

SECURE DIGITAL VOTING SYSTEM USING BLOCKCHAIN TECHNOLOGY

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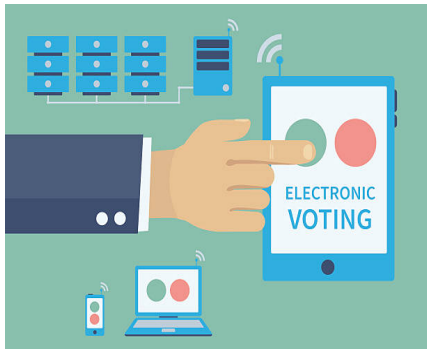
Introduction

- Traditional voting process often require extensive manual work, and higher risk of frauds in election process.
- A digital voting system using blockchain offers a secure, transparent, immutable, decentralized and efficient way to conduct elections.



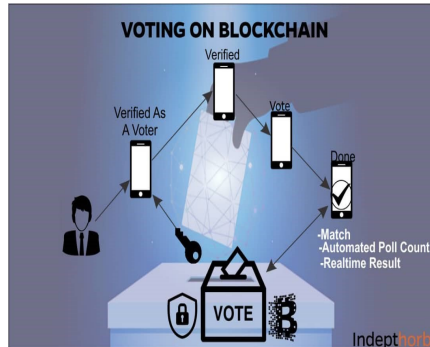
Existing system

- Mostly used all over the world are Paper Ballots. Electronic voting systems are being popular in last decade and are still unsolved.
- The main disadvantages of this existing system are security, reliability, third party integration and double voting.



Problem statement

- Online voting system requires advancements in voting process and cryptographic algorithms to create a secure and transparent voting system.
- The ultimate goal is to ensure the integrity of the electoral process and establish a highly secure, transparent, and efficient digital voting system using blockchain technology.



Literature Survey

S. No	Title of the paper	Author(s)	Description
1	MyVote-Blockchain Based Online Voting System	Dr. Sonali Ridhorkar, Monal Wanjari, Shamsul Ansari, Pankaj Sonwane - 2023	In first paper they have used the smart contract to control the voting process, face detection system for avoiding the risk of fake voters and cryptographic algorithm like SHA-256 to provide security.
2	Online Voting System Using Blockchain Technology	Farzana Khareem, Muhammad Safeer, Nadhiya Shafeeq, Shanavas KS, L i j a Joy - 2022	In this paper they have used the MD5 hashing algorithm for providing the security and they have used biometric verification for avoiding the risk of fraud votes and a decentralized ledger for avoiding third part verification.

Literature Survey

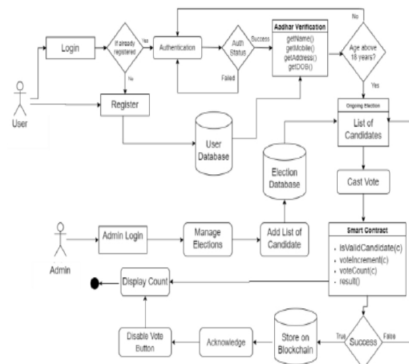
S. No	Title of the paper	Author(s)	Description
3	E-VOTING SYSTEMS USING BLOCKCHAIN: A SYSTEMATIC REVIEW AND FUTURE RESEARCH DIRECTION	Dhiraj Amrutkar, Gaurav Dongare, Sayog Sonune, Dr-Archana Chaudhari - 2021	They have used smart contract for ethereum platform and the Asymmetric key cryptography to protect against attacks and Digital signatures are used to validate votes and authentication using a unique voter ID.
4	Implementation of Secure Voting System using Blockchain	Dipali Pawar, Pooja Sarode, Shilpa Santpure, Poonam Thore, Prof. Pravin Nimbalkar - 2020	They have used the cryptographic algorithms like SHA-3, DSS algorithm will provide security and cost-effective election. Encryption is used in the system.No votes are tampered in the system.This leads to achieve transparency.

Proposed system

- Implementing blockchain technology to create tamper-resistant, transparent and decentralized secure digital voting system.
- The system maintains transparency through real-time vote counts, offering a reliable and tamper-proof approach to voting.
- SHA-256 Hashing algorithm is used for providing security.



Architecture



Source: www.researchgate.net

Tools and Technology

- **Blockchain Technology:** Secure, transparent digital ledger for verifying transactions.
- **Solidity:** High-level language and develop smart contract.
- **Ganache:** Ganache used for Ethereum development and testing.
- **Metamask:** Cryptocurrency wallet and gateway to blockchain applications.
- **Firebase:** A platform used to create iOS, Android, web applications.
- **Face-API:** Used for face detection, authentication and recognition.

Feasibility Study

- Register the user with the credentials and face capture into the database.
- Login to the site and use Face-API to detect the face.
- Cast the vote.

Societal impact

- Goal 9: Industry, Innovation increases transparency and contributes efficiency in electoral process.
- Online voting can encourage more people to participate in elections, potentially increasing voter turnout and make it easier for citizens who are geographically distant.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Project timeline

S.no	Plan of action	Duration
1	Problem identification	1st August - 31st August
2	Literature Survey	1st September - 30th September
3	Module Identification	1st October - 15th October
4	Module Implementation	16th October - 15th November
5	Report	16th November - 30th November

References

- Dr. Sonali Ridhorkar, Monal Wanjari, Shamsul Ansari, Pankaj Sonwane "MyVote-Blockchain Based Online Voting System", in International Research Journal of Innovations in Engineering and Technology (IRJIET) – Volume 7, Issue 4, pp 268-274, April-2023 .
DOI : <https://doi.org/10.47001/IRJIET/2023.704041>
<https://www.researchgate.net/publication/370692053>
- Farzana Khareem, Muhammad Safeer, Nadhiya Shafeeq, Shanavas KS, Li j a Joy "Online Voting System Using Blockchain Technology", in International Journal of Computer Science Trends and Technology (IJCST) – Volume 10 Issue 3, May-Jun 2022.
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- Dhiraj Amrutkar, Gaurav Dongare, Sayog Sonune, Dr-Archana Chaudhari "E-VOTING SYSTEMS USING BLOCKCHAIN: A SYSTEMATIC REVIEW AND FUTURE RESEARCH DIRECTION", in EPRA International Journal of Research and Development (IJRD), Volume : 6 , Issue : 5, May 2021.
DOI : 10.36713/epra7157
<https://www.researchgate.net/publication/351967946>
- Dipali Pawar, Pooja Sarode, Shilpa Santpure, Poonam Thore "Implementation of Secure Voting System using Blockchain", in INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH TECHNOLOGY (IJERT), Volume : 9, Issue : 6, June-2020.
DOI : IJERTV9IS060974
<https://www.ijert.org/research/implementation-of-secure-voting-system-using-blockchain-IJERTV9IS060974.pdf>

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