

INTELLIGENT HEALTHCARE SYSTEM USING BLOCKCHAIN AND AI

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Keywords:

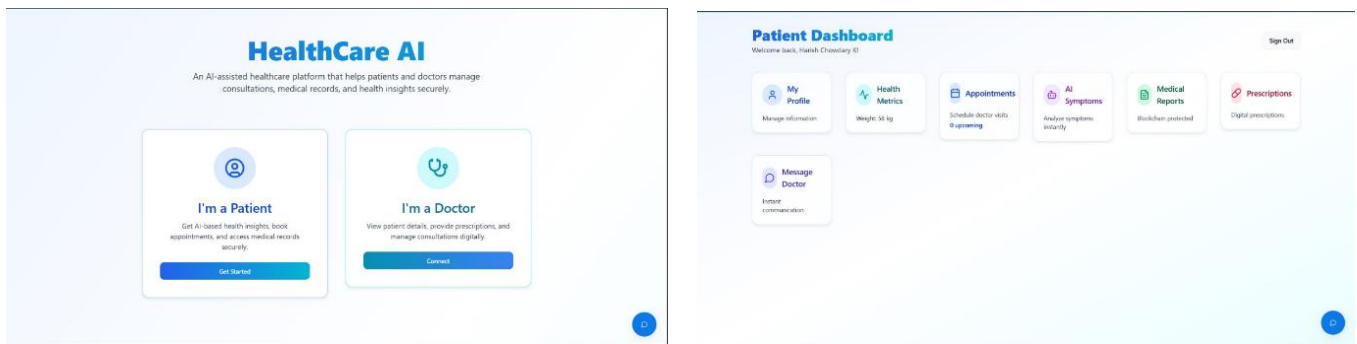
System Development, AI Integration, Data Security, Telemedicine Services.

Introduction:

1. The healthcare sector is undergoing a significant transformation driven by rapid advancements in digital technologies and the increasing demand for accessible, efficient, and patient-centric medical services. Traditional healthcare delivery models that rely on physical consultations and manual record-keeping face limitations such as long waiting times, restricted access to specialists, inefficient data management, and challenges in maintaining continuous patient care. These issues are more evident in remote areas, emergency situations, and regions with limited healthcare infrastructure. Consequently, there is a growing need for intelligent, secure, and scalable healthcare systems that can effectively bridge the gap between patients and healthcare providers while ensuring data reliability and confidentiality.
2. The emergence of telemedicine and remote healthcare platforms has addressed many of these challenges. By leveraging web-based applications, cloud infrastructure, and real-time communication technologies, healthcare services can now extend beyond traditional hospital settings. Remote consultations allow patients to interact with doctors from their homes, reducing travel time and costs while improving access to medical expertise. However, rapid digitization has also introduced concerns related to secure data transmission, accurate symptom interpretation, protection of sensitive medical information, and effective communication, highlighting the importance of secure and trustworthy healthcare system design.

Objectives:

1. To build dashboards for patients and doctors to track health metrics and interactions.
2. To implement AI-based symptom analysis to assist in specialist recommendations.
3. To integrate appointment scheduling.
4. To enable video consultations between patients and doctors.



Methodology:

The Intelligent Health Care System uses AI in combination with blockchain to provide secure, competent online health services. Users log in with blockchain-based digital identity; hence, no password is required for accessing it. Each patient has a unique Health Record ID assigned to him or her, wherein the record references are kept securely on the blockchain. They enter their symptoms, which the AI-based model then analyzes to determine the relevant medical specialty. The patients then can choose a specialist or directly book their online consultation based on the analysis and doctor availability. Consultation records are stored securely; blockchain ensures data integrity and tamper resistance. Role-based access control protects sensitive information and limits access to authorized users only.

Result and Conclusion:

The expected outcome of this project is the development of a secure, intelligent, and integrated digital healthcare platform that improves remote medical services. By combining AI-based symptom analysis with blockchain-based data storage, the system ensures accurate specialist recommendations, secure medical record management, and reliable patient–doctor interactions. Patients will benefit from easy access to consultations, appointments, and health records through a unified dashboard, while doctors gain efficient tools for managing consultations and patient data.

References:

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Future Scope:

The system offers significant potential for future enhancements, including:

1. Integration with wearable health devices to automatically track real-time health metrics
2. Advanced AI models for more accurate symptom analysis and disease prediction
3. Development of a mobile application for better accessibility and convenience
4. Integration of electronic prescriptions and pharmacy management systems
5. Integration with hospital management systems and insurance platforms