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MedLink: Literature Review Based Paper

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Abstract
MedLink, a cutting-edge healthcare networking and identity-verification platform created with the MERN (MongoDB, Express.js, React.js, Node.js) technology stack, is presented in this research paper. The system is intended to improve hospital staff, medical students, and healthcare professionals' communication, connectivity, and secure verification.

A dashboard-based interface, secure authentication, ID card-based login, job postings, notification management, and profile networking are some of the main features. In order to enhance cooperation and information exchange within the healthcare industry, the platform also offers modules for content posting, user interactions, and real-time alerts.

A messaging module has been designed, but its backend implementation is reserved for later development. All things considered, MedLink exhibits better accessibility, faster verification, and dependable networking for medical domains.

Keywords: Real-Time Data Exchange, Node.js, MongoDB, MERN Stack, MedLink, Healthcare Networking, Authentication, and QR Verification

1. Introduction

The way professionals connect, collaborate, and access information across a range of industries has changed dramatically due to the quick development of digital technologies. However, networking platforms in the healthcare industry are still mainly dispersed and offer few options for safe identity verification and professional communication amongst hospital employees, medical students, and healthcare professionals. Conventional collaboration techniques, like offline seminars, email groups, and physical identification verification, can lead to delayed communication, decreased accessibility, and challenges building stakeholder confidence.

A unified, secure, and intelligent networking medium is required to close this technology gap. By acting as an integrated healthcare networking platform and utilising the MERN (MongoDB, Express.js, React.js, and Node.js) stack, MedLink fills this demand. The platform's main goal is to facilitate identity authentication and smooth professional communication within the medical ecosystem. MedLink's

dashboard-based interface makes it simple for users, including physicians, students, and healthcare workers, to communicate, apply for employment, share content, get system alerts, and establish professional relationships.

In contrast to general social networking sites, MedLink includes healthcarespecific features like job and internship ads aimed at medical professionals, secure ID card-based login for professional verification, and real-time information regarding professional engagements. These characteristics are intended to promote strong networking, dependability, and trust in the medical field. The platform also facilitates user involvement through interactive elements and content sharing that promote group learning and information sharing.

2. Objective

The primary objective of this project is to develop a secure and scalable healthcare networking platform that enhances professional connectivity and streamlined communication within the medical community. The specific objectives are:

- To establish a centralized digital networking environment that enables healthcare professionals, medical students, and hospital personnal to connect, collaborate, and strengthen professional relationships within a verified community.
- To design and implement a robust identity verification framework based on ID-card authentication, ensuring secure access control and restricting platform usage to authenticated medical users only.
- To facilitate the exchange of professional information and career opportunities through structured modules such as job and internship postings, profile networking, and system-driven notification management.
- To promote knowledge sharing and collaborative engagement in the healthcare sector by enabling content publication, peer interaction, and professional discussions.
- To develop a responsive, dashboard-based user interface that enhances usability, accessibility, and delivers role-specific functionalities tailored to different categories of users.
- To integrate real-time alert and notification mechanisms that support timely information dissemination, improve system responsiveness, and enhance overall user engagement.

3. Literature Review

Talk about current systems such as LinkedIn, and medical networking tools, and demonstrate the gap that MedLink fills

Abdul Ahad, Mohammad Tahir, and Kok-Lim Alvin Yau Services (2019)
"A Comprehensive 5G-Based Smart Healthcare Architecture that Enables RealTime, Intelligent, and Scalable Healthcare Services . This paper belongs to the field of smart healthcare systems, 5G communication technology, Internet of Things (IoT), and digital healthcare architecture, as it focuses on enabling real-time and scalable healthcare services using advanced 5G networks"[1]".

Joanna Davis, Hans-Georg wolff, Monica L. Forret, Sherry E. Sullivan (2020) "Networking via LinkedIn: An examination of usage and career benefits". It examined the potential benefits of using LinkedIn as a

professional networking tool instead of concentrating on more traditional forms of faceto-face networking "[2]".

Jens- Andreas Hanssen Rensaa (2021) "VerifyMed – A blockchain platform for transparent trust in virtualized healthcare". Developing a transparent, decentralized trust model for virtualized healthcare services. Patients can verify doctor's license, experience, and competence easily, making credentials & patient experience publicly accessible may create privacy risks "[3]".

Liana Stanescu, Raluca Stanescu (2022) "Social Medical Network". A prototype social media network dedicated to medical staff in Romania. Dedicated platform for medical professionals (secure, domain-specific networking) currently limited to Romania "[4]".

Mohammed Ishaq Ahmed, Mohammed Mahmood Ali Junaidi, Mohammed Irfan, and Dr. Syed Asadullah Hussaini (2025) "Medilink". This paper belongs to the field of healthcare information systems, medical networking platforms, and digital health technology, as it focuses on the development of a system designed to improve communication and information sharing in healthcare environments "[5]".
Meiappane A., Dr. V. Prasanna Venkatesan, Selva Murugan S., Arun A., and
Ramachandran A. (2011) "Architectural Pattern of Health Care System Using
GSM Networks". This paper belongs to the field of telemedicine, wireless healthcare communication, GSM-based medical systems, and healthcare network architecture, as it focuses on designing healthcare system architectures using GSM technology "[6]".

Alaa Awad Abdellatif, Amr Mohamed, Carla Fabiana Chiasserini, Mounira Tlili, and Aiman Erbad,(2020) "Edge Computing for Smart Health: Context- Aware Approaches, Opportunities, and Challenges" This paper belongs to the field of edge computing, smart healthcare systems, Internet of Things (IoT), and healthcare data processing, as it explores contextaware techniques, challenges, and opportunities in smart health architecture "[7]".

Prof. V. S. Nalawade, Omkar D. Jadhav, Rutuja M. Jadhav, Sakshi R. Kargal, and Neha S. Panhalkar, (2023)"A Survey on Creating Digital Health Ecosystem with Lifewellness Portal Including Hospital and Insurance. This paper belongs to the field of digital health ecosystems, healthcare portals, hospital information systems, and health insurance integration, as it focuses on building a unified digital platform connecting hospitals and insurance services"[8]".

Ibrar Ahmed, Anurag Gupta, Abhishek Kumar, Ashutosh Pandey, and Abhishek, (2025) "Medilink: Connecting Doctor and Patient" This paper belongs to the field of digital healthcare systems, telemedicine, doctor– patient communication platforms, and health information technology, as it focuses on improving connectivity and interaction between doctors and patients through a digital platform "[9]".

Meghana R., N. K. Daalvi Dechamma, V. Padmapriya, and S. Uma,(2024). "Med Link Monitor: Smart Medicine Distribution System". This paper belongs to the field of smart healthcare systems, medicine distribution management, Internet of Things (IoT)–based healthcare, and digital supply chain

management, as it focuses on using smart technologies to improve the efficiency and monitoring of medicine distribution“[10]”.

4. Problem Statement

Despite the growth of online platforms, medical professionals face the following challenges: Unverified users and information: Platforms don’t verify medical qualifications, risking the spread of misinformation.

Lack of domain-specific networking: Generic platforms don’t support medical terminology, case discussions, or hospital/job-specifi Limited collaboration tools: No tools specifically built for professional collaboration among healthcare peers.
Fragmented career opportunities: Job portals are often not tailored for medical roles.
Solution: A verified, role-based, and domain- specific network – MedLink.

5. System Architecture

- MERN Stack overview
- Backend architecture (Node.js + Express)
- Database design (MongoDB collections)
- Frontend workflow (React pages)

6. Methodology

Analysis of Requirements

- UI/UX Design
- Front-end (React) development
- Backend Development (Express + Node)
- MongoDB database
- ID scanning using QR codes
- Deployment and Testing

1. Signup and Login

This module uses password hashing and JWT (JSON Web Token) to provide secure user authentication.Token-based authentication allows users to register, log in safely, and keep active sessions. To guarantee confidentiality and stop unwanted access, hashing is used to encrypt passwords.

2. Dashboard /Home Page

As the main dashboard, the Home Page offers users a customized view of posts, updates, and interactive features. It keeps medical professionals and students informed by displaying shared posts, recent activities, and system highlights.

3. Jobs

Access to healthcare job listings, such as hospital positions, internship opportunities, and medical recruitment posts, is made possible by the Jobs Module. Users can look through, apply for, and keep track of pertinent healthcare-related job opportunities.

Technologies Used

- **React.js** – Frontend
- **Node.js + Express.js** – Backend
- **MongoDB** – Database
- **JWT** – Authentication
- **Bcrypt.js** – Password encryption
- **Multer** – File uploads
- **HTML, CSS, JavaScript**

7. Future Scope

- AI-Powered Recommendations: Suggest mentors, jobs, and connections based on user interests.
- Mobile Application: Android/iOS apps for wider accessibility.
- Telemedicine Integration: Allow doctors to host consultations within the platform.
- Video Case Discussion Rooms: Secure Zoom/Meet-like integration for case studies.
- Verified Certificate System: For CME (Continuing Medical Education) course.
- Community Forums: Specialty-based groups (e.g., Cardiology, Pediatrics).
- International Expansion: Enable global collaboration for research and knowledge exchange.

8. Conclusion

MedLink effectively offers hospital employees, medical students, and healthcare professionals a safe, unified platform for communication, identity verification, and access to career opportunities. The technology improves communication and teamwork in the medical industry with features like ID-based verification, job postings, profile networking, and real-time notifications. The existing solution creates a solid basis for dependable and scalable healthcare networking, even though the message module is set aside for future development.

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