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## DECENTRALIZED VOTING USING BLOCKCHAIN

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### ABSTRACT

Decentralized voting using Ethereum blockchain is a secure, transparent and tamper-proof way of conducting online voting. It is a decentralized application built on the Ethereum blockchain network, which allows participants to cast their votes and view the voting results without the need for intermediaries. In this system, votes are recorded on the blockchain, making it impossible for anyone to manipulate or alter the results. The use of smart contracts ensures that the voting process is automated, transparent, and secure. The use of the blockchain technology and the implementation of a decentralized system provide a reliable and cost-effective solution for conducting trustworthy and fair elections.

**Keywords:** Blockchain Voting System.

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### I. INTRODUCTION

Blockchain is a distributed digital ledger technology that allows participants in a network to share and validate transactions in a secure and transparent manner without the need for intermediaries. The technology is designed to be decentralized, meaning that the data is stored on a network of computers instead of a central database. This makes it difficult to hack or manipulate the data, ensuring the integrity and security of the system. The blockchain technology gained popularity with the emergence of Bitcoin, which was the first decentralized cryptocurrency. However, the technology has since been applied to various industries, including finance, supply chain management, healthcare, and voting, among others. Blockchain works by creating blocks of data that are linked together in a chain, hence the name blockchain. Each block contains a unique code, known as a hash, that is generated based on the contents of the block. This hash is then used to link the block to the previous one, forming a chain of blocks.

### II. RELATED WORKS

- Follow My Vote (2014) A blockchain-based online voting system that aimed to provide transparency, verifiability, and security in elections. It allowed voters to audit their votes while ensuring anonymity, leveraging blockchain immutability for vote storage.
- Agora (2015) Focused on blockchain-based voting for governmental elections. Used a permissioned blockchain to ensure scalability and secure elections. Aimed for end-to-end verifiability and privacy-preserving protocols.
- Boardroom (2016) Designed for decentralized governance, this system allowed organizations to conduct secure and transparent elections using blockchain. Focused on DAO (Decentralized Autonomous Organization)-based voting mechanisms.
- Democracy Earth Foundation (2015) Description: Introduced the Sovereign platform, a blockchain-based voting solution for democratic processes.
- West Virginia Blockchain Voting Pilot (2018) Description: Though more recent, it is significant as the first U.S. state to test blockchain voting.
- TIVI (Transparent Internet Voting Initiative, 2014) Description: Aimed to use blockchain for distributed, transparent, and tamper-resistant elections.
- Votebook (2016) Description: An early blockchain-inspired tamper-evident voting system. Focused on ensuring auditability and transparency in voting processes. Used distributed ledger technology to store votes immutably. Ensured voters could verify the integrity of their votes without compromising privacy.

### III. PROPOSED SYSTEM

The proposed decentralized voting system using Ethereum blockchain aims to provide a transparent and tamper-proof solution for conducting elections. By leveraging smart contracts on the Ethereum network, the system enables secure and anonymous voting, while ensuring the integrity and immutability of the voting data. This would increase voter trust in the election process and reduce the risk of fraud or manipulation.

1. Decentralization ensures that no party controls the voting process.
2. Transparency throughout the voting process.
3. It is tamper proof.
4. Voters can vote from any part of the world.
5. This method of voting is cost effective.
6. The results are provided in real time.

### IV. OBJECTIVES

**Security:** The proposed system aims to provide a secure platform for conducting elections, eliminating the possibility of tampering with votes, and ensuring that the election results are transparent and verifiable.

**Transparency:** The proposed system aims to provide complete transparency to the voters, allowing them to view the entire voting process, including the vote counting and results.

**Accessibility:** The proposed system aims to make the voting process more accessible to all eligible voters by eliminating the need for physical presence at a polling station, thus increasing voter turnout.

**Efficiency:** The system aims to increase the efficiency of the voting process by reducing the time and resources required to conduct elections. Since the system is automated and eliminates the need for intermediaries, it can significantly reduce the cost and time associated with traditional voting methods.

**Trust:** The proposed system aims to increase trust in the voting process by providing a transparent and tamper-proof.

### V. DATABASE

The database was created in SQL data format using XAMPP phpMyAdmin. The database is essential to our project as it holds information, including usernames and passwords, personal details.

### VI. METHODOLOGY

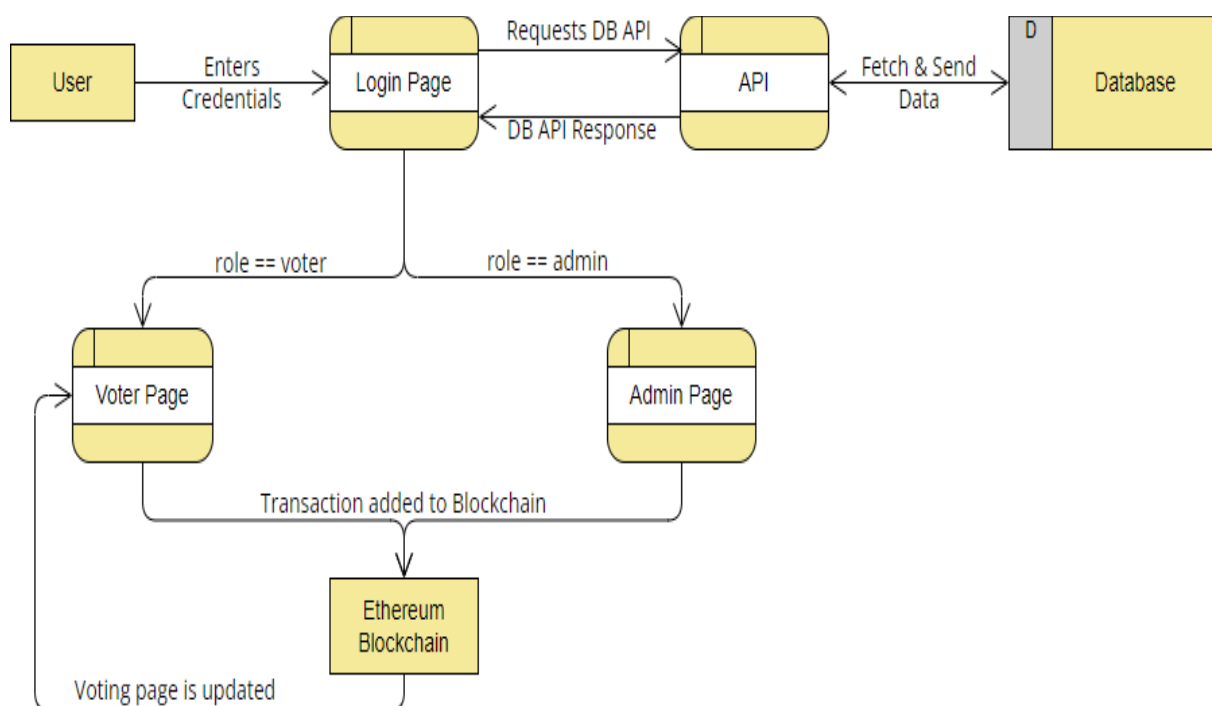


FIG. 1: Process Flow Diagram

## VII. CONCLUSION

Decentralized Voting with Ethereum Blockchain offers a robust and transparent solution for secure elections. By leveraging blockchain technology, it ensures the integrity of votes and provides a tamper-proof platform. With continued enhancements, including improved user experience, scalability, and integration with other cutting-edge technologies, it has the potential to revolutionize the democratic process and empower citizens to participate in a trusted and efficient voting system. It represents a significant step towards building a more democratic and accountable society.

## VIII. REFERENCES

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