Electronic Health Records Using Blockchain

Abstract

The healthcare industry has been transitioning from paper-based medical records to electronic health records (EHRs) in most healthcare facilities. However, the current EHR frameworks face challenges in secure data storage, credibility, and management. Interoperability and user control of personal data are also significant concerns in the healthcare sector. Although block chain technology has emerged as a powerful solution that can offer the properties of immutability, security, and user control on stored records. Blockchain technology, with its core principles of immutability, decentralization, and security, has revolutionized various sectors. Its potential to transform healthcare is particularly promising, especially in addressing the limitations of traditional Electronic Health Records (EHR) systems.

The Existing System face challenges with data security, user control, and interoperability. Which are necessary for user integrity and trust for their data. We are proposing a EHR system which uses Blockchain and AWS cloud, imagine storing medical records on a special digital ledger, like a secure and shared document everyone can see but no one can change. This is essentially what blockchain does. We'll use the cloud from Amazon Web Services (AWS) to run this system, making it flexible and able to handle lots of users. Patients will have complete control over who can see their information, and doctors can easily share data following patient approval. All access and changes will be recorded for everyone to see, making the system more trustworthy and secure. This combination of blockchain and AWS cloud has the potential to revolutionize healthcare by creating a system that is secure, user-centric, and allows for seamless data sharing.

The proposed framework leverages blockchain's inherent strengths to create a secure and user-centric system. Data immutability ensures records remain tamper-proof, while distributed storage across a network of computers enhances security. Importantly, patients retain greater control over their health information, granting or revoking access as needed. The framework's design and implementation will consider various technologies, including choosing a suitable blockchain platform, utilizing smart contracts to automate specific tasks, and employing robust encryption techniques. This project aims to enhance the understanding of blockchain's potential in EHR systems, propose a novel framework that aligns with established standards, and ultimately foster a more secure, efficient, and patient-centric healthcare ecosystem.

Keywords: Electronic Health Records (EHRs), blockchain technology, smart contracts, data security, data breaches, encryption, AWS cloud, cloud storage, patient-centric, data integrity, trust.

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