E-voting using blockchain Technology.

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ABSTRACT

Blockchain technology has grown its popularity in the last few years and it also have the potential to provide a ease in every industry. It is a distributed and decentralized digital ledger that provides secure, transparent, and immutable record-keeping of transactions. This abstract aims to provide an overview of blockchain technology, including its fundamental principles, key features, and potential applications.

The core principles of blockchain technology include consensus, cryptography, and decentralization. Algorithms enable participants to agree on the validity of transactions without the need for a central authority.Cryptography ensures that data is secure and tamper-proof, making blockchain transactions immutable. Decentralization means that the ledger is distributed across multiple nodes or computers, making it resilient to single points of failure.

Keywords: - Blockchain, Smart Contracts, e-voting, MetaMask, Truffle, Ethereum, etc.

INTRODUCTION

The block chain technology works the same as the block chain technologycontained in the e-voting system and focuses on database storage. In today's world we know that election is very important aspect to have a leader that majority wants, so for doing that also we have to consider some of the issues that we are facing today with the old voting system example the ballot-paper, or EVM's like the security issues the remote voting issues and voting manipulations and these all can be solved by blockchain technology and some added security APIs, and also in the blockchain technology we do not have a centralized database we have a distributed ledger and due to this also the database hacking is also very hard there the manipulation of the database is very hard for the intruders.

RESEARCH METHODOLOGY

We have done our research from different IEEE papers and study about the different related works, how they have implemented the design, how everything is working, what technologies they have used for developing the system, how we can do better by doing the comparison with their work. Some of the work we can discuss here like – smart contract based Decentralized e voting system. Data security management for e voting system using blockchain, voting based on the virtual id of Aadhar using blockchain.

Related Work

Sr. No	Paper Title	Authors & Published on	Methodology	Conclusion
1	Smart contract based Decentralized E-voting system. Technology.	Ali Mansour Al-madan, Dr.Ashok T. Gaikwad, d Vivek Mahale June 05 2021	Blockchain technology base smart contract is used for implementing the E-voting.the database in the network is very secured, NPM we use to import all the packages,Truffle is used for the setup of the environment and it is used for writing the smart contract and deploying it. React is used for the frontend.	In this paper Ethereum's Blockchain based electronic voting is been implemented that solves the major problem of the general voting system
2	Data Security Management for e voting system using blockchain	Erick Febriyanto , Triyono, Nina Rahayu , Kelvin Pangaribuan, Po Abas Sunarya, 2020	Stage 1 E-verification includes registration of user which is processed further using the token. After registration then voters can continue with the approval process. stage 2 in this the voter get the token.The data can only be used to verified the option Is there, following this it is deactivated . other voter data can be modified, therefore, on token can be used for multiple users. stage 3 insertion of the token into the machine, and the selected candidate would be seen on the screen for voting select picture. stage 4 the election result are encrypted by using the blockchain technology.	The research that has been done on the blockchain technology, it clearly shows that it can have a significant effect.

3	E- Voting System Using Comparative analysis	Kanika Garg, Pavi Saraswat, Sachin Bisht,Sahil Kr. Aggarwal, 2019	Blockchain is used for running e voting application.the database is decentralized here hence secured, NPM we use to import all the packages, Truffle offers a set-up of instruments. it is used for writing the smart contract and deploying it. React is used for the frontend.	There is always remain a concern with the authentication so, for the advance security we have to use some sort of biometric authentication to make it more secure.
4	Portal Using e voting system of Blockchain.	Kriti Patidar , Dr. Swapnil Jain, June 2019	Initial registration has to be done by the user.After registration unique id is generated by the system.verification,authorization is authenticated by tokens.Tokens avoids the chances of cross voting,and further there is no central authority which will conduct elections.	This study shows blockchain depended e voting system which performs on platform of ethereum .It provides solutions for problem created in traditional systems.
5	Voting based on Virtual ID of Aadhar using Blockchain Technology.	Roopak T M, Dr. R Sumathi , 2020	The registration has to be done in web platforms so registration of user is important part of e voting system.User has to register with virtual id which is provided by UIDAI .For operations like encryptions and decryption.voters use election commissions public key for encryption process.	This paper concluded that there are many voting techniques but blockchain can provide us the safest version .

Implementation and discussion

1.   Registration Phase

The Voter will be Registering himself for with id generated by platform and similar as initials and mobilenumber. And this information will be stored in the system.

2.   Login

The voter after enrolling himself place his vote. In this namer first enters through word. After successful login, to cast their vote voter must go through the process of authentication. For more upgraded verification is used in Blockchain Technology

3.   Database

Database that is used in this is the stoner database. Details like user id,initials which are stored in system.

4.   Ethereum Network

Ethereum network is used for the storehouse and the block creartion. Ethereum provide a ide and of a distributed also a distributed network like when the block is created then it is not stored in a centralized way, there is a use ledger.

5.   Result phase

In this phase the votes are counted and tallying is done and after all this the result is announced. The voters Will be able to see the results on the UI

Architecture Diagram
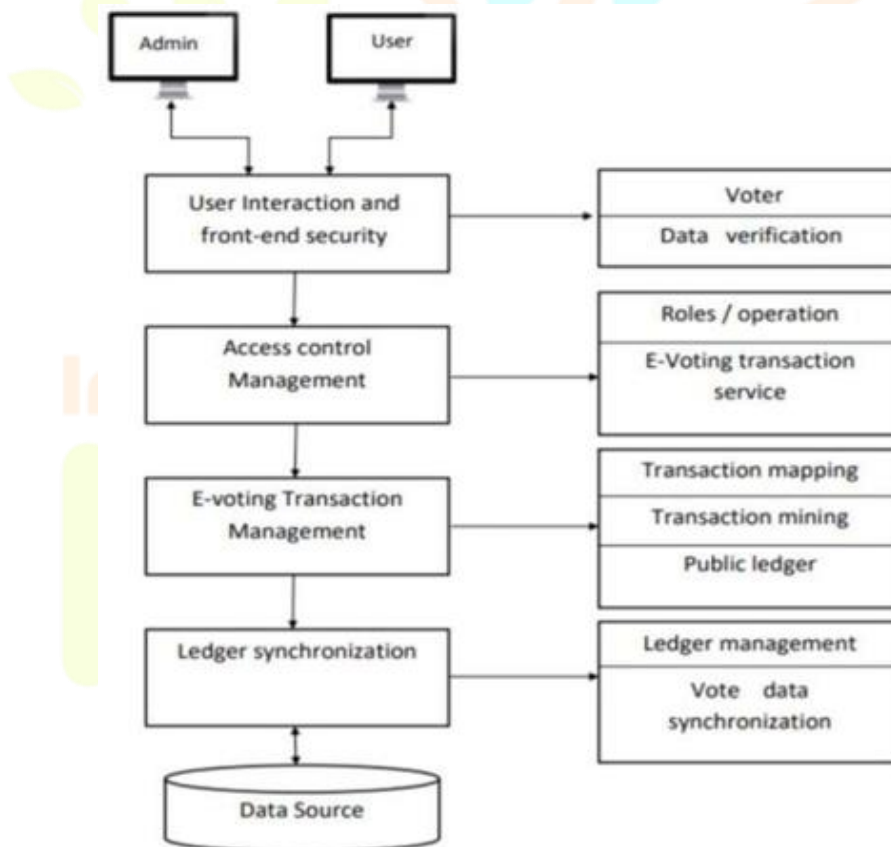
Operations

This system is also used for commercial companies to conduct their choices fordifferent posts similar as the presidential election, director elections etc.

1.   Online social network
2.   Online banking
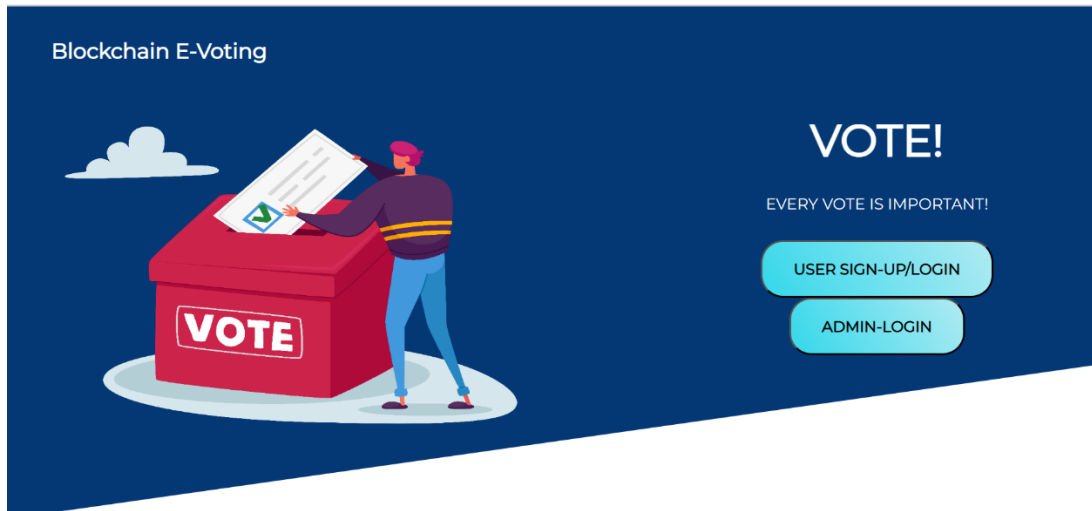3.   Notary

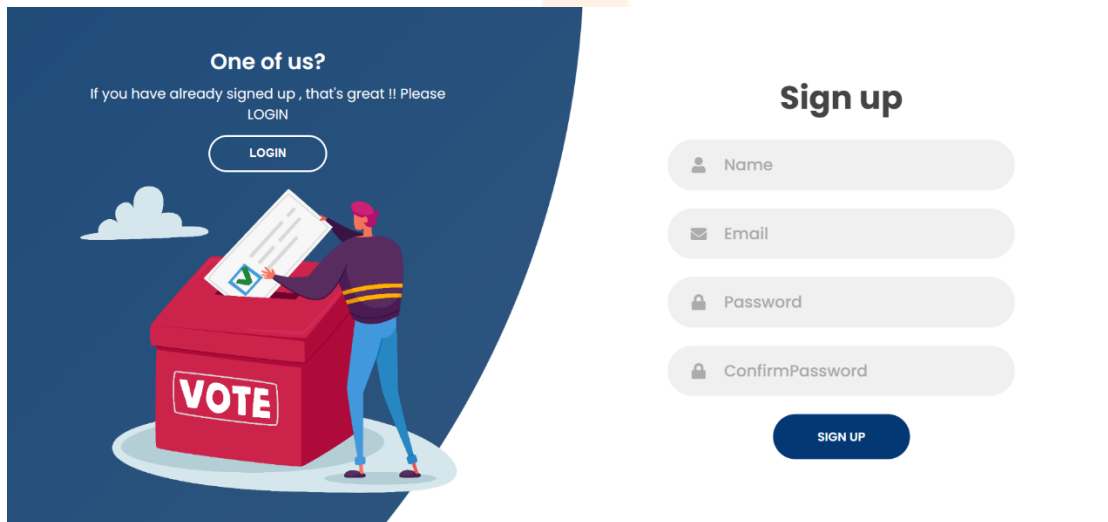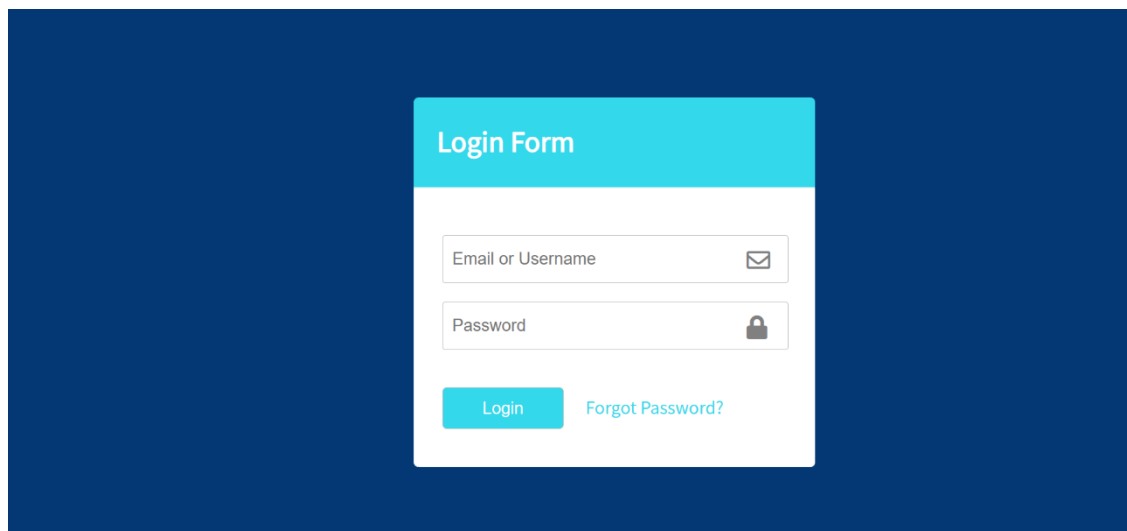**Result**

Main Login Page

Fig 1.0

User Signup Page

Fig 1.2

Admin Login Page

Fig 1.3

Conclusion And Future Work

Because now days there is very less voting ratio because of many reasons but the main one includes the remote access for the voting, so less voting percentage will lead to choosing a wrong leader maybe. Our proposed system will eventually help in providing the remote access, because due to the blockchain technology we have a high security for the data. we have heard about the decentralized bank system in that also blockchain technology is been used. By proposing the blockchain into the e-voting system one can reduce the chances of vote manipulation and also it prevent from the data loss because the database is not centralized. This design has a vision to apply advancing result using block chain technology from every place of election.

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