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IRIS Detection in Voting System

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Abstract: In this paper we are scanning individual's iris and storing it in a voters database by giving appropriate AADHAR card no. If a person comes for voting then his or her iris is detected and this detected image is compared to image in voter's database. When the iris is detected we get the information about the voter in our PC, then that information is compared to the voter's ID. If both the details get matched then the person is allowed to vote. The current voting system is not secure, there are some individuals who give dummy votes or they are registered at more than one place. In this paper the Security of the voter is discussed and in general and the focus is on making the voting system more robust and reliable by eliminating dummy voters. By using Daughman's algorithms will scan IRIS and check those details in our database for match.
Keywords: IRIS, AADHAR card, Security, Daughman's algorithm

I.   INTRODUCTION

In modern world, many new techniques such as voting process play an important role in any democratic country. Democracy is meant to allow people to vote freely and the election result is accepted by voters group. The concept of Iris Recognition was first proposed by Dr. Frank Burch in 1939.These algorithms employ methods of pattern recognition and some mathematical calculations for iris recognition. Iris recognition is a method of biometric authentication that uses pattern-recognition techniques based on high-resolution images of the irises of an individual's eyes. Iris is a muscle within the eye that regulates the size of pupil, controlling the amount of light that controls the eye. After all, physical characteristics are not something that can be lost, forgotten or passed from one person to another. They are extremely hard to forget and criminal would think twice before committing a crime involving biometrics. The concept of Iris Recognition was first proposed by Dr. Frank Burch in 1939.It was first implemented in 1990 when Dr. John Daughman created the algorithms for it.

To get the information about the voter we need some existing database, so we are using here AADHAR card from which we get the entire information about the voter i.e. name, address, phone no, blood group etc. This voting system provides better security than the existing system. Iris scanning is considered to be the most secure than the thumb scanning or face recognition. Our system also reduces the man power that is required during the voting. It also reduces the time required to declaring the voting result. We do not need to mark an inedible ink on voter's left forefinger because ink is mark to show that this person has given vote but in our system in the database it gets updated that the particular person has given vote.

II.   EXISTING VOTING SYSTEM

In the existing voting system, the complete election process is divided constituency wise to facilitate the security forces and to make the election system fair. To maintain discipline and security requires a huge amount of man power so, it is bit difficult to accomplish election in a single day. Allocation of polls is done by election commission in advance. Generally polling booth is setup in school and community halls. Voter's card is distributed before one week so; the people can come to know about the location of voting. Time and place for voting is predefined.
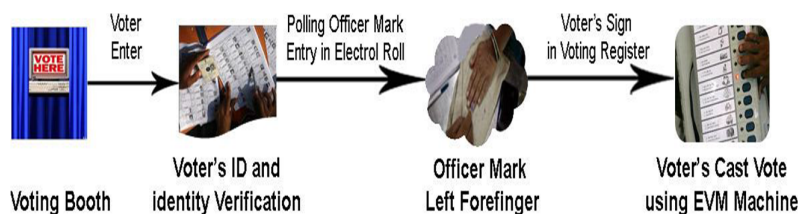

Fig: 2.1 Current voting systems

A. Steps Taken During Current Voting Proces
The person has to reach the voting booth. But sometimes it gets difficult for the people to reach there and cast a vote. Some people are busy at their work; some people are too far away from the voting booth so they are unable to reach there.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Once the person reach to the booth after then the person's voter id is verified by the officer who is on duty. After then the person has to search their name in the list. List shows where the person has to go to vote i.e., in which block the person has to go.

After reaching the appropriate block the person has to sign the register. Then the officer will mark an inedible ink on the left forefinger of the person.

After marking is done the person will give vote to candidate that he/she is willing to.

A beep sound comes when any person votes someone. The beep indicates that the vote is successfully recorded.

B. Problems With Existing Polling System

1) Chances Of Dummy Voting: Sometimes an unauthorized person give vote,i.e, some politician tries some illegal method to win the election, for that purpose they try to give an unauthorized person to give vote. One person takes the voter id of some other people and do vote, which is illegal.

2) Voter Registers At More Than One Time: Some of the people having two voting cards .One voting card from the place where they born and another where they live. The place they born and the place they live are different.so they create two voting card and they vote. But as per the election committee one person can vote only one time. This is one of the problems with the existing system.

3) Man Power Is More Required: Here Man power requires is more .We need one person who checks the voter id of the people. Another person requires for checking whether the name of the candidate is present in the list. Then we need people to check whether the person has sign the register or not and we need people to mark an inedible ink in votes left forefinger. Like this in one voting booth suppose there are 15 blocks so we need these people in each block. So we need a large amount of man power here.

4) Removing Inedible Ink:

Nowadays, there are some chemical available which are capable of removing the inedible ink mark on the voters left forefinger. There are some people that do this kind of things. Mark on the people left forefinger is the sign which tells everyone that this person has given vote.by seeing this sign ion people's hands everyone get able to know that this person has given the vote.

III.   PROPOSED VOTING SYSTEM

We need to get the information of the voter. So we need some existing database where the voter's information is stored. Voter's information can be gathered from the AADHAR card database. So for voting the person has to reach the voting booth, after reaching the booth there is iris scanner the voter's eye is scanned through the iris scanner. Then system compares scanned image with centralized stored information this is called as sign in process. Once iris is recognized successfully the complete detail of voter/citizen comes from "ADHAR CARD" database. Than that details are compared with the voter's ID, if the details get matched then the voter is sent inside to give vote. Once the voter iris is verified then in the database it is get updated that this particular voter has given vote.
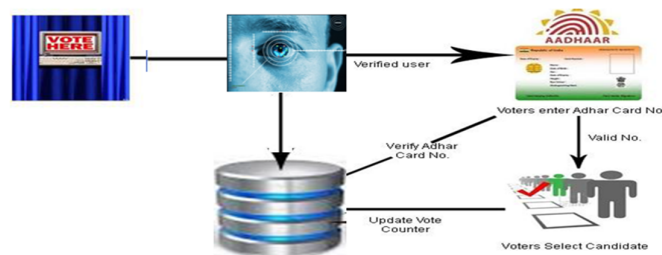

Fig: 3.1 Proposed voting system

A. Advantages Of Proposed System

1) Eliminates The Dummy Voter: Our proposed voting system eliminates the chances of voting dummy voting. If one person takes someone else voting card then after scanning the eyes the details of the voters come in front of the officer present there so the officer will match that voter id and the details which he get from the database if it doesn't match. Then the officer will get to know that the person is not an authorized person.so by this way we can eliminate the dummy voter.

2) Voter Cannot Register More Than One Place: If one person votes in one place so in the database it is get updated that this person has given the vote. If it goes to some other place than after scanning the eye it will be showed that this person has already given the vote then that person is not allowed to vote.so by this way we can eliminate the chances of registering the

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person in more than one place.

3) Man Power Required Less: We need people here for scanning the eye and people in the block were the voters can vote so as compared to existing system we need not need people for checking the registers and we need not people to mark an inedible ink.so as compared to existing system man power is reduced to a great extent.

4) No Need To Mark The Inedible Ink: In existing system we mark inedible ink to ensure that this person has given the vote. But in our system in the database it is get updated that this person has given vote so if the person removes the inedible and says that he has not given the vote so after scanning the eye the truth will come forward.

IV. DAUGHMAN'S ALGORITHM FOR IRIS SCANNING

This is by far the most cited method in the iris recognition literature. It is licensed to Iridium Technologies who turned it into the basis of 99.5% of the commercial iris recognition systems. It was proposed in 1993 and was the first method effectively implemented in a working biometric system. The author assumes both pupil and iris with circular form and the integral-differential operator.

In our paper we are using Daughman's Algorithm segmentation method for Iris Recognition. Iris images are selected from the CASIA Database, then the iris and pupil boundary are detected from rest of the eye image, removing the noises. Then the features of the iris were encoded by convolving the normalized iris region with 1D Log-Gabor filters and phase quantizing the output in order to produce a bit-wise biometric template. The Hamming distance was chosen as a matching metric, which gave the measure of how many bits disagreed between the templates of the iris. Iris recognition is considered to be the most secure method for security. It is being implemented in offices in airports system also because by seeing from the aspect of security iris scanning is best suited. We implemented two pre-process operations with the purpose of image contrast enhancement, hoping that they could contribute to the improvement of the results: these two methods shows how the iris images are scanned. And how much accurate the system is.

The two methods are:-

Histogram Equalization: -This operation improves the contrast between each eye's regions, which potentially will facilitate the segmentation task.

Binarization: -The image binarization - based on a threshold - is a very common operation that maximizes the separability between the iris regions and the remaining ones.

A. Iris Scanning System

1) Image Acquisition: It deals with capturing of a high quality image of the iris. Concerns on the image acquisition rigs, Obtain images with sufficient resolution and sharpness. Good contrast in the iris pattern with proper illumination. Well centered without unduly constraining the operator. Distance up to 3 meter. Near-infrared camera or LED
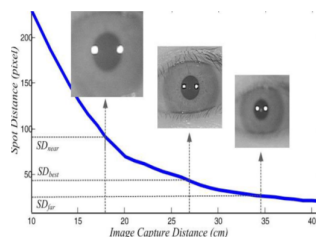

Fig: 4.2 Image acquisition

2) Iris Localization: Iris localization is a process to isolate the iris region from the rest of the acquired image. Iris can be approximated by two circles, one for iris/sclera boundary and another for iris/pupil boundary.
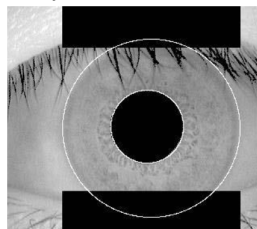

Fig: 4.3 Iris localization

International Journal for Research in Applied Science & Engineering Technology (IJRASET)

3) Feature Extraction: Feature encoding was implemented by convolving the normalized iris pattern with 1D Log-Gabber wavelet.2D normalized patterns are broken up into a number of 1D signal. Each row corresponds to a circular ring on the iris region. The angular direction is taken rather than the radial one, which corresponds to columns of normalized pattern. The features are extracted in codes of 0 and 1.

```
10 10 11 01 10 01 00 11 01 10 11 00 10  11
10  11 01 10 01 10 01 10 10 01 01 11 00 01
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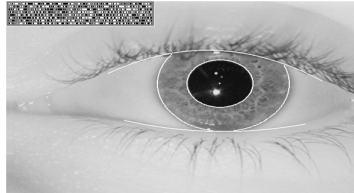

Fig: 4.4 Feature extractions

4) Template Matching: For matching, the Hamming distance was chosen as a metric for recognition. The result of this computation is then used as the goodness of match, with smaller values indicating better matches. If two patterns are derived from same iris, the hamming distance between them will be close to 0 due to high correlation.
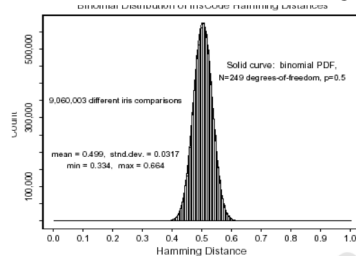

Fig: 4.5 Template matching

5) Authenticate/Imposter: It is to decide whether the person is authorized person for vote or not.
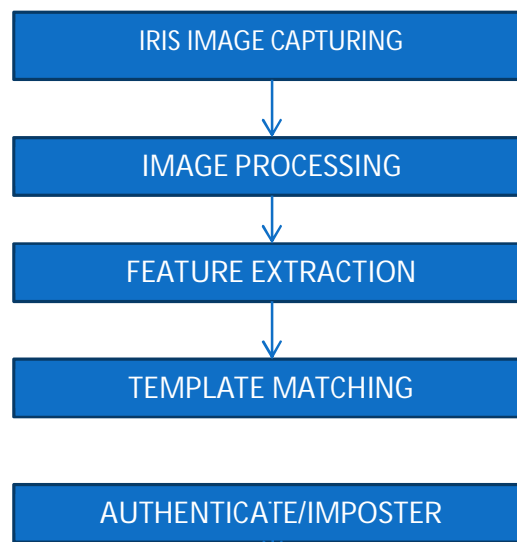

Fig: 4.1: Iris scanning system

The above system is based on Daughman's algorithm's, this system shows when the voter scanned his image on the iris system how it operates. Daughman's algorithm follows the above steps for scanning the eye. When the voter sits in front of the iris system for scanning its eye the voter should sit 3 meter away from the lens. The time taken for an individual voter to scan its iris image is just few seconds. It is the colored portion (brown or blue) of the eye that regulates the size of the pupil. The coloration and structure of two irises is genetically linked but the details of patterns are not. They have stable and distinctive features for personal identification. They are stable with age. The impossibility of surgically modifying it without unacceptable risk to vision.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)

V. CONCLUSION

This paper has presented an iris recognition system, in which segmentation was done using Daughman's algorithm. The database needs to be updated every year or before election so that new eligible citizens may be enrolled and those who are dead are removed from the voter list. In this paper the Security of the voter is discussed and in general and the focus is on making the voting system more robust and reliable by eliminating dummy voters. Also we have discussed Daughman's Algorithm based segmentation technique managed to correctly segment the iris region from 3 out of 4 eye images, which corresponds to a success rate of around 83%. This voting system helps everybody to cast their votes without any problem. Voting application will increase the percentage of voting. Manual counting is not required. So by this we will get the very prominent, clear and fast result. By using this newly developed system we can overcome many problems of existing system. This system is more efficient than the existing one. This system detect the iris from an image captured using a webcam and recognize iris from AADHAR database and check if the two images match. If a match occurs, then verify that the law and roles of voting are not violated then allow him to vote as compared to fingerprint, face detection iris is considered to be the most secure.

REFERENCES

[1] Prateek Verma, Maheedhar Dubey, Praveen Verma , "Comparison of Various Segmentation Techniques in Iris Recognition" LAMBERT ACADEMIC PUBLISHING (LAP), GmbH & co. KG, Dudweiler Landstrabe, Saarbrucken, ISBN 13: 978-3-6 59-13597-2, Germany, MAY-2012.

[2] "Segmentation Techniques for Iris Recognition System", International Journal of Scientific & Engineering Res V volume 2, Issue 4, April-2011 , ISSN 2229-5518 IJSER © @ 2011 BY Surjeet Singh, Kulbir Singh.

[3] J. Daugman. How iris recognition works. Proceedings of 2002 International Conference on Image Processing, Vol. 1, 2002.

[4] Chinese Academy of Sciences – Institute of Automation. Database of 756 Greyscale Eye Images. http://www.sinobiometrics.com Version 1.0, 2003

[5] "Recognition of Human Iris Patterns for Biometrics Identification " This project is submitted for the Bachelor of Engineering degree of the School of Computer Science and Software Engineering, The University of Western Australia, 2003 BY LIBOR MASEK

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