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 ijircce@gmail.com

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Block Chain based Tamper-Proof Online Voting

Mr.V.R Vimal¹, Akash V², Nishanth N³, Sathish Kumar JP⁴

Asst. Professor, Department of Computer Science and Engineering, Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Tamilnadu, India¹

UG Student, Department of Computer Science and Engineering, Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Tamilnadu, India^{2, 3,4}

ABSTRACT: The project is mainly aimed at providing secure and user-friendly E-voting system. So we proposed a Block chain-based voting system. This can be used in elections. we argue that our Block chain-based voting system is more secure, reliable and it has the ability to protect voter privacy which will help boost the number of voters and their trust in the electoral system as well as reducing considerably the cost of national elections. compared to other state of the art block chain-based voting systems is that it respects voter's privacy with a full transparency for auditing and user-friendly terminals, which will boost the confidence of people in the voting system and therefor increase the number of participants in the election. Voting is a vital privilege for each and every citizen, So this model ensures a safe and secured voting using Block-chain based technology which makes it more reliable. Blockchain plays an important role in the e-voting system which ensures the security of votes by preventing modification of data stored in blocks using the cryptographic technique and the integration of verification steps like OTP verification and Aadhar verification to the e-voting system overcomes the duplication or tampering of votes.

KEYWORDS: Ethereum, remix integrate development environment, smart contract, Block chain based technology.

I. INTRODUCTION

In a democratic country like India ,Voting is a vital privilege for each and every citizen, So to ensure a safe and secured voting process we have proposed a E-VOTING SYSTEM. The project is mainly aimed at providing a secured and user friendly interface. And also Blockchain is implemented which makes it more reliable. Blockchain plays an important role in the e-voting system which ensures the security of votes by preventing modification of data stored in blocks using the cryptographic technique and the integration of verification steps like OTP verification and Aadhar verification to the e-voting system overcomes the duplication or tampering of votes. The proposed system is a website which provides a secured e-voting system by using the above mentioned verification steps.

II. LITERATURE SURVEY

[1]. This paper proposes an e-voting system based on blockchain that eliminates some of the limitations in existing voting systems. The paper also presents state of art of some blockchain frameworks for e-voting . The presented implementation is suitable for small scale elections like inside corporate houses, boards rooms etc. From this paper we have learnt the process of creation of smart contracts and concept of decentralization.

[2]. This paper proposes an online voting system for Indian election and the proposed model has a greater security in the sense that voter high security password is confirmed before the vote is accepted in the main database of election commission of India. The disadvantage in this paper is that the main database can manipulated and the actual results can be manipulated so our proposed system we are using blockchain technology which helps us to secure the data .

[3].This paper aims at creation of a voting system by providing a cost effective solution to the government along with ensuring non-traceability and integrity of the votes casted while providing convenience to voters and we have learnt how to maintain the authenticity and integrity of the voters in a voting system.

[4]. This paper is internet based voting system which manages the voter's information, which makes the life of the voter easier, they can just simply login and exercise their right to vote. This voting system is built on the backbone

principles of free and fair elections and hence tries to incorporate all the benefits of traditional voting solutions. The disadvantages in this paper is that all the information election results and the voter's data is stored in a database which makes it less secure so in our proposed system we are making the system decentralized and it is more secure.

[5]. This paper suggests a online voting method for Indian government elections to increase the number of voter's participation in the election process. This system proposes method that employs two approaches.1) Novel candidate verifiability mechanism and 2). OTP mechanism. The candidate verifiability allows the candidate to check the integrity of the vote. From this paper we have learnt about the process of OTP verification and using that the authenticity of the voters is increased in our systems.

[6]. In this paper it suggests that the person can also vote from outside of his/her allotted constituency Or from his/her preferred location . In this system the tallying of votes will be done automatically, thus saving a huge time and enabling election commissioner of India to announce the result within a very short period. The disadvantage of this paper is that the authenticity of the voting system is less so it can be manipulated very easily so in our proposed system of the authenticity of the voter is more and the authentication is done using two steps.

[7]. In this paper it proposes a novel approach for a decentralized trustless voting platform that relies on blockchain technology to solve the trust issues. The main features of this system include ensuring data integrity and transparency and enforcing one vote per mobile phone number for every poll with ensured privacy. To accomplish this, the Ethereum virtual machine(EVM) is used as a block chain runtime environment and we learnt the concept of Ethereum block chain and its process for this paper and we have implemented the voting system using Ethereum block chain.

III. THE PROPOSED SYSTEM

The proposed system is a online voting portal through which the voters can cast their votes remotely from where they are located. The front end of the portal is created with the help of HTML, CSS, JAVA SCRIPT and the OTP verification is done here to verify the voter. Usingethereum blockchain to create a decentralized application. The smart contract is executed in the Ethereum platform and the voter is authenticated using the smart contract that whether he/she is casting their vote only once. After the authentication the voters can cast their votes and the results will be displayed in the portal after the completion of the elections.

IV. WORKING OF PROPOSED SYSTEM

The proposed system is a online voting portal through which the voters can cast their votes remotely from where they are located. The identity of the voter is verified using two steps of verification process 1).OTP verification 2).Aadhar verification. The front end of the portal is created with the help of HTML, CSS, JAVA SCRIPT and the OTP verification is done here to verify the voter. And we are using Ethereum blockchain to createa decentralized application and Solidity for writing the smart contracts .The smart contract is executed in the Ethereum platform and the voter is authenticated using the smart contract that whether he/she is casting their vote only once.

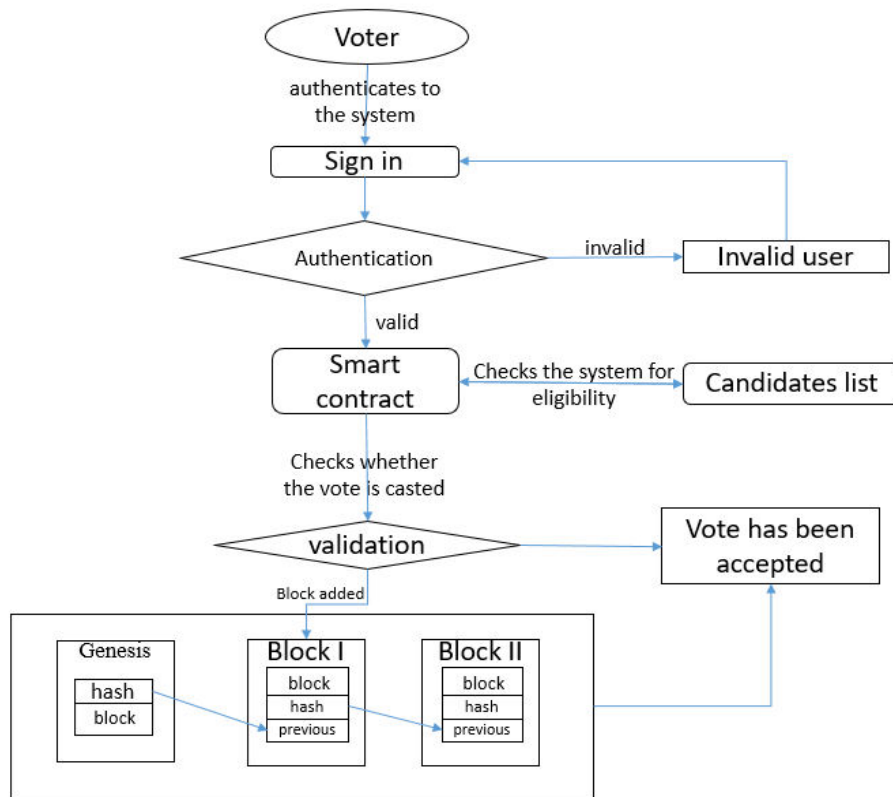


Fig. 1 Proposed Architecture diagram

After the authentication the voters can cast their votes and the results will be displayed in the portal after the completion of the elections.

Authentication of the user

Voting process need to be carried out only after the verification of the voter in order to maintain the reliability of the conducted election so the 2step verification is carried out for authentication by signing in using the login credentials by entering the username/voter id number with the password registered by the voting committee then Aadhar based verification is done through OTP verification is send to the number linked with the Aadhar. The details are verified and the user is allowed.

Smart contract based verification

After the initial phase of authentication the smart contract which is written in Ethereum solidity gets executed and checks the candidate list whether the voter has already casted his vote. If the user has not casted his vote he will be allowed to cast his vote to the candidate.

Advantages:

- Improve the security for voter’s privacy
- Immutable and decentralized system
- No third party access.
- The reduction in organizational and implementation costs significantly increases the efficiency of election management compared to traditional voting.

Storage in the blocks

In the first block is a genesis block in the blockchain when the voter cast his vote a new block will be created. The block will contain the data such as candidate to whom the voter has casted his vote, date, time, ip address of the computer and other necessary details that are required during the election. The block data will be converted into a hash by using sha256 algorithm. The block will also contain the previous hash value of the previous block.

When every new user cast his vote the ballot data will be stored in this manner at the end of a block and will also hold the hash value of previous block. If any person tries to change the data in the any block its hash value gets changed through which vote tampering can be identified then the block will be automatically changed to its previous state. Since the block are linked by the hash values these blocks forms a blockchain.

V. EXPERIMENTAL RESULT

5.1 Creating candidate list

The election organizing committee will create a candidates list of the eligible candidates by adding there details like name, place of the election, their city they participate in etc.

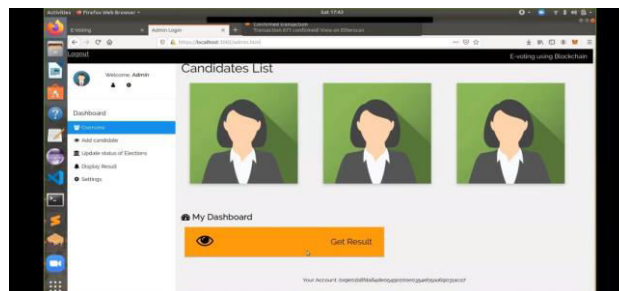


Fig. 2 Creating candidate list

After adding all the candidates the interface will look like the image above after being verified by the election organization. The organization will add all the eligible candidates in this area.

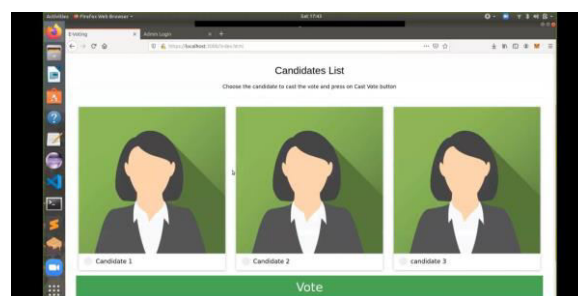


Fig. 2 Eligible candidate list

The above interface is what seen by the voter after their verification is successful. This interface allows the voter to view the list of candidates and select the candidate to whom they are willing to cast their vote. The voter need to select the candidates name/ image and select vote button to confirm their vote.

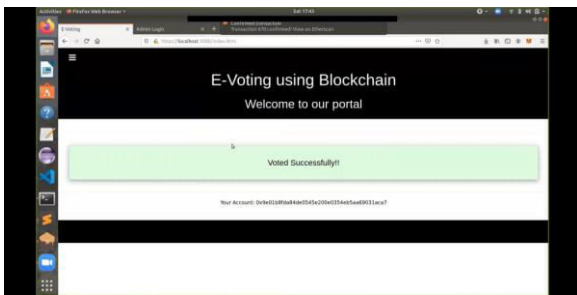


Fig. 3 Adding candidate list for vote

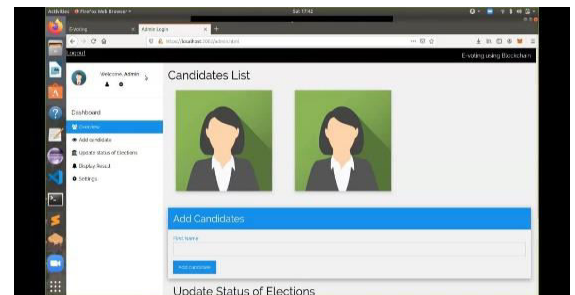


Fig. 4 Selection of candidate to vote

After the vote is successfully recorded the voter will be able to view a page similar to the image above.

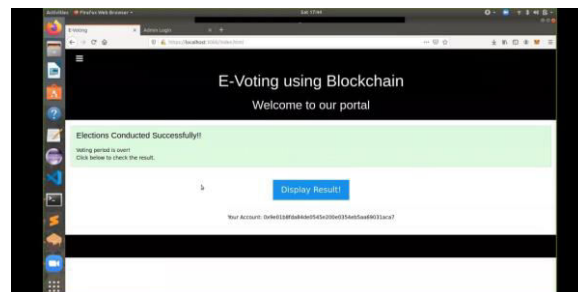


Fig. 5 Successful voting

After the voting period is over the voter will be taken to a page where it displays the message “voting period is over and also the user will be able to view to a display results button.

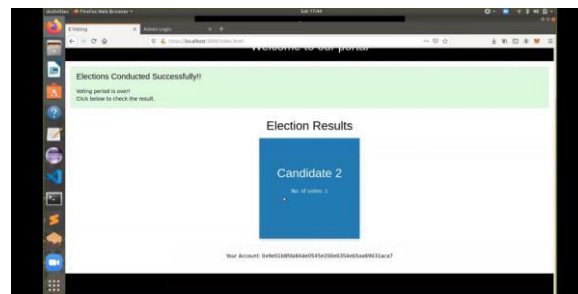


Fig. 6 Display of voting details

After the display results button is clicked the user will be viewing the details of the winner who has won the election.

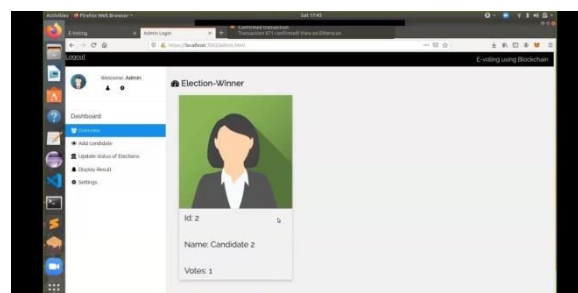


Fig. 7 Display of winner results

At the same time the admin will also be able to view the winner of the election. And the results will be published and the winner will be announced.



REFERENCES

- [1] Adarsha M ,Madhuri B, Pradhyumna K Rz, Prajwal B Mx “Secured smart voting system using Aadhar” in IEEE conference 2020
- [2] Alkhansaa Abuhashim; Chiu C. Tan “Smart Contract Designs on Blockchain Applications” in 2020 IEEE Symposium on Computers and Communication(ISCC)
- [3] Arika Afrin Bosha; Mallik harsha; prodipa promit mukherjee. “A ledger framework as a service for improved quality E-Voting System.” in IEEE Access, June 02,2019
- [4] Arijet Sarker;Maria Psarakis; SangHyun Byun;Sang-Yoon Chang;Wenjun Fan “Voting Credential Management System for Electronic Voting Privacy” in IFIP Networking Conference, 2019
- [5] Bimal Roy , Feng Hao,Somnath Panja ,and Samiran Bag “A Smart Contract System for Decentralized Borda Count Voting” in IEEE Access, June 02,2018
- [6] Erick Febriyo ; Nina Rahayu ; Triyono “Online polling Aadhar card based verification " in IEEE access 2017.
- [7] Jithina Jose; B.Keerthi Samhitha; Ch.Sai Pratap Varma; D.Sumanth Rahul; Suja Cherukullapurath Mana; “Aadhar card verification based online polling “ in 4th International Conference on Trends in Electronics and informatics (ICOEI), 2017
- [8] Jithina Jose B ; Ch.sai pratap varma; D.sumanth rahul “Online polling Aadhar card based verification " On IEEE conference paper 2017.



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