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Electronic Fingerprint Biometric Voting Machine

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Abstract

In democratic societies, voting is a significant tool to collect and re-act individuals' thinking's. By tradition, voting is lead in federal or distributed places called polling booths. Electorates go to polling booths and cast their votes under the command of authorized parties. The votes are then counted automatically once the election has accomplished with the quick increasing development of computer technology and cryptographic methods. The electronic voting systems can be employed that replace the incident and most prominently error-prone humanoid Component. The biometric is a technology of measuring; science and it examine the biological records. In the current communications approximately it has accessible electronically, handlers of computer technology, there has risen in electronic services and the security system. It progresses in the voting system with the help of novel technologies in elective process. The information about election data is recorded stored and processed the above information as digital information.

The system usages thumb imprint for voter documentation (identification) as we know that the thumb impression of every humanoid has a distinctive pattern. Thus, it would have superiority over the existing voting systems. As a pre-poll procedure, a record comprising of the thumb imprints of all the appropriate voters in anelectorate is created. During elective processes, the thumb impression of anelector is entered as input to the system. This is then matched with the vacant records in the database. If the particular pattern matches with anyone in the vacant record, access to cast a vote is approved. But in the case when pattern doesn't match with the records of

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the database or in case of replication, access to cast a vote is denied and the vote gets rejected. The e-services and information security are making sure that it enables that the data and communication have the security and privacy.

Keywords: *Fingerprint voting machine, fingerprint reader, thumb impressions*

INTRODUCTION

This venture surveys strategy regarding the electronic approaches and developments to electronic data storage and transmission. Biometrics measuring biological data. Biometrics states to technologies that measures and analyzes humanoid characteristics, such as DNA, fingerprints, eye retinas and irises, facial patterns, voice patterns and hand measurements, for verification purposes.

The field of biometrics was formed and has since expanded on to many types of physical recognition. Amongst the several human fingerprints remain a very general identifier and the biometric manner of choice amongst law enforcement. These concepts of human reorganization have lead to the development of fingerprint scanners that serve rapidly to identify individuals and allocate access privileges. The basic point of these devices is to inspect the fingerprint record of an single and relate it to a database of other fingerprints.

In our project we have used fingerprint for the resolution of elector identification or verification. As the thumb imprint of every individual is distinctive it helps in lessening the error. A database is created containing the fingerprint impressions of all the electors as required. Illegitimate votes and repetition of votes is inspectedfor in this system with exactcoding. Hence with the application of this fingerprint based EVM system elections could be made fair and free fromfixing.

Further that the voting would are no longer job. The word biometric came from the expression of biological behavior. Some behaviors of the biometric voting system are finger printer, Hand & facial geometric, voice recognition and hand writing recognition. In the biometric

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voting system employed the electrons and it would be fair and free from fixing.

In this system we have used thumb imprints for voter classification and authentication. Every individual has a single unique thumb impression and it helps withcorrectness. In a constituency the thumb impression of the database is created for all the voters through this the illegal and repetition of votes is checked. Thus, in this structure the electrons are employed and there is a free & fair from fixing.

LITERATURE REVIEW

A. Electronic Voting in India-

The Election Commission of India developed the country's EVMs in partnership with two government-owned companies, the Electronics Corporation of India (ECIL) and Bharat Electronics Limited (BEL). Though these companies are owned by the Indian government, they are not under the administrative control of the Election Commission. They are profit-seeking vendors that are attempting to market EVMs globally. The first Indian EVMs were developed in the early 1980s by ECIL. They were used in certain parts of the country, but were never adopted nationwide. They introduced the style of system used to this day, including the separate control and ballot units and the layout of both components. These first-generation EVMs were based on Hitachi 6305microcontrollers and used firmware stored in external Erasable-generation models were introduced in 2000 by both ECIL and BEL. These machines moved the firmware into the CPU and upgraded other components. They were gradually deployed in greater numbers and used nationwide beginning in 2004. In 2006, the manufacturers adopted a third-generation design incorporating additional changes suggested by the Election Commission. According to Election Commission statistics, there were 1,378,352 EVMs in use in July 2009. Of these, 448,000 were third-generation machines manufactured from 2006 to 2009, with 253,400 from BEL and194,600 from ECIL. The remaining 930,352 were the second-generation models manufactured from 2000 to 2005, with 440,146 from BE Land 490,206 from ECIL

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B. Evaluation of Voting Equipment-

In the recent years, voting equipment which was widely adopted may be divided into five types.

1. ***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

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time and labor 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.

2. ***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 cans count up the ballots automatically. Because its interface is not user-friendly enough, giving some training to voters is necessary.

3. ***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.

4. ***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.

5. ***Machine:*** After this machine selects the darkest mark on each ballot for the vote then computes the total result. This kind of machine counts up ballots rapidly. However, if the voter fills over the circle, it will lead to the error result of optical scan.

Reasoning of Design

The project has been introduced to realize and defeat the problems that occur in many electronic voting systems; The reason behind this project is to create fully secure, efficient, accurate and reliable electronic voting system using fingerprint technology, the system must be able to read human fingerprint in any condition with an accuracy of more than 97% using fingerprint detection algorithm.

1. Data acquisition
2. Image preprocessing
3. Fingerprint image enhancement
4. Feature extraction
5. Matching
6. Database

Objectives

The project requires the voter to submit his/her Fingerprint at the election place. The Fingerprint technology will be used in this project to create the system. The primary goal of the project is to make a

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system that requests the voter to give his/her Fingerprint as a personality proof. The fingerprint voting system reads the fingerprint's data and compares it with the data previously stored inside the database. If the data exists in the database meets with the previously stored data, the voting system will enables the voter to enter into the system and give his/her vote.

If the data of the Finger didn't meet with the stored data, then the system will instantly trigger the display and the authorities will come to take an action. In order to achieve the primary goal of this project, matching algorithm need to be designed in efficient way in order to increase system's accuracy. The proposed matching based on Gabor liner filter bank which consists of 8 filters which will extract the local and global feature of the fingerprint and convert the extracted information into variant vector (finger code). The performance of liner filters is not accurate if the fingerprint image not clear. For that another objective is added to this project which is reducing the noise of the fingerprint image using sectorization and normalization.

Biometric Voter Register System

To register voters the biometric voter register system is used. It requires a laptop, fingerprint scanner, and with a camera. The biometric voter register will capture the facial image of voters, finger prints, and civil data, identity card, passport number, and telephone numbers etc. The registration is done at the registration centers and the individual person should be voted. This system was developed by the IEBC to register the voters and it is started before the 2013 general elections.

The data of BVR machines transfer to a centralized storage server with the help of the copy registers are printed. To check and verify the registration details of a person the thumbnail of the voters is used
By using chart technique this section of project will show the development process and identification. The chart has been used in order to simplify the understanding. The flowchart will has been used which is basically a diagram consists of graphic symbols to show the flow of the project's process.

All the above stapes should be done one by one in order to achieve the final result of this project which is designing and implementing the fingerprint voting system. These processes will start by the hardware and software research and end by the external casing.

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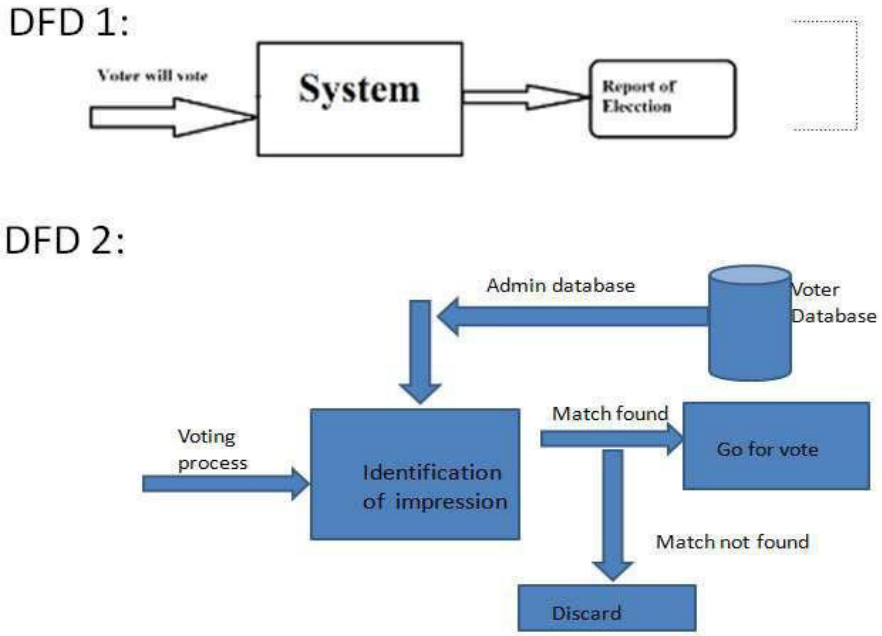


Figure:-1

Advantages

1. Cost effective
2. Highly Secure
3. It is economical
4. Easy and accurate counting without any troubles
5. Time conscious
6. Avoids invalid voting
7. No paper work required
8. Result generation is easy
9. Confidential

Future Scope

1. This system can be implemented in a few years, with recent development in technology, a fingerprint scanner is neither too expensive nor too complicated to use on daily basis.
2. The internet connectivity has improved drastically and it is easy to create and maintain such an interface.
3. Unique identification number has already been introduced in India that contains an individual's fingerprint and iris scan.
4. Soon every Indian citizen can have a similar identity card and all the government will have all the necessary information required to bring such a system in play.

METHODOLOGY

A new voting system can be implemented, using login which requires a fingerprint

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scan and the name of the candidate. It is a web application, which supports all browsers. Valid voters will have their name, fingerprint, and other details in the government database in each state or district as seen fit. Therefore a fingerprint scanner will ensure that only legitimate voters can cast their vote .

There are three basic steps to complete the voting:

1. Scan your fingerprint and the application will match it with the database at the server. If the match is successful the user is automatically switched to the next voting window.
2. The voting screen has all the logos and names of candidate standing for the post, the user just needs to press the thumb against the scanner next to his/her favorite candidate.
3. No information is stored at the host computer, so it helps in eliminating any possibility of changing the votes. No unauthorized user can get passed the login screen.

Required Components:

1. Biometrics machine
2. Stand-alone system
3. VB.net
4. MS access

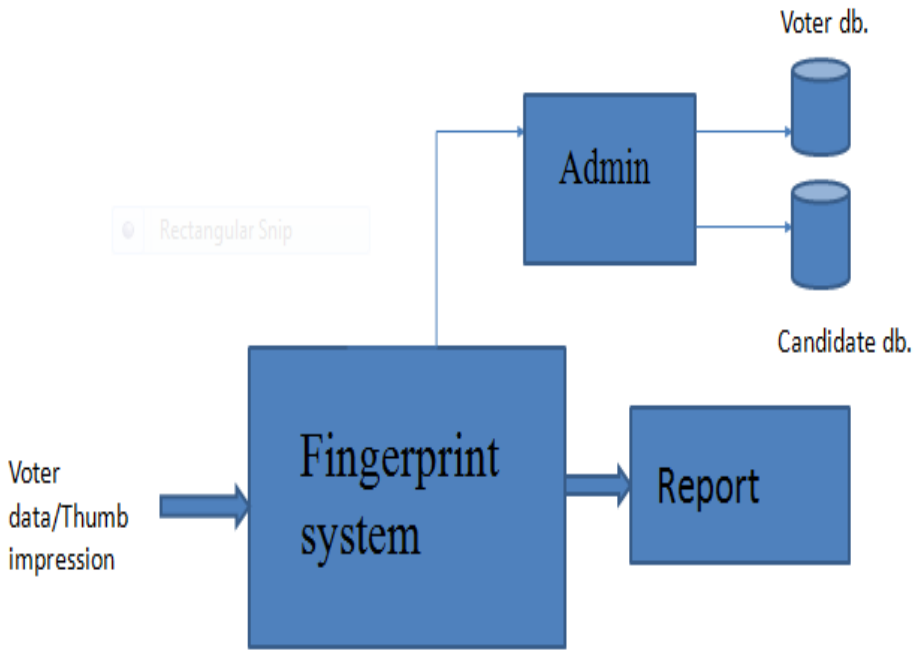


Figure: -2

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CONCLUSION

Fingerprints considered as one of the most popular biometric methods used for human recognition. Every person in the globe is born with unique fingerprint even twins born with totally different fingerprints and fingerprint is naturally unchangeable throughout life. For that reason, fingerprint voting system has been made and the person ID has been replaced with his fingerprint. This fingerprint voting system is implemented and evaluated successfully. The evaluation of the system is made using different PCs with different specifications in order to stand on system strength and weaknesses. The final result of the fingerprint voting system was amazingly significant and computable with other voting system.

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