Electronic Voting System Using Biometric Verification

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ABSTRACT: The Safe Online Voting System is an interactive voting system programmed that enables users to vote remotely from any location using their previously stored information safely in the database. The online voting system requires network transfer of ballots and votes. Safety is preserved at various stages, such as during voting and even when ballots are transmitted. The main objective of this work is to create an interactive application of the voting system with which users can participate using their information previously stored in the database while generating the voter ID and the information needs to be modified by the Independent Electoral Commission of India for a perfect user verification period of less than six months (IECI). In this scheme, people who have Indian citizenship and are over 18 years of age and of any sex can vote online without going to any physical polling station.

KEYWORDS: Biometric, Electronic voting machine, Voting system, Voting analysis, Security measures.

INTRODUCTION

Safe online voting is a voting system in which election data is primarily collected, stored and processed as digital content, and ballots need to be answered, received, signed, distributed and counted via computer. For more reliable platform mechanisms to resolve the client's vulnerabilities used by the voter to cast her vote, voter identification and authentication techniques are therefore necessary. The registered users' voting process is very cumbersome [1].

The voting system is the base of Indian democracy, where electors select their representatives to demonstrate their participation in order to supervise them. The voting system has progressed from the counting by hands in previous days to the electronic voting system, which involves papers, punch cards, optical scan machines and mechanical levers. This conventional voting system is the time-consuming process, so due to their busy schedule, the maximum Indian populations cannot vote, plus the voting process by registered users is very slow [2].

There are various properties which have been developed to make the electronic Voting secure process. The various properties are:

Eligibility: Only eligible/registered voters are allowed to cast their vote by using the system.

Secrecy: There is no alliance between identification of voters and the electronic voting system.

Exceptionalness: No voters can cast their vote more than one time.

Freeness: A voter does not receive any information which can be further used to prove that they voted for a certain candidate.

Justice: No incomplete result is gained before the final calculated result comes out.

Confirmable: Voters can verify that they cast their votes that were counted correctly.

Uncoercibility: No voters can prove what they cast vote for others to prevent bribery.

Effectiveness: The counting can be gained within a realistic amount of time period [3].

On-line casting votes are a software system with the help which a voter can cast their votes through registering himself on the website available for voting. All the information which is provided by voters in a website is stored in a database, for each voter in the website has its separate database table. Each voter has to enter his all basic information related to identify himself like name, sex, religion, nationality, criminal record etc. It has various page options like Home, Polling Dates, Register, Login, about us, Contact us, FAQs.

Safe and secure e-voting system is a voting system in which the data of election is stored, recorded and processed firstly as digital information & it required to address, mark, deliver and ballots counting with the help of computer. Therefore identification and authentication techniques for voters are necessary for a more safe and secure platform to overcome susceptibility of the server used by the voter to cast their vote. The process of voting by registered voters is very inconvenient [4]. Security can be considered the heart of any nation's voting system, while designing the system in this paper security is of highest priority. There is a various identification process in which Biometric verification is considered as the secure measure of voter because biometric signature with the help of finger print, retina etc. Any voters have unique value and these biometric identification of voters never change even after death of person, now a days biometric is providing very effective results which will lead to the illegal voting [6]. The personal data of voters and the casted vote of the voters are stored into a server which will communicate to all voting booths, there will be multiple voters to cast their vote on voting booths which is feasible for voters and due to votes being stored into the server there will not be tampering of votes during counting [5].

LITERATURE REVIEW

A lot of literature on online voting has been developed in recent years. In recent years, though online voting has been an active field of study, efforts to build real-world solutions have only begun to present a range of new challenges. Usage of the vulnerable Internet, well-documented instances of incorrect implementation and the subsequent breaches of security has recently been identified. In order to build public confidence in online voting, these issues and concerns have to be addressed [6].

Electronic Voting (EV) requires the use of a machine rather than the usual use of a ballot at polling stations or by post. This includes the procedure for a group to make a decision or express an opinion, typically following meetings, debates for election campaigns, such as meeting an electorate. It involves different means of voting, such as kiosks, the Internet, telephones, punch cards, and optical scan ballots or mark sense. India has developed electronic voting machines as the world's largest democracy, with a population of 1.1 billion (EVM). Elections approved and endorsed by voters issues associated with the conventional paper-based voting method to be resolved. The Estonian experience of deploying Internet voting in the United States (U.S.) and about 3.4 percent of voters were able to use remote e-voting in 2003 and by 2007, amid concerns about hacker attacks, identity theft, and vote count manipulation, the remote e-voting elections proved safe by 2007 [7]. The controlling unit is used for counting the number of polled votes; both units controlling unit and voting unit are connected together with a 5-meter-long wire unit but there are some issues associated with this system which are noted below.

A. Security Problems:

In the present scenario, results of EVM can be changed by manipulating the program stored in the EVM and by installing a look alike component which can be instructed to change the results.

B. Illegal Voting (Rigging):

Illegal voting is a common in the voting process where the voters of a particular candidate illegally cast the votes of genuine voters and dispose of them of their voting rights in order to get the results in favors of a particular candidate.

C. Privacy

The concealment of the voter is secure and there is no way to illegally cast the vote of genuine voter votes.

D. Verifiability

The Electronic voting system provides means to recheck the results in case there is a necessity to recheck the election results.

E. Availability

The system ensures full availability to the voters on the polling day.

F. Resume Ability

Technology (including self-contained direct-recording electronic voting systems, or DRE) may include punched cards, optical scan voting systems and advanced voting kiosks. The transmission of ballots and votes through telephones, private computer networks or the Internet may also be involved. Electronic voting allows electors to cast ballots by computerized devices in an election. This word is often used to gain votes over the Internet [8].

CONCLUSION & DISCUSSION

The online platform offers voters an opportunity to cast their ballots online without going to the polling booth. Our portal also includes a special chat bot that will solve any problem that the user faces during the entire voting process. This system provides easy access, higher levels of security, high flexibility, and productivity. It also reduces the chances of casting votes or bogus voting by fake individuals. It also lowers human resources and undesirable human mistakes. It provides fast election results that are entirely reliable. The focus of our framework is on reducing time and paper work. The online voting system therefore makes all the voting process rapid and provides the votes with protection.

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