

Blockchain Based Biometric Secured Voting System

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Abstract: The voting system is a process of electing the right candidate for the development of any government and organization. There are various voting techniques used such as Paper Ballot Voting System, E-Voting System also known as Electronic Voting System, Internet Voting System, SMS and Miss Calls Voting System. In this paper, we are going to discuss the open source Blockchain technology to propose a design for a new online voting system using biometric that could be used in all kinds of elections. The Blockchain-based system will be secure, reliable, and anonymous, and will help increase the number of voters since it provides remote voting as well as the trust of people in their governments and organizations.

Keywords: Blockchain, Biometric, online voting system

1.Introduction

Online voting system is an interesting topic in information security research. Online voting system method helps public to select their leaders and express their preferences for how they will be governed. Election process is an important phase. It is hard to make the voting system trustworthy only because it has high security requirements: confidentiality and integrity. Confidentiality means all voters get assured about the privacy of votes and prevent selling of votes. Integrity means the assurance of election results and the votes are counted correctly. Integrity is easy to get through a public show of hands, but this dissipates confidentiality and confidentiality comes from the secret ballots, but this fails the integrity.

Remote voting process allows large number of peoples to take part in voting process by reducing the travelling time, travelling money and the time in waiting in the queue. Hence this takes the lead over the existing system. Over the years many systems and ideas have been implemented to achieve a feasible voting system.

The main goal of this idea proposed is to encourage more people to vote remotely wherever they are with their Smartphone. This system provides peoples to vote in a secure manner. This system also provides the security to the voter's by storing each vote as one block in Blockchain. This system provides the confidentiality by not disclosing the vote in front of any third party.

2.System Overview:

The system that we are proposing mainly focuses on voting system that will enhance the voting more secure and authenticated in future. As there is exponentially growth in the number of Smartphone users, we may comment that majority of the world any operating system like android, IOS or any generic OS using the React Native app. There are several steps in online voting process. The system is approachable from 2 side one is from admin side and other from user side. Important steps of online voting system is discussed below:

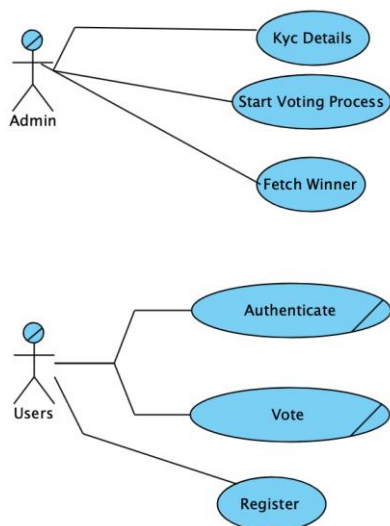


Fig:1.User and Admin Approach

ballot contains the candidate information such as first name ,last name, candidate unique Id ,candidate profile picture and a button to vote. After voting to his favourite candidate the voter will be notified by pop-up message of his successful voting.

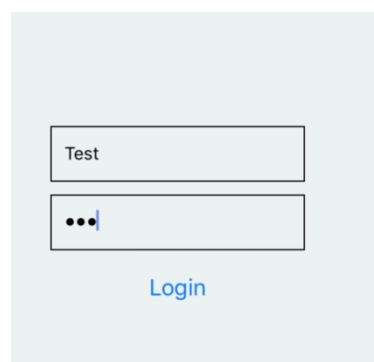


Fig:2.login page

2.1 Uploading Voter information.

At first the voter must register himself prior to vote. Admin is the person who register's all the information of the voter, where he/she checks weather the voter is eligible to vote or not. After confirming the voter, he allots unique user name and password for each voter which is confidential. This user name and password is used to login on the day of voting.

2.2 Uploading Candidate Information

In Online Voting system the Candidate sends all his/her information to the Admin. Only after verifying the candidate data, the admin will register the candidate according to his/her constituency. After this process the Admin will provide unique candidate ID for each candidate to make candidate unique. Candidate profile image is also added along with other information.

Name	Symbol	VoteLabel
candidate1	2	<input type="button" value="Vote"/>
candidate2	b	<input type="button" value="Vote"/>
candidate3	2	<input type="button" value="Vote"/>
candidate4	b	<input type="button" value="Vote"/>
candidate5	b	<input type="button" value="Vote"/>

Fig:3.E-ballot

2.3 Date and Time of Election

In this Phase, The admin will finalize the date and along with the starting and ending timings of the election.This helps the voters to vote in specific time and make election process succesfull.

2.4 Vote Submission

This is the important phase of this system ,we have two levels of security here one is bio login and another one is login using admin provided username and password. After this verification voter will move to e-ballot paper. The e-

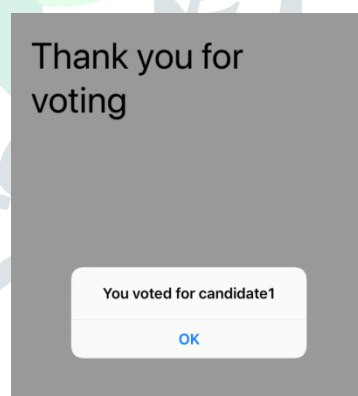


Fig:4.Voting Conformation

2.5 Result Declaration

This is the last phase of voting process. In this phase Results are announced after completion of the election period in which counting is done automatically done during the election period by blockchain.

3. Conclusion

This paper explains the proposed model blockchain based biometric secured voting system. The proposed system can be used in any organisation and government to conduct election. This is more secure than other online voting system because of Blockchain, this provides that the voted information secured by storing the data using sophisticated math and innovative software rules that are extremely difficult for attackers to manipulate. To use this app voter just need a Smartphone with fingerprint scanner and any unique identification number and this is compactable to any operating system. The proposed system is much secure and efficient than the traditional voting system. The

proposed system provides the remote voting hence, voter doesn't have to go to a polling booth to cast their vote, thereby encouraging more number of people to participate in voting.

References

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