

Smart voting system using Fingerprint Scanner

S. CHARAN¹, K. HARI PRASANTH², D. ANAND JOSEPH DANIEL³

1 Student, Computer science and engineering, Anand Institute of Higher Technology, Chennai, India.

2 Student, Computer Science and Engineering, Anand Institute of Higher Technology, Chennai, India.

3 Professor, Computer Science and Engineering, Anand Institute of Higher Technology, Chennai, India.

ABSTRACT

Voting determines the fate of the entire system. The voting system used nowadays is not very secure. Fingerprint is an important and unique identity of the user as no two persons have the same fingerprint. Thus Fingerprint Voting System becomes a very secure voting system. In this system, the database contains information of all the voters. New voters should fill a registration form with the help of a user id and password and enroll their fingerprint. This information will be checked with the database server. If the voter is already present, then it gives an error message saying voter already enrolled. Since all the information about the voter is already present, the system will not allow the voter to poll his or her vote if there occurs an error during the authentication process. This system is helpful to the voters as it decreases the time of voting process. Voters need not stand in long queues anymore. Fingerprint Voting System is user-friendly. It has simple architecture and responds quickly. It is easy to carry to polling center from the polling box. It reduces the number of staffs working in the center. It provides easy and accurate counting without any troubles.

Keywords—*Fingerprint voting system, Fingerprint, Voting.*

1. INTRODUCTION

The requirement for a reliable and unique identification of a person in the development of digital world has been a great motivation for the research in biometrics. National ID, electronic commerce are some scenarios where declarations of a person's identity is very crucial. Voting too falls in such scenario where an individual's data serves such an important role in the process. The most severe and frequently happening situations while voting is rigging (One person give multiple votes). Right now, we are using an electronic voting machine and to identify whether someone has voted, an ink mark is done on the finger. But today because of rapid development in technology, that can be erased and there are chances of rigging. Through this project, we are going to create a unique Fingerprint based Voting system in order to avoid the problem of multiple votes, faking identity and also completely eliminate the concept of applying ink thus leading to a fare election. Therefore, it ensures reliability, accuracy, confidentiality which are considered to be the heart traits of the fingerprint voting system.

2. LITERATURE SURVEY

LITERATURE SURVEY 1

CONCEPT USED

It is based on basic fingerprint recognition system, which consists of four stages: firstly, the sensor which is used for enrolment & recognition to capture the biometric data. Secondly, the pre-processing stage which is used to remove unwanted data and increase the clarity of ridge structure by using enhancement technique. Thirdly, feature

extraction stage which take the input from the output of the pre-processing stage to extract the fingerprint features. Fourthly, the matching stage is to compare the acquired feature with the template in the database.

LITERATURE SURVEY 2

CONCEPT USED

It is based on Direct Pore Matching for Fingerprint Recognition. Sweat pores on fingerprints have proven to be useful features for personal identification. Several methods have been proposed for pore matching. The state-of-the-art method first matches minutiae on the fingerprints and then matches the pores based on the minutia matching results. It is a direct approach for matching fingerprint pores. It first determines the correspondences between pores based on their local features. It then uses the RANSAC (RANDOM SAMPLE CONSENSUS) algorithm to refine the pore correspondences obtained in the first step. A similarity score is finally calculated based on the pore matching results.

LITERATURE SURVEY 3

CONCEPT USED

The online fingerprint identification with a fast and distortion tolerant hashing. In the defect detection process, several image processing algorithms are employed to extract image features and locate defect's positions on leaf images. This paper proposed an optimized weighted segmentation for leaf disease identification. Biometrics such as fingerprint, face, eye retina, and voice offer a more reliable means for authentication. However, due to large biometric database and complicated biometric measures, it is difficult to design both an accurate and fast biometric recognition. Thus we presents a specific contribution by introducing a new robust indexing scheme that is able not only to fasten the fingerprint recognition process but also improve the accuracy of the system.

3. EXISTING SYSTEM

Above list of papers were surveyed for several factors with respect to our proposed idea. The factors include cost efficiency, processing efficiency, time efficiency, system maintenance, customer satisfaction. Out of all the above reference papers, the voting process is carried out in an unsecure manner. Voters' verification are done manually by the officials. The person in-charge, just checks their voter id and issues a ballot paper to show that he/she is verified. And then ink will be applied to the voter's finger to indicate that he/she has voted. This existing system creates lot of chances for rigging. Thus, the voting count changes and the entire result will be completely manipulated. Hence this existing system must be more technologically secured and effective to conduct a fare voting process.

4. PROPOSED SYSTEM

In this system, the interface accepts the fingerprint data of the voters and voter's aadhar card number. On successful authentication, the interface allows to vote and displays confirmation message. If any problem occurs, then an error message is displayed based on the type of problem. The fingerprint data is used for authentication because fingerprints processing is faster, efficient and is unique to each individual. A central database is maintained which contains all the demographic and biometric data of every voter enrolled. In order to reduce the load central database is subdivided into many local databases based on the center of individual voters. The data is periodically updated and stored in volatile form so that it can be erased and retrieved only when the data is needed. The databases will be used for generating reports and result of the electoral process can be viewed by only an authorized person. To authenticate, valid national ID card number is checked in the local database. If person number is not found then person will not be allowed to take part in the voting process. The database also counts the number of votes to each parties and finally generate the result.

4.1 ALGORITHM

- a. Scan the fingerprint of the voter.
- b. If (authentication=success)
 - Permission granted to cast vote and show success message.
- Else
 - Permission denied and display error message.

- c. Check for the possible issues during fingerprint scanning.
- d. If(issue=technical) OR(issue=physical) Proceed to rectification or use master fingerprint.
- e. Cast the votes.
- f. Check for multiple votes.
- g. If (vote count=1)
 - Successful voting.
 - Else
Casting multiple votes error message displayed.

5. CONCLUSION

This paper gave an overview of the voting process with the help of fingerprint scanners. We highlighted in details the fingerprint recognition and authentication steps and also the flow in which the electoral process takes place with this new technology. We also referred to the fingerprint acquisition stage, data comparing stage and matching stage for recognition purpose in details with some previous work. In addition to that we introduced some techniques for fingerprint authentication helpful in voter identification. And finally the process of voting using this advanced technology.

6. REFERENCES

- [1] Chaum D.L 1981 .Untraceable Electronic mail, return addresses and digital pseudonyms, communication of the ACM, 24(2):84-88.
- [2] Mamjveet kaur, Mukhwinder singh, Akshay Girdhar and Parvindhar S. Sandhu. Fingerprint verification system using minutiae extraction technique. World academy of science, engineering and technology.
- [3] Andrew Ackerman, 2002, Professor Rafail Ostrovsky "FINGERPRINT RECOGNITION" Umut Uludaga, Arun Ross, Anil jain 2004, biometric template selection and update, a case study fingerprints.
- [4] Mayank vatsa, Richa singh, afzel noore and Sanjay K singh 2009. Combining pores and ridges with minutiae for improved fingerprint verification.
- [5] Mahendharan M, V.B Ajith Rahavan, Vasu Devan, TS Kiruba Shankar and S.Raja 2016, Online polling system to this digital era with thumb impress and image capture Middle East journal of scientific research.
- [6] Mohammed S Sulaiman, M anto bennet, A.A Aravind ,S.K Rajavel and G.Janaki raman 2016, a design of e-voting using fingerprint recognition system of secured voting middle east journal of scientific research.