

Biometrics based remote user authentication for E-voting system

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Abstract: The Biometrics based remote user authentication can be implemented for various applications such as for Election Voting System or E-Voting System. It will help the migrated people to carry out their authentication and confidentiality process flawlessly. It is more useful in current market situation where people migration is fairly common and to digitalize the current process. In this system we are generalizing an idea so that remote user can prove his identity using biometric authentication and he/she can continue the work from remote location. Confidence in the server's ability to accurately contain the information and remain functional throughout the process is essential. The anonymity of the process must be maintained.

IndexTerms - Biometrics, Authentication, E-Voting, Security.

I. INTRODUCTION

Biometrics refers to the calculations and measurements i.e. metrics related to the human characteristics. They consists of two types based on their identifiers. They are the physiological characteristics and the behavioral characteristics. In this paper, the physiological characteristics of biometrics identifier, which includes the fingerprint, is proposed for user authentication.

The user authentication is very important for security purposes. The traditional authentication system usually includes a user-ID or username and a password to authenticate the user but the use of Biometrics for authentication has certain advantages such as increase in security.

In various applications, the user authentication is required. But it has certain drawbacks which includes weak security or slow processing. Consider an Election Voting System where remote users needs to be present at their place to vote for election. So our paper proposes a remote user authentication system using Biometrics for Election voting system. This system will ease the voter's task of travelling back to their native place for voting purpose. Here, the voter will provide his/her voter ID and fingerprint in the system which will authenticate the voter by verifying whether the information provided is correct or not and thus the voter will be authenticated. The voter's location will be fetched from the system's database and the election candidates from the voter's location will displayed to the voter. Thus he/she will be able to vote the desired candidate remotely from their native place.

In the biometric based remote user authentication system for E-voting, the voter don't need to travel to his/her native place for conducting vote as required in EVM based voting. But they can vote from their current city by going to that city's voting booth where a Booth Admin will be present to authenticate the voter.

II. LITERATURE REVIEW

As referred from papers, the scheme verifies the user's identity using the unique and stable fingerprint information. It provides the design and implementation of user register and authentication. The testing results show it is more available, reliable and secure. [1]

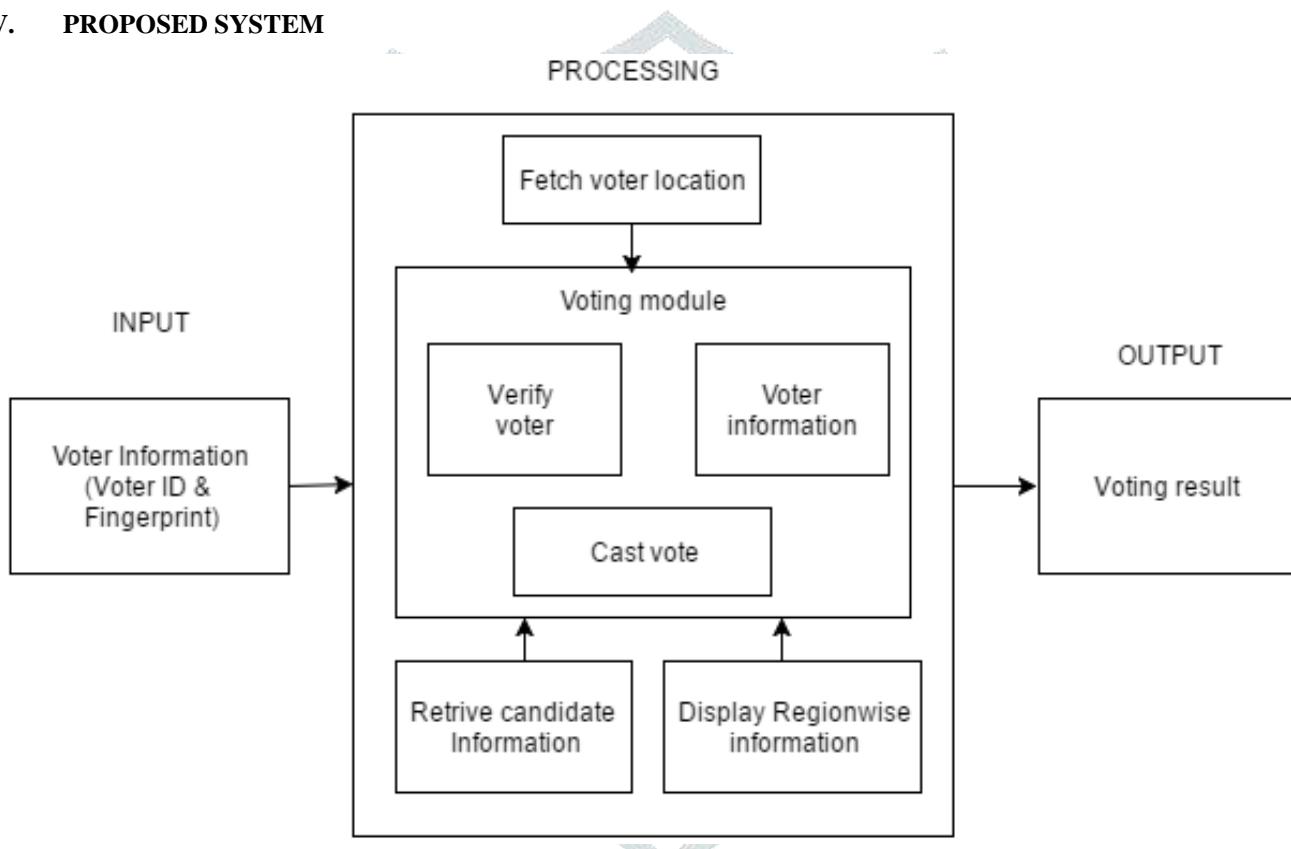
A new fingerprint-based remote user authentication scheme using mobile devices can safely achieve mutual authentication between the users and the remote system. The proposed scheme not only is secure and efficient but also can provide good characteristics. [2]

The system has many advantages, such as small volume, lower cost, lower power consumption, easy to install, safety and reliability and to maintain and so on. It can open a wide development and application space for fingerprint identification technology. Thus provide an ideal solution for personal identification and information security problems, which the current society has faced. [3]

III. EXISTING SYSTEM

Earlier the voting systems were based on paper ballot. But currently voting systems consists of EVMs i.e. Electronic Voting Machines. These EVMs are better than the paper ballots due to less time required to cast vote and declare result than the paper ballots. But they have certain drawbacks such as physical tampering, uncertainty of casted vote, which is why VVPT (Voter Verified Paper Audit Trail) are introduced, which basically displays the casted voted on a piece of paper through a small glass window for 7 seconds but still to count the overall votes it needs to be transferred from booth location to a designated location where all the votes are calculated to overcome this issue the new systems need to be introduced.

IV. PROPOSED SYSTEM



In the proposed system for the biometrics based remote user authentication, the user i.e. the voter will provide input in the form of a unique voter ID along with his/her fingerprint for authentication purpose in the application. A Booth Admin will verify the input credentials of voter from the system's database. Once verified, the voter's location will be fetched along with other details. Then according to voter's location, the information of election candidates from that location will be retrieved. This information will include the candidate's party and region. Once the list of candidates is displayed on the application, the voter will be able to cast vote for the desired candidate. Once the voter votes the candidate, the session ends after vote is successful. The vote count is stored at the database which is monitored by and Election Procedure Admin who is also responsible for starting and ending election instance. Once election ends, the election admin displays the result.

V. CONCLUSION

The main aim of this paper is to generalize an idea to authenticate remote user using Biometrics. The proposed system in this paper will overcome the drawbacks of the existing system by reducing travelling cost of remote user and will ensure more security, integrity along with accuracy.

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