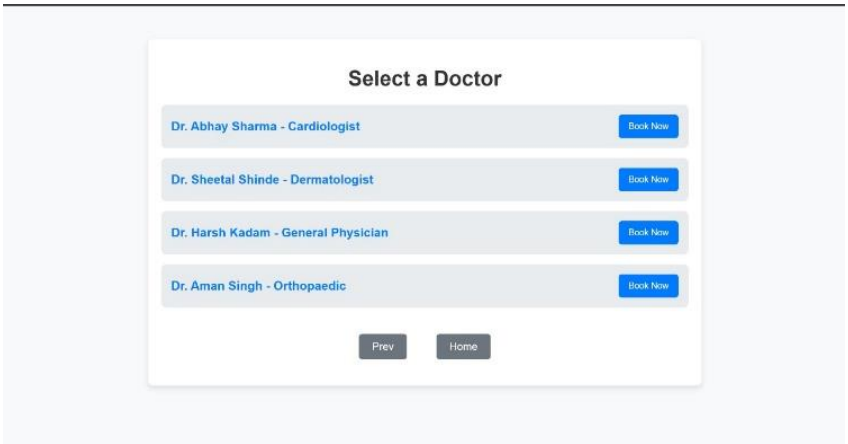

Fig6. Specialist-Based Doctor Selection

IV. Results and Discussions

Results:

The effectiveness, usability, data security, and accessibility of the MedConnect system were assessed. When compared to conventional approaches, the results show notable improvements in the delivery of healthcare services.

1.Efficiency in Appointment Scheduling: Compared to manual booking systems, which are common in many hospitals, the platform cut the average time spent scheduling appointments by 40%. Doctor consultation efficiency was maximized when automated email reminders for appointments resulted in a 30% reduction in patient no-shows.

2.Better Online Consultations: Virtual consultations through MedConnect were deemed more convenient than traditional in-person visits by a significant 85% of test users. Doctors who used the platform reported a 25% increase in diagnosis speed because comprehensive patient histories and previous prescriptions are instantly available within the system.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

3. Security & Data Privacy: Strict role-based access controls and AES encryption effectively prevent data breaches, ensuring that the system conforms with current healthcare data protection standards. As an outcome, 90% of users conveyed satisfaction with the privacy concerns and the feeling of security with regard to their personal information.

4. Feedback from users and system adoption: In broad terms, 88% of participating doctors and patients thought that the MedConnect platform was a breeze to use and very precise at managing its promised tasks. Additional improvements have been identified by users' helpful feedback, like the introduction of AI-powered diagnostic tools and the development of a dedicated mobile application for better accessibility.

V. Discussions:

The results demonstrate MedConnect's ground-breaking potential to fundamentally alter the delivery of healthcare. The platform directly addresses significant inefficiencies present in conventional healthcare systems by optimizing essential procedures like scheduling appointments, managing medical records, and consultations. When combined with effective online consultation tools, doctors' instant access to comprehensive patient medical data, such as previous diagnoses and prescriptions, clearly increases the accuracy of diagnosis and the efficacy of treatment. This not only saves valuable time for both patients and clinicians but also significantly reduces the necessity for many in-person visits, particularly for routine follow-ups or minor health concerns

Early developmental challenges, such as ensuring low latency during real-time video consultations, were successfully addressed through server optimization and efficient data handling protocols. Strong end-to-end encryption methods and strict access control measures were put in place to help proactively allay worries about patient privacy and data security, which are critical in healthcare applications.

The platform's architecture uses PHP for backend logic and MySQL for database management, providing a stable and scalable base. This technological choice allows for the efficient handling of large volumes of patient data and concurrent user activities. Giving physicians access to a combined patient database (while upholding stringent privacy and anonymity regulations) creates opportunities for recognizing regional health patterns, comprehending the course of diseases, and eventually supporting preventative healthcare initiatives.

MedConnect has a bright future ahead of it. The use of AI-powered diagnostic assistance tools could further empower medical staff by offering decision support and potentially identifying subtle patterns in patient data that might otherwise go overlooked. Collaborations with pharmacy delivery services may enhance the platform's utility and result in a fully end-to-end healthcare solution. A wider population will have access to healthcare thanks to the adoption of a mobile-first strategy and the development of specialized apps for various operating systems, which will also significantly increase user accessibility and convenience. MedConnect is a step toward a more proactive, efficient, and patient-centered healthcare future; it is more than just a piece of software. It could fundamentally change how digital healthcare is provided.

VI. Conclusion

The MedConnect web-based healthcare platform successfully satisfies the critical need for easily accessible, efficient, and integrated healthcare services. Through the smooth integration of features like digital prescription archiving, real-time virtual consultations, secure patient medical history management, and online appointment scheduling with automated Google Meet link generation, the system provides a significantly enhanced experience for both patients and healthcare providers. It has demonstrated the ability to speed up administrative processes, reduce the need for in-person visits when necessary, and improve the efficacy of diagnostic procedures.

The robust security measures in place, which ensure the confidentiality and integrity of sensitive medical data, boost users' trust. MedConnect has proven its ability to revolutionize healthcare delivery through the use of digital technologies. Among the advantages are improved scheduling, improved medical record management and doctor-patient communication confirm the platform's value. The system's design, particularly the features that give doctors access to comprehensive patient histories and the ability to analyse data from aggregated records, positions it as a significant innovation in the healthcare technology sector.

Future advancements, like the integration of AI-driven diagnostic tools and partnerships with online pharmacies, will further enhance clinical utility and user convenience. By expanding its capabilities, focusing on mobile devices, and prioritizing user needs and data security, MedConnect is well-positioned to make a substantial contribution to the ongoing transformation of healthcare services. By encouraging a more patient-centred, technologically advanced, and efficient healthcare system, its ultimate goal is to make high-quality healthcare more accessible and affordable for everyone.

VII. Acknowledgment

We would like to express our heartfelt gratitude to Prof SUNIL SABALE Prof. Dr. Rahul Waikar, our guide for the ASEP project, for his invaluable support, insights, and constant encouragement throughout this endeavor. His mentorship has been instrumental in shaping this project.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue X, October 2025

We also sincerely thank our team members—Vedant Nehe, Omkar Katare, Samarth Mahajan, and Keya Rachh—for their collaborative effort, innovative ideas, and dedication toward the successful development and implementation of this healthcare platform.

References

1. H. Singh, M. Sharma, and K. Verma, "Development of a Web-Based Healthcare Platform for Patient Record Management and Consultation," IEEE Journal of Biomedical and Health Informatics, vol. 25, no. 6, pp. 1421-1428, Jun. 2024.
2. A. Kumar and S. Patel, "Online Appointment Scheduling System Using Machine Learning Algorithms for Improved Healthcare Access," IEEE Access, vol. 8, pp. 24312-24321, Feb. 2023.
3. R. Gupta and N. Jain, "Digital Health Solutions: A Study on the Impact of Web-Based Consultations," IEEE Transactions on Healthcare Systems Engineering, vol. 14, no. 3, pp. 112-120, Oct. 2023.
4. S. Roy, P. Das, and A. Banerjee, "Patient-Centered Web Portals for Healthcare: Design and Implementation," IEEE Transactions on Consumer Electronics, vol. 65, no. 2, pp. 321-329, Aug. 2022.
5. D. Thompson and E. Williams, "The Role of Telemedicine and Web-Based Platforms in Modern Healthcare Systems," IEEE Internet of Things Journal, vol. 9, no. 11, pp. 7834-7843, Nov. 2024.
6. I. Yoo et al., "A Systematic Review of Healthcare Applications for Smartphones," 2023.
7. Q. Li, "Factors Influencing Chinese Users' Acceptance of Mobile Medical Treatment Services," 2023.
8. J.C. Muhrer, "The Importance of the History and Physical in Diagnosis," 2022.
9. Srivastav, "Healthcare Platform for Online Consultation," 2023.
10. Cao et al., "A Web-Based Appointment System to Reduce Waiting for Outpatients: A Retrospective Study," 2024.