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Secure Voting using Blockchain Technology

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Abstract:*Online voting using blockchain technology is a promising solution for improving the security and transparency of the voting process. By leveraging the decentralized and immutable nature of blockchain, online voting systems can prevent fraud and ensure the integrity of votes. This paper explores the concept of online voting using blockchain technology, including the benefits and challenges of this approach. It also discusses the various blockchain-based online voting systems that have been developed and the potential future applications of this technology. Overall, the use of blockchain technology in online voting has the potential to revolutionize the way we conduct elections and increase the confidence of citizens in the democratic process.*

Keywords*:* Blockchain, Voting, Ethereum, Security.

I. INTRODUCTION

Online Voting system is a web-based voting system that will helps to manage your elections easily and more securely. This voting system can be used for casting votes during the elections held in colleges, etc. It uses face recognition technique to authenticate the user so problems for dummy entries will also be solved. So, thus this system gives the guarantee that no cheating can be done and the voting will be conducted easily where people don't have to go outside in order to cast their votes. Transparent transaction using Blockchain technology increases the security of the transaction of crypto that races towards the cybersecurity.

All the data is secure and verified. The encryption is done through cryptography to eliminate vulnerabilities such as unauthorized data tampering and this will increase the crypto payments. The main objective of the electronic voting technology intends to speed of the counting of ballots, reduce the cost of paying staff to count votes manually and can provide improved accessibility for disabled voters. This can be achieved by designing and developing a software platform for voter registration, election voting, real-time election results collation and monitoring and mostly for remote voters' access to elections. Study and implement a security method to be used to ensure that votes being cast in the system will not be compromised and no outside attack would be faced which will be ensured by blockchain technology.

II. SYSTEM ARCHITECTURE

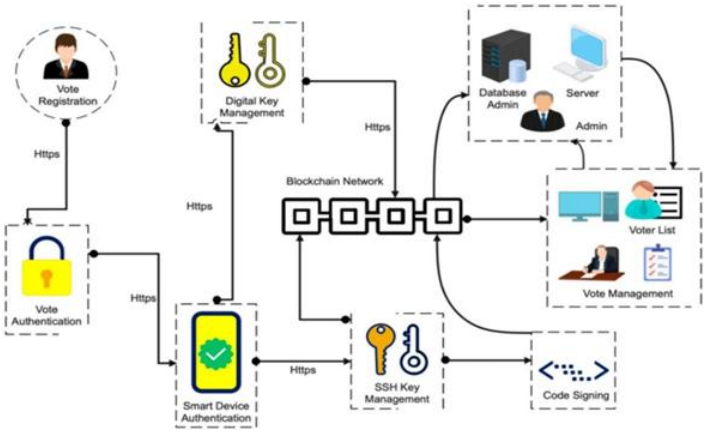

Fig 1. System Architecture

Node — user or computer within the blockchain
Transaction — smallest building block of a blockchain system

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Block — a data structure used for keeping a set of transactions which is distributed to all nodes in the network
Chain — a sequence of blocks in a specific order
Miners — specific nodes which perform the block verification process
Consensus— a set of rules and arrangements to carry out blockchain operations attentiveness and warn the driver.

III. LIST OF MODULES

1.Login Module

Login module is segregated into two, voter Login and admin Login. - In voter Login, the voter can log in using username and the password individually. - In admin Login, admin will have the access to log in to this section using username and password.

2.Voter Profile Module

In candidate details all the candidates added by admin will be displayed. Admin can update the candidate detailsif incase a wrong entry is done.

3.Dashboard Module

The user dashboard contains information about parties and their candidates. A user can see all the information about candidate.

4.Election Module

In this section admin can update election details such as start date, end date etc. This feature of admin will allow him to create election. A user can cast his vote only after the election is created by admin. A user can cast vote betweenthe start date and end date.

5.Result Module

In this component the user will be able to see the results of the election, Admin manages the overall voting resultprocess and display it on UI.

IV. SCREEN SHOT

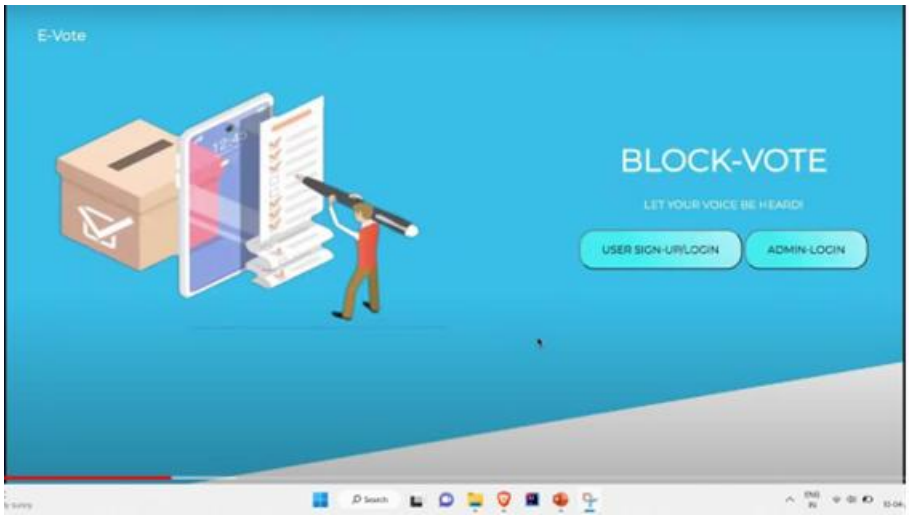

Fig 2. Login/Signup Page

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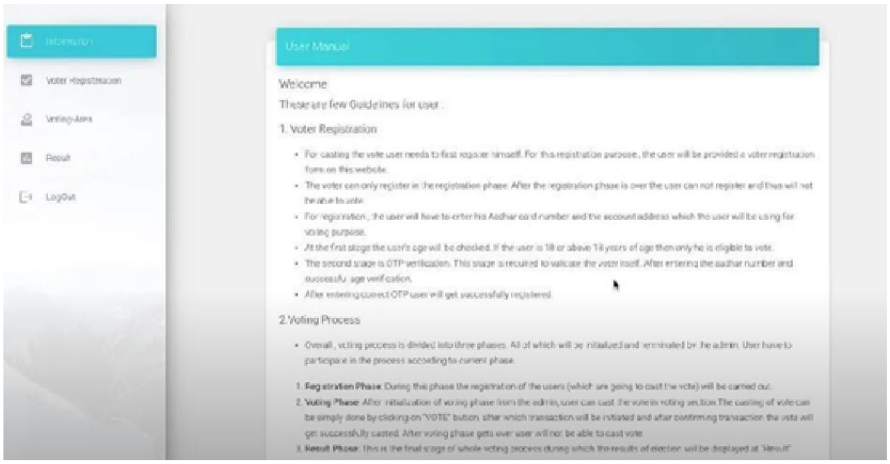

Fig 3. Instruction Page

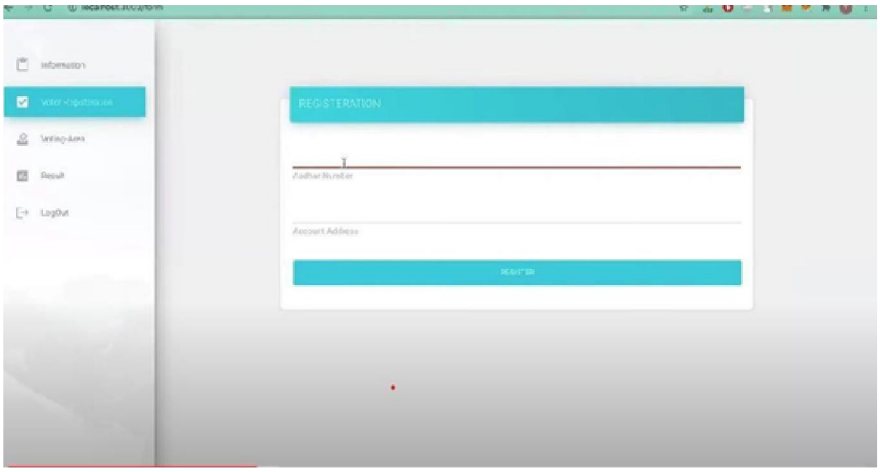

Fig 4. Voter Registration

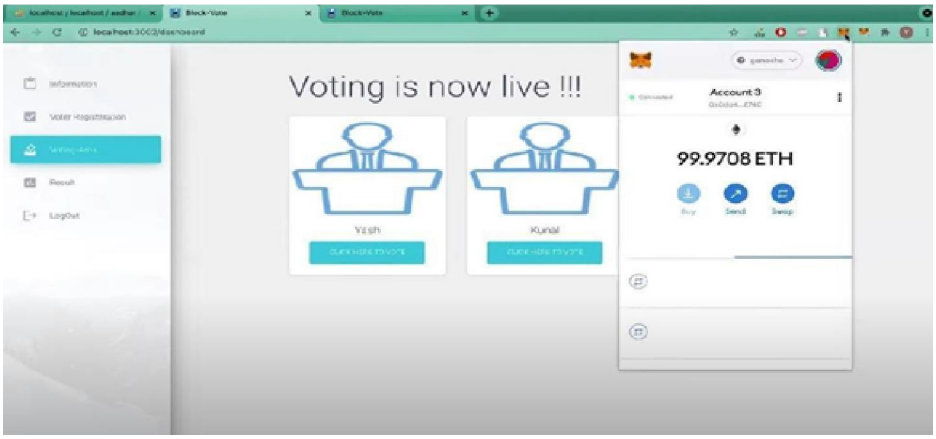

Fig 5. Voting Page

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V. FUTURE ENHANCEMENT

As this system can be mainly used for college voting so it is part of face recognition can be used as an attendance system where we just have to add the scanned student name into a file. This system uses Ethereum coins for casting the votes so in future we can use Hyperledger (i.e., it does not use a cryptocurrency for transaction) for implementing blockchain so we can make this system free for people to cast votes.

VI. CONCLUSION

To conclude in nutshell, by using this project, the user does not need to worry about any special tool to write in the open space. With optimum use of resources, we can write and convey correct message to other party. In the current situation, online work is unavoidable. Mainly, online education is proving harder as teachers sometimes feel difficult to teach without writing. This is where our project comes into picture. Once the project website is hosted on server, anyone (i.e., teachers) can access it and using the web-camera one can easily do their task using writing. (i.e., Math teacher may use it to show equations to the students in online education) To sum it up, we can say that using python libraries and OpenCV, we have created a tool through which all people who were unable to convey the message properly due to lack writing in real time during online meetings can now do it efficiently.

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