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Significance of Finger Print in On-line Voting: An Approach

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Abstract— As in the manual voting system where the voters need to come to the polling booth and cast their vote and also while result counting some people should be assigned to count the votes there are chances of committing mistakes these all drawbacks have motivated us to develop online voting using fingerprint identification where the voter by sitting in one place can cast his vote to a particular candidate belonging to a particular party and there are no mistake while counting the votes. Hence the election will be conducted safely and securely because of involvement of fingerprint in this process. Online voting provides a hassle free environment to voters for practicing their right to vote just by casting their votes online. This approach is being developed for use by everyone with a simple and self explanatory GUI. This is approach that can be used by people to vote in an election. All the user must do is login and click on his favorable candidates to register his vote. This system is also designed for those who are far away from their polling zone, yet they can still vote.

Index Terms— Fingerprint Identification, Online Voting, Polling, Security

I. INTRODUCTION

Fingerprints are the ridge and furrow patterns on the tip of the finger and have been used extensively for personal identification of people. The biological properties of finger print formation are well understood and fingerprints have been used for identification purposes for centuries. Fingerprints also have a number of disadvantages as compared to other biometrics. For example, Approximately 4% of the population does not have good quality fingerprints, manual workers get regular scratches on their fingers which poses a difficulty to the matching system, finger skin peels off due to weather, fingers develop natural permanent creases, temporary creases are formed when the hands are immersed in water for a long time, and dirty fingers cannot be properly imaged with the existing fingerprint sensors. Further, since fingerprints cannot be captured without the user's knowledge, they are not suited for certain application such as surveillance. The two fundamental premises on which fingerprint identification is based are:

- Finger print details are permanent and
- Finger prints of an individual are unique.

In our approach we have used finger print analysis as an authentication for the voting process. The fingerprint of each voter is scanned using a scanner and the features of that scanned fingerprint are extracted. These features extracted will be updated in the voters database along with the other information like name address, etc. At the matching stage, the voters fingerprint is scanned and compared with the fingerprints in the database. If a match is found, the voter is valid else is enable to vote. Mainly there are three stages in our fingerprint analysis

- Validation: The voter is authenticated in the traditional way i.e logging in using the name and password and crosschecking it with the one in the database.
- Storing: Here the voters fingerprint is scanned, processed, and searched in the database if it exists. If not the fingerprint features are stored in a file. The fingerprint is unique to each voter.
- Matching: During the voting process, each voter fingerprint is scanned and processed. The scanned fingerprint is compared with the ones stored in the file. If the fingerprint matches to the corresponding voter stored in the file, the voter is allowed to proceed further in the voting process.

II. PROPOSED SYSTEM

Figure 1 explains about the overall model of the system. It depicts two types of user Admin and the voter both have their specific role to be played during the election.

Functional Requirements such as

A) Voting

The main task of online voting is to design a software which enables a the general public of the country to exercise their right to vote, online. An electoral roll, list of all eligible citizens who are entitled to cast their vote in an election, is displayed on the HTML pages.

B) Polling information

All the information regarding the polling and the candidates is given directly.

C) Counting of votes

The votes are directly stored into the database which can further be retrieved by the administrators in order to tabulate the results.

D) Result

After the end of elections results are displayed on the same website

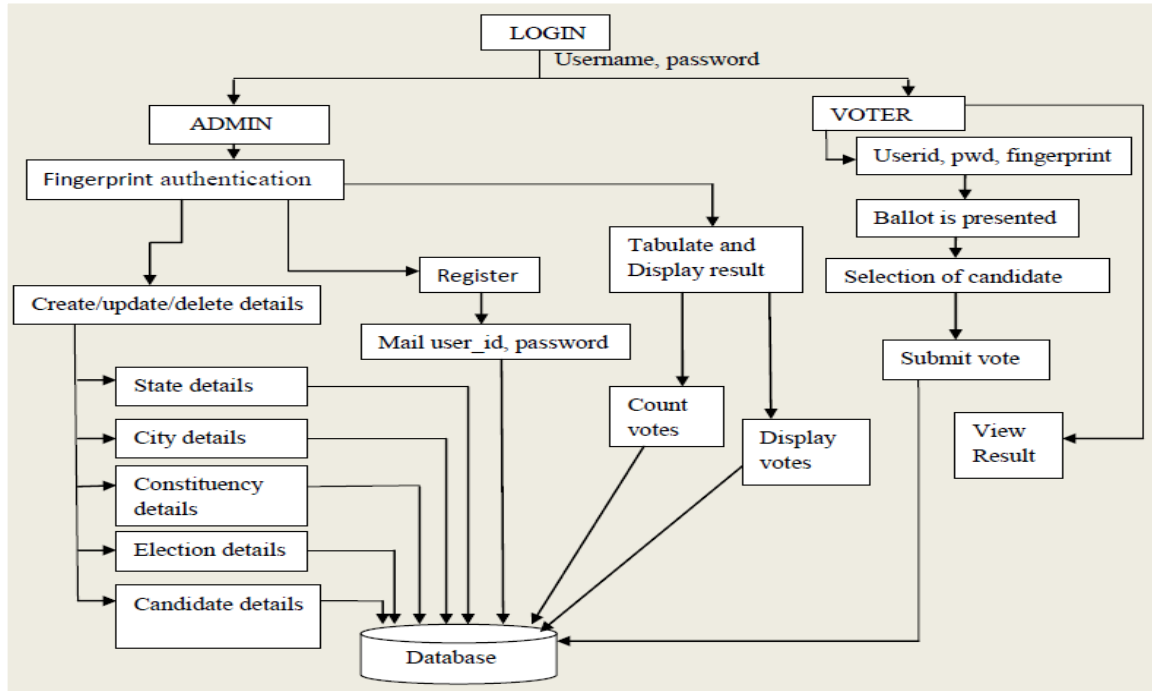


Fig 1.Data Flow Diagram

III. RESULTS AND DISCUSSIONS

Module 1 –Registration

Description: Here in this module after logging in as administrator the registration form will be displayed where the administrator himself will fill the registration form of the voter by duly observing the different documents that the voter has brought and submits the form after that the citizen code user name and password is issued to the voter for voting.

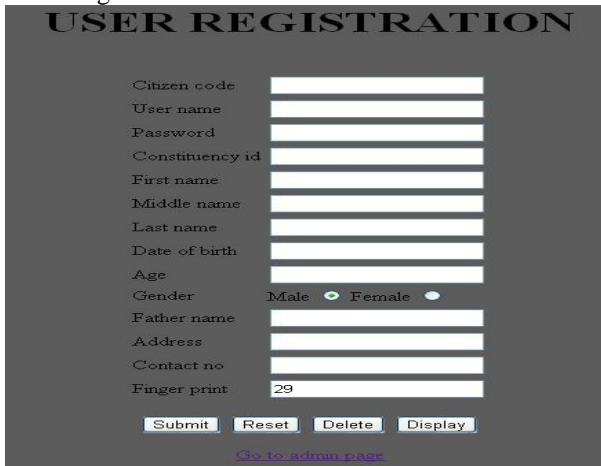


Fig 2. Registration form

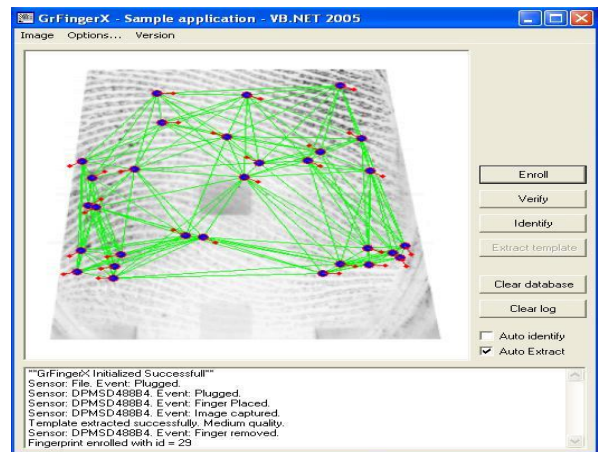


Fig 3. Finger print Enrolling



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Figure 2 is the snapshot of the registration form here the Admin will register the voter by duly verifying the documents that the voter has brought with him. Figure 3 is the snap shot of the fingerprint enrolling here while registering the voter his fingerprint is enrolled and stored in the database.

Module 2- Admin functions

Description: Here in this module after logging in as administrator a set of options are displayed such as Create election instance ,delete election instance, update election instance, update voters database, delete voters database, Enter city details, after the selection of any one option the particular task gets accomplished.



Fig 4. Admin Functions

Fig 5. Candidate Details

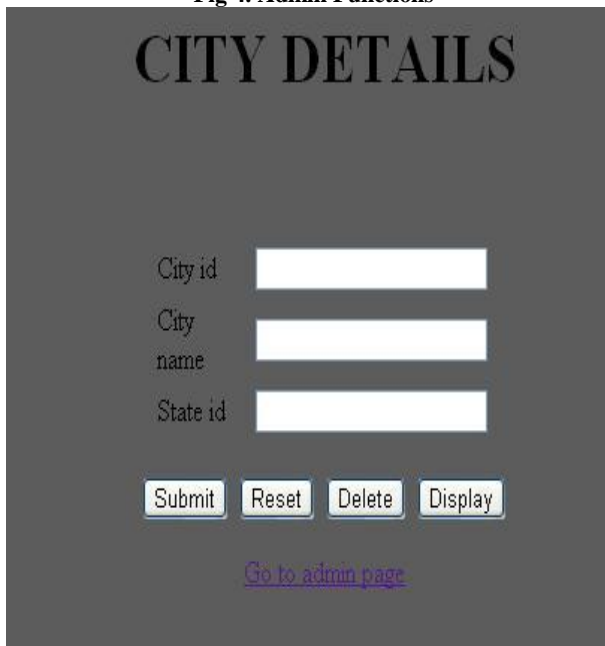


Fig 6. City Details

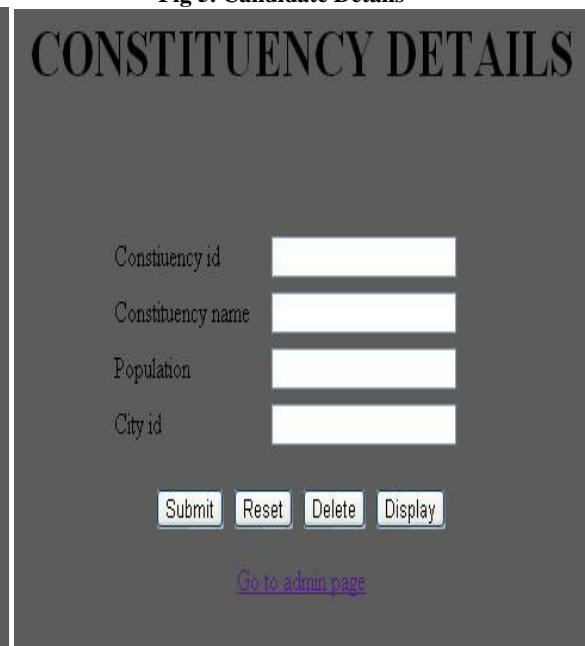


Fig 7. Constituency Details



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PARTY DETAILS

Party id
Party name
Party Symbol



[Go to admin page](#)

Fig 8. Party Details

STATE DETAILS

State id
State name

[Go to admin page](#)

Fig 9. State Details

Module 3- Voting

Description: Here in this module after logging in as the voter that is if the entered user name, password and finger print are correct then the voter will be provided with the ballot paper depending to the constituency the voter belongs and after that the voter votes for the candidate of his choice and clicks on submit button his vote will be updated on the database.

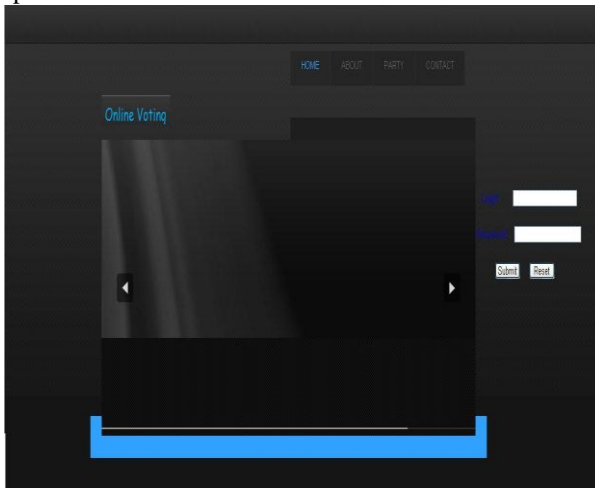


Fig 9 Home page

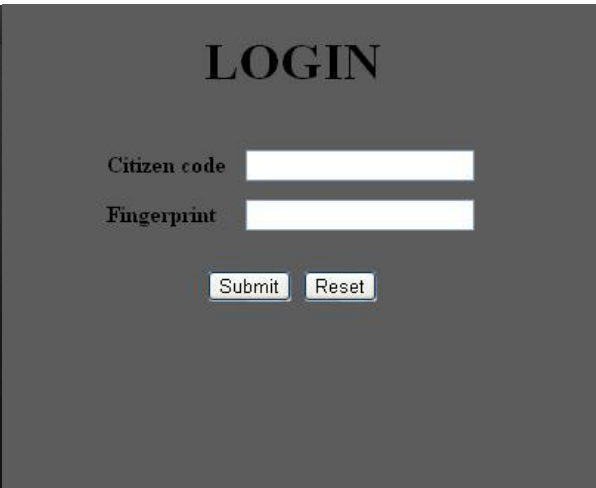


Fig 10. Login page

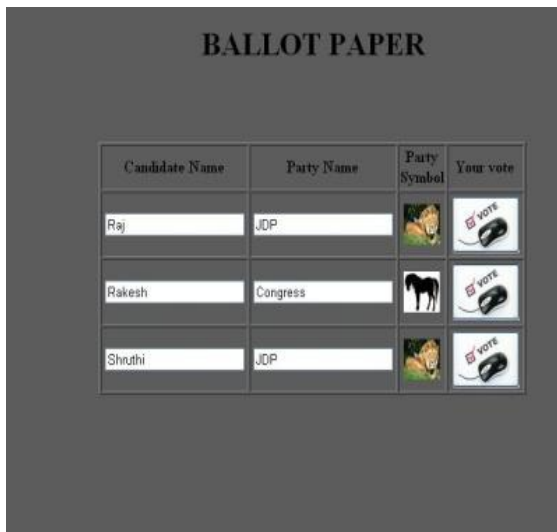


Fig 11 Ballot Paper

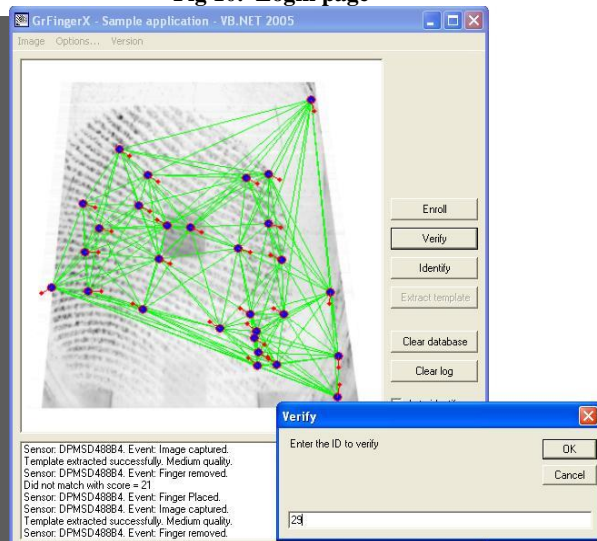


Fig 12. Fingerprint verification



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Module 4- Results:

Description: Here in this module after logging in as administrator/voter and if the selection of the particular logger is tabulate result then three options are displayed they are candidate wise ,constituency wise, city wise, if the selection is candidate wise then display of the votes are according to the candidate else if the selection is constituency wise then display of the votes are according to the constituency wise else if the selection is city wise then display of the votes are according to the city .

Enter your choice of tabulating results

Candidate Wise

City Wise
Enter the city id

State Wise
Enter the state id

Show Result

[Go to admin page](#)

Fig .13 Result page

IV. CONCLUSION AND FUTURE WORK

The purpose of implementing “E-voting with fingerprint analysis “is to put the system into full practice use during elections. The use of computers in the voting process will enhance the speed and accuracy at which data will be maintained and managed. Moreover security based concerns like impersonating, proxy voting, rigging can be avoided. But to the layman the knowledge of computers may be little. Sufficient amount of training may be required before introducing it to the general public. The paper can be enhanced using following ways:

- The registration in the finger code extraction is based on the detection of the reference point. Even though our multi-resolution reference point location algorithm is accurate and handles the poor quality fingerprint images gracefully, it fails to detect the reference point in very low quality images leading to either a rejection of the image or even worse, a false rejection in the verification system.
- The finger code representation does not have any explicit procedure to handle the noise in the fingerprint images due to the dryness/smudginess of the finger. Although the sectors are normalized to a constant mean and variance and then filtered using a bank of Gabor filters, large amount of noise changes the gray level image characteristics and causes problems in the qualification of discriminatory information in sectors.
- The current matching algorithm is very simple. An implementation of a smarter matching algorithm should be able to improve the verification performance. For example, the match result from each sector can be weighed differently based on image quality and a quantitative measure of the nonlinear distortion in the sector. The verification system should also benefit from a matcher that can handle conflicting information in the fingerprints.
- We are using a normal scanner. The performance of the fingerprint analysis can be enhanced by using optical sensors.

REFERENCES

- [1] D. Ashok Kumar, T. Ummal Sariba Begum, ” A Novel design of Electronic Voting System Using Fingerprint” International Journal Of Innovative Technology & Creative Engineering Vol.1 No.1 January 2011,pp 12-19.
- [2] Abishek Rawat “ A Hierarchical Fingerprint Matching System” , Indian Institute of Technology, Kanpur,July 2009.
- [3] Manvjeet Kaur, Mukhwinder Singh, Akshay Girdhar, and Parvinder S. Sandhu, —” Fingerprint Verification System using Minutiae Extraction Technique “ World academy of Science, Engineering and Technology, page no. 46, 2010.



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Volume 2, Issue 1, January 2013

- [4] Hoi Le, The Duy Bui, "Online fingerprint identification with a fast and distortion tolerant hashing " Journal of Information Assurance and Security 4 page no. 117-123, 2009.
- [5] Coetzee L. and Botha E.C., "Fingerprint Recognition in low quality images "Pattern Recognition, Vol.26, No.10, pages. 1441-1460, 1993.
- [6] R. S. Pressman, "Software Engineering: A Practitioner's Approach". New York NY: Addison Wesley, 2005.
- [7] K. Daimi, and C. Wilson, "Electronic Voting System Security requirements Engineering", in Proc. The International Conference on Software Engineering Research and Practice, LasVegas, USA, pp. 230-235, 2005.
- [8] Pankaj Jalote , "An integrated approach to software engineering", Narosa publications, New Delhi, 2009.
- [9] B. Schneier, "Voting Security and Technology", IEEE Security & Privacy, Vol. 2, No. 1, pp 10-10, Jan. 2004.

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