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Online Voting System Using Blockchain Mechanism

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Abstract: The aim of this report is to outline our proposal to solving the issues of digital voting by using block chain technology. The report starts by introducing the problems with current voting practices; it then goes into a brief explanation of what block chain technology is and how it is currently used. The following section looks at present day deployments of digital voting and the issues they face. The main section of the report is a detailed breakdown of our proposed design followed by an analysis of potential flaws and threats. The final section is a conclusion of how we feel our design solves the issue at hand. We voted in online then some hackers attacked our system (SQL injection attacks). Finally, the block chain will rectify the problem.

Keywords: Digital Voting , Block Chain Technology, Voting Practices, Detailed Breakdown, Potential Flaws , Threats, Hackers Attack, SQL Injection Attacks

1.   INTRODUCTION

Building an electronic voting system that satisfies the legal requirements of legislators has been a challenge for a long time. Distributed ledger technologies are an exciting technological advancement in the information technology world. Block chain technologies offer an infinite range of applications benefiting from sharing economies. This paper aims to evaluate the application of block chain as service to implement distributed electronic voting systems. The paper elucidates the requirements of building electronic voting systems and identifies the legal and technological limitations of using block chain as a service for realizing such systems. The paper starts by evaluating some of the popular block chain frameworks that offer block chain as a service. We then propose a novel electronic voting system based on block chain that addresses all limitations we discovered. More generally this paper evaluates the potential of distributed ledger technologies through the description of a case study, namely the process of an election and implementing a block chain-based application which improves the security and decreases the cost of hosting a nation wide election.

 We introduced a unique, block chain-based electronic voting system that utilizes smart contracts to enable secure and cost-efficient election while guaranteeing voters privacy. We have outlined the

systems architecture, the design, and a security analysis of the system. This paper evaluates the use of block chain as a service to implement an electronic voting (e-voting) system.

2.MATERILAS AND METHODS

A. Efficient performance

When we compared permission block chains to public block chains, they offer better performance. The core reason behind is the limited number of nodes on the platform. This removes the unnecessary computations required to reach consensus on the network, improving the overall performance. On top of that, permission networks have their own pre- determined nodes for validating a transaction.

B. Proper governance structure

Permission networks do come with an appropriate structure of governance. This means that they are organized. Administrators also require less time to update the rules over the network, which is considerably faster when compared to public block chains. Public block chain network suffers from the consensus problem as not all nodes work together to get the new update implemented. These nodes might place their self-interest above the needs of the block chain, which, in return, means slower updates to the whole network. In comparison, permission block chain doesn't have the problem, as the nodes work together to move the updates faster.

C. Decentralized storage:

Permission networks also make proper use of block chain, including utilizing its decentralized nature for data storage.

D. Cost Effective

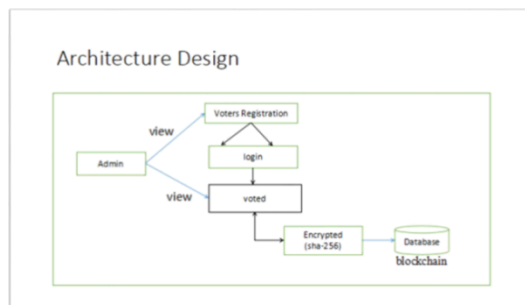There is no doubt that permission block chains are more cost-effective

Fig.2.1. Architecture Diagram

3. RESULTS AND DISCUSSIONS

A. Voters Detail module

Voter registers their details to get username & password. They detail are

- Name

- Voter-id

- DOB

- Username

- Password

Login the system & voted the parties. Voted only once, if do next means alert message shown.

B. Candidate module

Login which will be handled By Candidate, Voters will get Unique ID and Password, using which they can vote for a Candidate only once per Election. The project is beneficial for Election Commission, Voters as the can get to know the candidate background and choose wisely, and even for Candidate. The software system allows the Candidate to login in to their profiles and upload all their details including their previous milestone onto the system.

C. Admin Module:

- The admin can check each Candidate details and verify the details.
- The software system allows Voters to view a list of Candidates in their area.
- The admin has overall rights over the system and can moderate and delete
- any details not pertaining to Election Rules.
- Only view the voting details.

D. Block Chain Module

A block chain database is managed autonomously using a peer-to-peer network and a distributed time stamping server. They are authenticated by mass collaboration powered by collective self-interests. Such a design facilitates robust workflow where participants' uncertainty regarding data security is marginal. The use of a block chain removes the characteristic of infinite reproducibility from a digital asset. It confirms that each unit of value was transferred only once, solving the long-standing problem of double spending. A block chain has been described as a value-exchange protocol. A block chain can maintain title rights because, when properly set up to detail the exchange agreement, it provides a record that compels offer and acceptance.

outcomes:

without blockchain	with blockchain
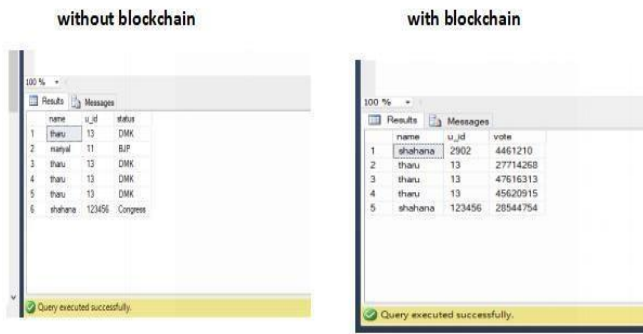
E. Project Process Description

We create a webpage (html/CSS), use ASp.net code and connect sql database.
There are five modules

- register
- login
- hashing
- block chain
- user verification

Voters will register first, login and put a voting for any party at once. We try again, mgs" you are already voted". Once we voted it will be stored in database.sha-256 algorithm is for encryption. Parties will hash on block chain part and stored.

4. CONCLUSION AND FUTURE ENHANCEMENT

Block chain Technology is gaining popularity day by day. Using block chain in voting system will help to achieve secure and cost-efficient election while guaranteeing voters privacy. Also, due to the encryption mechanism, it is impossible for any person to gain access to all the votes without first taking control of the entire service network. Everything that occurs on the block chain is encrypted and it's possible to prove that data has not been altered. Also, it is decentralized. So it is too secure. Block chain voting is just one of the many use cases of block chain technology. As the world develops, the evolution of voting is imperative.

With the current voting system being so flawed and scrutinized, block chain aims to introduce a new way for people to vote and communicate in their local and global elections. Applications to cast a ballot from cell phones can be assembled. There are two stages should have been considered to create them: Android and ions. Appropriately, voters should download the casting a ballot application and introduce to their cell phones, at that point they will most likely vote. It is substantially more helpful in light of the fact that at the present, the vast majority use cell phones. All techniques ought to be bolstered to build up an expert E-voting framework for such stages.

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