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An Application of Blockchain Technology: A Systematic Review

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Abstract

Background: Blockchain is a distributed peer-to-peer (P2P) network infrastructure that is transparent to key stakeholders, extremely secure, and impossible to manipulate any information. The use of blockchain technology is not limited to bitcoin or other digital currency [1]. The goal of blockchain technology is to create a decentralized system that eliminates the need for a mediator. This study provides insights into blockchain technology ideas, development, mechanisms, opportunities, challenges, and relevant solutions based on literature reviews. This study outlines the challenges of using blockchain technology in real-world applications. Finally, suggested recommendations and concluded with future recommendations [2].

Objective: In recent decades, blockchain-based decentralised cryptocurrencies have received a lot of interest and have been popularly used. Bitcoin, the initial blockchain application, has been a resounding hit and has sparked more interest in the topic. Bitcoin, on the other hand, has performance issues with poor throughput and excessive transaction delay. Other proof-of-work cryptocurrencies inherit the weaknesses as well, raising questions about blockchain's scalability. This document tries to classify and cover all of the available blockchain scaling solutions. In addition, we compare and contrast various methodologies, as well as suggest some possible solutions to the scalability concerns [1].

Methodology: We intend to go over a number of security issues with existing blockchains, effectively collecting over five years of research in this area. We also want to examine the performance limits of existing blockchain-based consensus algorithms and look into different concepts for enhancing the scalability and security of existing consensus algorithms [3]. The approach provided in the article can provide a new perspective on data security, reliability, and scalability.

Result and Discussion: Government, health, research, literacy, art, and culture are all application areas for blockchain technology. Decentralization, smart contracts, consensus model, and digital signature are some of the important components of blockchain technology. Further, discussed two permission-based blockchains that are permissioned and permissionless. A permissioned blockchain network is identical to a controlled intranet, but a permissionless blockchain network is similar to the public internet, that anyone can participate. This survey examines the existing security, privacy, and scalability issues with the blockchain network and provides their feasible solutions after a detailed analysis of blockchain applications.

Future Work: Furthermore, we identified future research directions for secure and scalable blockchain.



References

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