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Fingerprint Based Online Voting System

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Abstract:

Fingerprint Based Online Voting System is a application where the user is recognized by his finger pattern. Since the finger pattern of each human being is different, the voter can be easily authenticated. The system allow the voter to vote through his fingerprint. Finger print is used to uniquely identify the user. The finger print minutiae features are different for each human being. Finger print is used as a authentication of the voters. Voter can vote the candidate only once, the system will not allow the candidate to vote for the second time. The system will allow admin to add the candidate name and candidate photo who are nominated for the election. Admin only has the right to add candidate name and photo who are nominated. Admin will register the voters name by verifying voter. Admin will authenticate the user by verifying the user's identity proof and then admin will register the voter. The number of candidate added to the system by the admin will be automatically deleted after the completion of the election. Admin has to add the date when the election going to end. The system will allow the user to vote for only one candidate. The system will allow the user to vote for one time for a particular election. Admin can add any number of candidates when the new election will be announced. Admin can view the election result by using the election id. Even user can view the election result.

Keywords **—Biometrics, Fingerprint,Identification.**

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I. INTRODUCTION

This project was started with the sole purpose of eliminating conventional method of the voting system. With the introduction of Biometrics in the 18th century, security advancement in technology has gone up to various levels. In the 18th century it was used to verify the employees working for the British Empire. Since then Biometrics has taken its toll. Biometrics is formed from the Greek words 'Bio' and 'Metrics' where 'Bio' means 'life' and 'Metrics' means 'to measure'. The four major methods used in Biometrics are: Palm, Fingerprint, Iris, Voice, Face etc.

There are many more methods, but these four are the most important. Biometrics are used in Schools, Banks, Colleges, and Universities etc. One of the growing industries is the automotive industry. Fingerprint sensors are quite cheap in comparison to other Biometric sensors. And they are relatively easier to maintain also. The reason for going into biometrics is that its chances of being duplicated are very less. There main purpose for this project.The Fingerprint based online voting system is developing because to stop the fake voting , and the frauds happening in voting system. Here we are going to use fingerprint device to scan finger and the valid person will able to give his vote to the respective leader.As we said here online voting system , hence we can vote from any part of world within respected date and time period. Obviously the servers are greatly secured to prevent hacking issue.

As democracy has started in India we are choosing our leader by voting them, earlier we use paper based voting system where people use to

write name on that paper of respective candidate. but sometimes people may use more than one paper to choose their leader by making fraud. by the time the government has started using new machine system called EVM i.e. electronic voting machine. it is considered as more secure, compactible and fraud detectable. but there some situation which we can overcome by fingerprint based online voting system. as we can avoid double voting. a persons vote is given by b person and etc.

II.   AIM AND OBJECTIVE(S) OF THE WORK

The primary goal of the proposed system is to make voting 100 percent. To avoid the fraud happening nowadays which mention above. By this system we can save lots of money and time also. People can do voting within hardly 2 minutes. Government can save the money required for election duties and hence it is more advantageous system and secure ever.
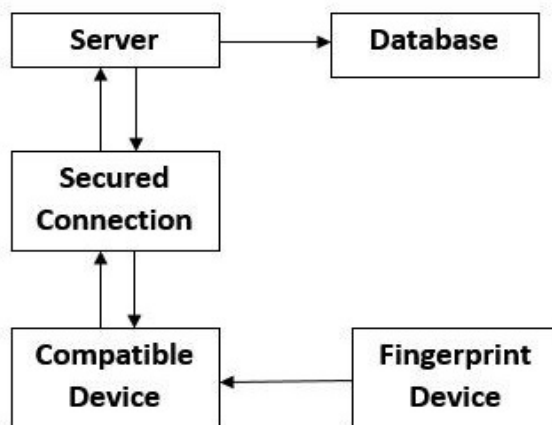
III.   METHODOLOGY AND ALGORITHM

Fig. 1 Block Diagram of the System.

A. Fingerprints Sensing

There are two primary methods of capturing a fingerprint image: inked (off-line) and live scan (ink-less). An inked fingerprint image is typically acquired in the following way: a trained professional obtains an impression of an inked finger on a paper and the impression is then scanned using a flat bed document scanner. The live scan fingerprint is a collective term for a fingerprint image directly obtained from the finger without the intermediate step of getting an impression on a paper.

B. Feature Extraction

A feature extractor finds the ridge endings and ridge bifurcations from the input fingerprint images. If ridges can be perfectly located in an input fingerprint image, then minutiae extraction is just a trivial task of extracting singular points in a thinned ridge map.

Due to a number of factors (aberrant formations of epidermal ridges of fingerprints, postnatal marks, occupational marks, problems with acquisition devices, etc.), fingerprint images may not always have well-defined ridge structures. A reliable minutiae extraction algorithm is critical to the performance of an automatic identity authentication system using fingerprints.

- *Orientation Estimation*

The orientation field of a fingerprint image represents the directionality of ridges in the fingerprint image. Fingerprint image is typically divided into a number of non-overlapping blocks (e.g., 32 x 32 pixels) and an orientation representative of the ridges in the block is assigned to the block based on an analysis of grayscale gradients in the block. The block orientation could be determined from the pixel gradient orientations based on, say, averaging, voting, or optimization.

- *Ridge Extraction*

For instance, too many minutiae in a small neighbourhood may indicate noise and they could be discarded. Very close ridge endings oriented anti-parallel to each other may indicate spurious minutia generated by a break in the ridge due either

to poor contrast or a cut in the finger. Two very closely located bifurcations sharing a common short ridge often suggest extraneous minutia generated by bridging of adjacent ridges as a result of dirt or image processing artifacts.

- *Minutiae Extraction*
  The most commonly employed method of minutiae extraction is the Crossing Number (CN) concept. This method involves the use of the skeleton image where the ridge flow pattern is eight-connected. The minutiae are extracted by scanning the local neighbourhood of each ridge pixel in the image using a 3 x 3 window.

C. Fingerprint Matching

Given two (input and template) sets of features originating from two fingerprints, the objective of the feature matching system is to determine whether or not the prints represent the same finger. Fingerprint matching has been approached from several different strategies, like image-based, ridge pattern-based, and point (minutiae) pattern-based fingerprint representations.The matching phase typically defines the similarity (distance) metric between two fingerprint representations and determines whether a given pair of representations is captured from the same finger (mated pair) based on whether this quantified similarity is greater (less) than a certain (predetermined) threshold.

IV. WORKING

The working of the system is as follows:

1. The Voter has to get registered first to vote his/her candidate at admin.
2. The candidate also have to get registered at admin.
3. On the given election date. The website will be live. Voter can vote to their candidate.
4. Voter need to enter mobile no as user name and right thumb finger as verification from any location.
5. System will check for the voter is registered or not.

6. Again two cases appears already voted and fresh voter.
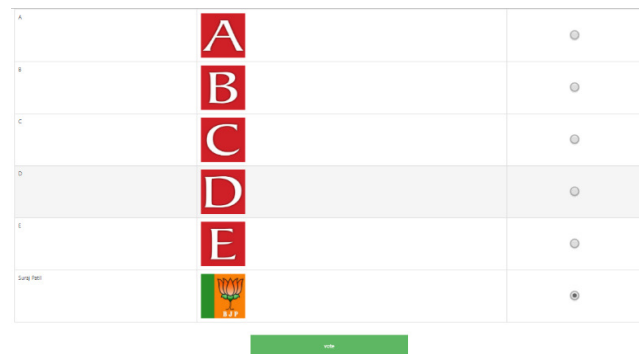7. System will automatically detected if the voter have already voted.

Fig. 2Display: Voter

Case I: Not registered voter

1. If the voter is not registered then at time of voting this message will shown on the screen.
2. Hence the unauthorized persons cannot vote.
3. The system will check in database that the following mobile number is registered with system or not.
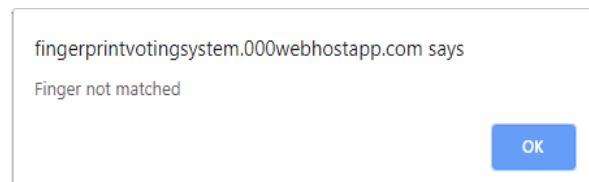

Fig. 3 Display: Not Registered Voter

Case II: Already Voted

1. At time of voting when the voter select the candidate and place his or her finger on fingerprint module.

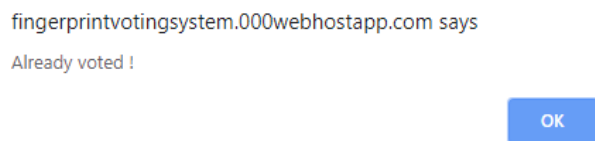2.The module again checks if the acquired finger exist or not and will check if this already voted or not .
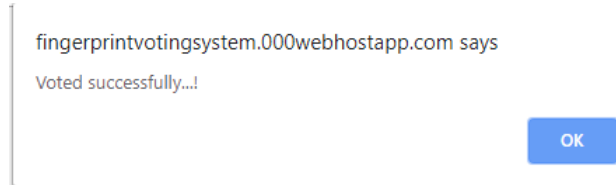
Fig. 4 Display: Already Voted

A. Registration process
• Candidate
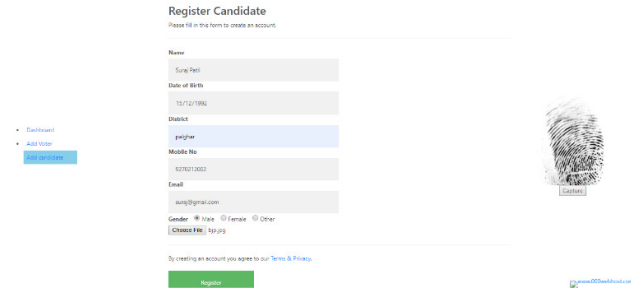The Candidate have to submit his all true information to the system administrator. Along with their sign.

Fig. 5 Display: Registration Candidate
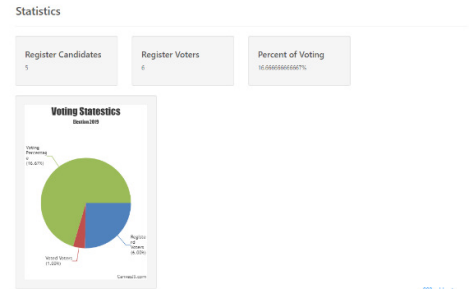
• Register Voter
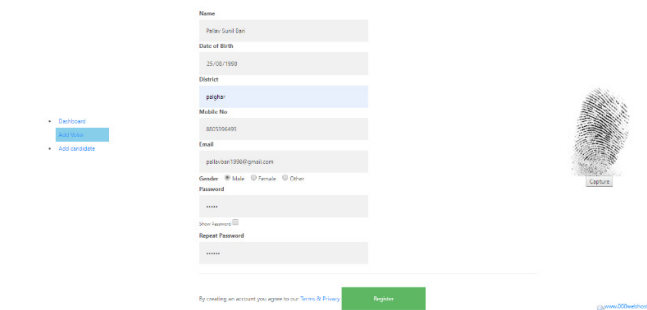Here voter has to register himself at the administrator office for successful voting.

Fig. 6Display: Registration Voter

• Successfully voted
When voter is valid then and only then the successful voting will be there.

fingerprintvotingsystem.000webhostapp.com says

Voted successfully...!

OK

Fig. 7Display: Successfully Voting

• Result
Voting period successfully after immediately result generated on that day otherwise next day.

Fig. 8Display: Result

V. ADVANTAGES &DISADVANTAGES

A.ADVANTAGES
- The system will not allow the voter to vote two or more candidates.
- The system will allow the user to vote for one time for a particular election.
- The system will authenticate the user through his fingerprint so the user is uniquely identified.
- This system will allow voter to vote any location over the world.
- Reduce vote fraud by voter hard-to-forge technology and material, such as minimize the opportunity for identification fraud and buddy punching.
- Providing the result quickly.
- It completely rule out the chance of invalid votes.
- It make voting 100 percent.

B.DISADVANTAGES

- Distortion due to dirt/dust on the fingertip.
- Injuries to the fingerprint can cause a person's fingerprint to become unreadable.
- Failure of network.

VI. APPLICATION

- Office staff leader selection.
- Industrial selection of staff.
- Airport security, voter cards, Healthcare, DNA Matching, Time and Attendance.
- Electronic commerce, Electronic banking & financial services.
- The system can be used in various areas where election will be held.
- This system allow the voter to vote any location where election will be held over country.
- Over completing voting setions after few days will be quick result generated.
- Voter to vote any location in world.

VII. CONCLUSIONS

In total, this system overcome most of the problem faced during the voting period by the paper electronic voting system the efficiency of this system depends upon the web interface ,Its usability . This will surely ensure a safer voting method which is very much what is required for a healthy growth of a developing nation like ours. This project can be used for voting since it overcome all the drawbacks of ordinary voting machine also provide additional security . It main advantage that since fingerprints of every person is unique and hence this system complete reduce the chance of invalid vote.

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