

Online Voting System based on Fingerprint and Aadhar ID

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Abstract: An online voting system for Indian election is proposed for the first time in this paper. 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 additional feature of the model is that the voter can confirm if his/her vote has gone to correct candidate/party. The problem of voting is still critical in terms of safety and security. This paper deals with the design and development of a web-based voting system using fingerprint and aadhar card in order to provide a high performance with high security to the voting system. Also we use web technology to make the voting system more practical. This will increase the voting percentage in India and reduces the cost of voting process. By using aadhaar card identification it provides enough security which reduces the false votes.

Keywords: Biometric fingerprint, Aadhar card, Voting System, Authentication.

1. Introduction

Online voting system is contemplated as an interesting topic in information security research. Online voting system is a way that helps public to select their representatives and express their preferences for how they will be governed. Naturally, the belief of the election process is utmost important [1]. Election process has strong media coverage, particularly if something goes wrong. This system will increase the level of security and also the trust of voters. The problems of Maoist affected places for the voting has been addressed in [2] while [3] describe the genesis of Maoist violence and showed that public needs a more secure way of casting their vote. Online voting system definition given in [4] states that Online voting systems offer advantages compared to other voting processes.

An Online voting system may be involved in any one of a number of steps in the setup, voting, collecting, distributing and counting of ballots. But Electronic voting systems suffers from various drawbacks such as time consuming, consumes large volume of paper work, no direct role for the higher officials, damage of machines due to lack of attention, mass update doesn't allows users to update and edit many item simultaneously etc. These drawbacks can overcome by Biometric Online voting System. This is a voting system by which any voter can use his/her voting rights from anywhere in the country. We provide a detailed description of the functional

and performance characteristics of biometric online voting system. Voter can cast their votes from anywhere in the country without visiting to voting booths, in highly secured way. That makes voting a fearless of violence and that increases the percentage of voting.

2. Existing system

Many e-voting protocols have been proposed from both theoretical and practical perspectives in the literature. However, to the best of our knowledge, no complete solution has been found because of the importance of security requirements in voting systems such as privacy, accuracy, fairness and robustness. E-voting protocols have an anonymity requirement, which means the unlinkability between the voter and his cast vote. Anonymity is the primary requirement of the e-voting protocols in order to satisfy voter privacy.

The Existing System of Election is running manually. The Voter has to Visit to Booths to Vote a Candidate so there is wastage of Time. The Voter has to manually register into the Voter List. Also Vote counting has to be done manually. All the Information of the Voter or Candidate is to be filling in manually. Voter must be present in his/her Constituency to give his/her Vote. There are Electronic Voting Machines used which Takes More Cost. The voting system previously being used by the Government is a paper based system, in which the voter simply picks up ballots sheets from electoral officials, tick off who they would like to vote for, and then cast their votes by merely handing over the ballot sheet back to electoral official. Some of the existing systems are:

- *Paper-based voting:* The voter gets a blank ballot and use a pen or a marker to indicate he want to vote for which candidate. Hand-counted ballots is a time and labour consuming process, but it is easy to manufacture paper ballots and the ballots can be retained for verifying, this type is still the most common way to vote.
- *Lever voting machine:* Lever machine is peculiar equipment, and each lever is assigned for a corresponding candidate. The voter pulls the lever to poll for his favorite candidate. This kind of voting machine can count up the ballots automatically. Because its interface is not user-friendly enough,

giving some training to voters is necessary.

- **Direct recording electronic voting machine:** This type, which is abbreviated to DRE, integrates with keyboard; touch screen, or buttons for the voter press to poll. Some of them lay in voting records and counting the votes is very quickly. But the other DRE without keep voting records are doubted about its accuracy.
- **Punch card:** The voter uses metallic hole-punch to punch a hole on the blank ballot. It can count votes automatically, but if the voter's perforation is incomplete, the result is probably determined wrongfully.

3. System overview

In the online voting system, all the information of each voter is added/ uploaded in main database of Election Commission of India according to AADHAAR Identity Number. This AADHAAR Identity number is unique for every citizen or voter of India. This AADHAAR Identity number has been introduced by government of India and this also recognizes the constituency of the voter. But the registration of the voter should be completed only after the verification of all documents by the field officer.

The field officer also verifies AADHAAR. Fraud and system violations can be done without being detected in anonymous environments. This properties of e-voting forces the researchers to find a way to satisfy the voter that his vote is really counted and the voting is done properly. This requirement is named as verifiability and used many years in the literature. In software engineering, substantiation is the process of verifying that the system complies with design specifications and formally specified properties, such as consistency and redundancy; and validation is the process of validating that the system satisfies the intended use and fulfills the user requirements (IEEE 1996). In other words, verification is building the system right and validation is building the right system. In an ideal world, a verified system would be naturally validated, but this is far from what is currently possible in practice.

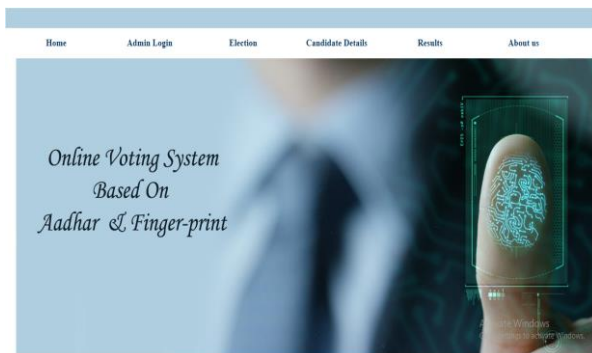


Fig. 1. Home page

Even if it is possible to specify formally all of the user requirements, and then to verify that a system conforms to this

specification, there would still be no guarantee that the requirements were correct. Substantiation can be viewed as a part of validation, it is unlikely that a system that is not built right to be the right system. However, attestation is unlikely to be the whole of validation, due to the difficulty of specifying user requirements.

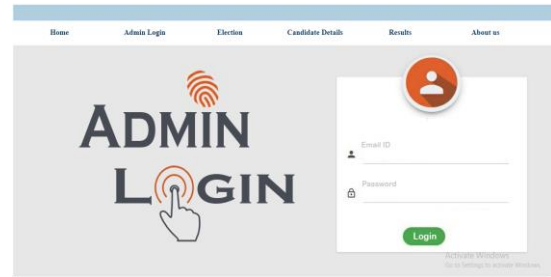


Fig. 2. Admin login page

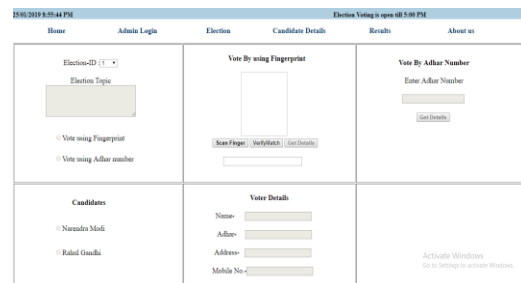


Fig. 3. Election Page



Fig. 4. Candidate Details Page



Fig. 5. About Us Page

4. Conclusion

This voting system helps everybody to cast their votes without any problem. Online voting will increase the percentage of voting. Manual counting is not required. So by this we will get the very prominent, clear and fast result. It's a

great challenge for us to use php language for the development of our project. By using this newly developed system we can overcome many problems of existing system. This system is more efficient than the existing one. By using the aadhar card we implemented the system which increases the voter's privacy. The system also managed in simpler way as well as secure to voting system. The aadhaar will provide the unique identification to each voter so the breach of privacy is get avoided.

References

- [1] Smita B. Khairnar, P. Sanyasi Naidu, Reena Kharat, "Secure Authentication for Online Voting System," International Journal of Computer Science and Information, 2015.
- [2] Prof. R. L. Gayle, Vishnu Lokhande, Shubham T. Jadhav, "Aadhar Based Electronic Voting System" International Journal of Advance Scientific Research and Engineering Trends, May 2016.
- [3] B. Mary Haque, G. M. Owais Ahmed, "Fingerprint and RFID Based Electronic Voting System Linked with Aadhar for Rigging Free Election", International Journal of Advance Research in Electrical, Electronic and Instrumentation Engineering, March 2016.
- [4] Srivatsan Sridharan, "Implementation of Authenticated and Secure Online Voting System", IEEE, July 2013.
- [5] Soumyajeet Chakraborty, Aridatha Muncher, Swastika Astrakhan, Kassi Tani Yasmin, "Biometric Voting System using AADHAR card in India" International Journal of Innovative Research in Computer and Communication Engineering, April 2014.
- [6] Tadayoshi Kohno, Adam Stubblefield, Aviel D. Rubin, Dan S. Wallach, "Analysis of an Electronic Voting System", Johns Hopkins University Information Security Institute Technical Report, TR-2003-19, July 23, 2003.
- [7] Executive Summary of "Genesis and Spread of Maoist Violence and Appropriate State Strategy to Handle it", Bureau of Police Research and Development, Ministry of Home Affairs, New Delhi.
- [8] David L. Dill, Bruce Schneier, and Barbara Simons, "Voting and technology: Who gets to count your vote?", Communications of the ACM, vol. 46(8), Aug. 2003, pp. 29-31.
- [9] David Jefferson, Aviel D. Rubin, Barbara Simons, and David Wagner, "Analyzing Internet voting security", Communications of the ACM, vol. 47(10), Oct. 2004, pp. 59-64.
- [10] David Evans and Nathanael Paul, "Election security: Perception and reality", IEEE Security & Privacy, vol. 2(1), Jan. 2004, pp. 24-31.