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A Secure E-Voting System Using Face Recognition and Dactylogram

Patil Rahul H.[#1], Tarte Babita B.[#2], Wadekar Sapana S.[#3], Zurunge Bhakti S.[#4]
Prof. Phursule R.[#5]

[1]rp.patil518@gmail.com
[2]babita.tarte18@gmail.com
[3]sapana.wadekar@gmail.com
[4]bhaktizurunge@gmail.com
[5]rphursule@gmail.com
[#12345]Deparment of Computer Engineering
JSPM's
Imperial College of Engineering & Research
Wagholi,Pune-412207

ABSTRACT

An electronic voting system is a selection system in which the election data is recorded, stored and processed primarily as digital information. India is a democratic country, where Voting plays important role in the Election process. Voting is considered as our central tariff as responsible citizens of the nation. An election-voting system is used to store the vote which is in digital format. The electronic-voting can be done On-line. The On-line voting can be done using Internet connection. In case of traditionally voting system, voters need to go to distributed places like polling booths. The most important thing while dealing with e-voting system is Voter Authentication, E-voting process and the voted data. So while designing an e-voting system, system need to take care of the privacy of voter's data and provide security to the election system. So this project mainly works on the Security, Reliability and accessibility. For using E-voting system security levels are provided i.e. Face Recognition and Dactylogram. So with help of these biometric, this proposed system can achieve the security of an e-voting system, Availability and Ease of use to voters. System is also very cooperative for administration purpose to declare the result within minute, and to avoid the duplication of voting.

Keywords: **Election-Voting System, Secure E-Voting, Face Recognition, Dactylogram.**

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I. INTRODUCTION

E-voting is an election system that allows the populace to choose their representative by recording his or her secret ballot by some electronic means. In today's era internet voting, have won considerable surveillance as possible that promise to make the electoral process much simpler and efficient for political parties, candidates, election administration, and most importantly, for electors. In 2004, it's estimated that almost 30% of the voting population in the US used some form of e-voting technology.

Security is a staple in e-voting process. Therefore the necessity of designing a secure e-voting system is important. There are different levels of maintaining e-voting security. Security must be applied to hide votes from outsiders. For countries like Brazil, India and the Philippines, e-voting and electronic counting means that people can get authoritative election results seconds, instead of days or weeks.

This paper finding the information related to e-security of computer science are focusing on e-secure election system to search extracting will able to make voting technically controlled, more secure and time consuming. The e-secure election system is most useful for public to voting. The procedure of election has very tough media reporting mostly if happen wrong something. It will improve system security of level to assurance of voter.

The voting system defined the online voting system is most useful to voter can vote from anywhere to vote. The online voting system can be reduced the counting of votes and ballots. To online voting system is very hard to trust on online system because it requires more security as compared to physical system. Privacy is important in online system because any one cannot find votes to given to which party.

Administrator register voter information of the election process as below first step begin with voter basic information like voter name, voter age, voter address, sex ,voter id etc. In the central database which is mentioned by election commission. Then next registration phase voter face photo stored in database. Then next administrator scan left forefinger and stored in central database. This information validate when voter come for voting at election date.

II. LITERATURE SURVEY

This paper presents the ways that uses cryptographic technique and Diebold system for election process. Though this paper security is ensured for the source code using machine used in a shared market [1]

A secure e-voting system for Pakistan by using fingerprint biometric method is implemented through this paper. This system uses the client-server architecture and implemented with the help of VPN like automated teller machine or LAN [2].

This paper proposed the Online voting scheme with secure user validation by using biometric and password security, basically through merging of secret keys and cover image on the basis of core image [3].

This paper proposed e-voting system which will store the identity of the voters using android mobile through facial recognition systems and afterword OTP concept is used for sending passwords to user's mobile[4].

This paper proposed system that uses fingerprint supported biometric control information and encryption along with Secure Socket Layer using VeriSign, would make the software involved in the voting process well secured. Also they tried the testimonial to a mobile device will make the system even more vigorous [5].

A framework for electronic voting machine i.e. EVM based on biometric verification proposed in this paper. Concept of integration of EVM and biometric is also implemented [6].

This paper proposed a solution for handling of big data by using biometric system to capture the missing votes. Activities like handling and proper organization of big data will be meeting through the modish technologies like Bio-Metric systems and Optical Scanning systems [7].

Concept of novel software-based fake detection method which is used in multiple biometric systems to enhance the security is introduced through this paper. The purpose of the system is to improve the security of biometric recognition frameworks, by adding liveness assessment in a user-friendly manner, with the help of image quality assessment and very low degree of complexity is achieved [8].

A secure E-Voting system is implemented through this paper which gives a best solution to avoid false voting using the concept of biometric and GSM module for sending the result to corresponding authority [9].

III.EXISTING SYSTEM

Social Many Parts has been divided by the election process. It is necessary to provide security to election system. So lots of man power is needed to election system and it conflict to manage by the system. Booths are provided by the election commission system and Booths will maintain by the schools. Voter has known about the booth location that where it will arranged. Time and place has been given by the election commission [10].

Thereafter, at the day of voting, voter has to go to the polling booths to do vote as shown in figure 1. Then identification is done by the officers of the voter. After that on voter's left forefinger, marking is done by the officer using the ink. Then on register signature has to do. Then voter is going for the voting. Red lamp is blink and beep sound is hear when voter press the button of electronic ballot and that is indicate voting is done and it is stored [11] [12]. Every time this process is repeated. Lots of man power is required to this process.

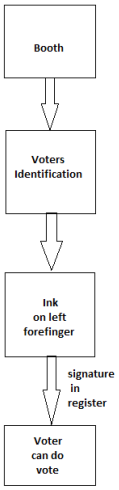

Fig 1. Existing System

IV. PROPOSED SYSTEM

This system introduced an online web application for secure election process development. This system uses biometric techniques like Dactylogram and face detection for providing security levels. In the initial phase, an application will register by the voter. Next phase will be started by login of voter to the system. This system uses two security levels namely:

1) Dactylogram.
2) Face Recognition.

I. DACTYLOGRAM

It uses human physiological processes to identifying users identity. This biometric-security system is human-oriented system and is more accurate and efficient than the existing one time password generating systems. This verification is used in many of the online dealings, private financial dealings; industries, institutes offices, colleges, universities and safety access manage system.

A variety of fingerprint devices are available in the market today that varies in cost and with different mechanism for matching fingers. There are various approaches for matching the fingers like matching finger print finer points, straight pattern matching, and ultrasonic patterns.

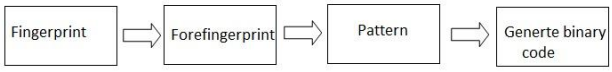

Fig 2. Fingerprint Devices

Fingerprints form a unique recognition prototype for humans, which consist of a pattern of points on fingers that helps to hang on things by hand. Scanner used in fingerprint is heart of this automated verification system which is responsible for the acquisition of metaphors based on the prototype of ridges as well as valleys of human fingers, and then matching them with the already stored patterns. It consists of sensors that are ultrasonic, optical, capacitive, thermal, etc., but mostly capacitive and optical scanning methods are used.

These sensors generate high quality images of finger point and valleys by overriding inconsistent designs of the image which is scanned earlier. These scanners consist of ADC which processes the analog electric signals to produce digital illustration of the image. When voter depress the finger on a fingerprint scanner, it collects the signals, processes the image and extracts finer points information of the finger. Subsequently a processing unit acquires this ID information and stores it in a fingerprint database.

II. FACE RECOGNITION

Face detection is an application used for verifying a person by capturing a digital image. One way to do this is by comparing selected facial ratios from the image with the facial database. It is basically used for providing security levels with the help of biometric systems and can be comparing to other biometrics such as dactylogram.

Face recognition equipment is the least intrusive as well as very fastest biometric technology. It works with the most obvious individual identifier i.e. the human face. The human face plays an significant role in our social interaction, conveying people's uniqueness. By using the human face as a key in to security, biometric face detection technology has received major attention in the past decade as it is probable for law enforcement and non-law enforcement applications.

As compared with other biometrics system using the dactylogram and face recognition has distinct compensation. Face images can be captured by maintaining certain distance without touching the person being identified, and the identification does not require communicating with the voter. face recognition serves the crime deterrent purpose because face images that have been captured and stored can later help to identify a person.

III. Proposed System

As shown in figure 3, this system introduced an online web application for secure election process development. This system uses biometric techniques like Dactylogram and face detection for providing security levels. For this process, internet connection is compulsory to access the web application.

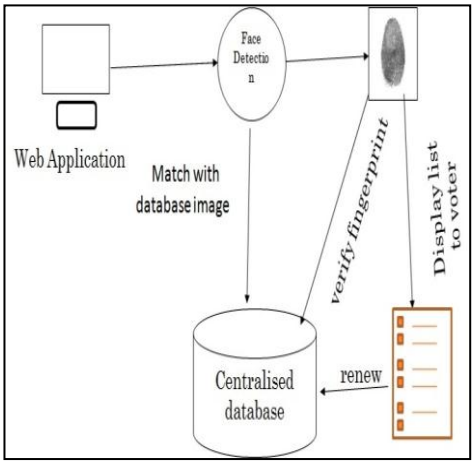

Figure 3.Proposed system

System will capture real time image by using web camera. Then face of voter is detected by the system and recognized with already stored image in central database which is maintained by the election commission. Various Information like voter's name, address, photo id and forefinger prints image etc.

If the face is successfully matched with the stored image of database then application will move to next page for matching dactylogram (Fingerprints). After that, voter has to match his/her forefinger by using biometric. If it is matched successfully that means voter is authenticated for E-voting.

Thereafter, list of candidate displayed for voter to do voting. Web application page contains list of candidate name with respective symbol of candidate and button in front of candidate's name. When button has been pressed by the voter, then vote can be stored in database and then procedure of voting is completed.

V. CONCLUSION

The challenge for the system, and for this Administrative unit, is to face the difficulty revealed with each election and to commit processes that allow the system to acquire from one election to the next. This report attempted to highlight the reforms that can make a substantial difference in addressing the most recent set of concerns and describes the proposed model of E-Election system mostly for organization. The proposed system is much secure and expeditious than the normal electoral system. Influence of ballot and postponement of results can be avoided simply with the use of this E-Election system for voting. In the planned hypothesis, this paper will try to build a secure E-Election system that is free from unauthorized access throughout casting votes by the elector. It is expected that the proposed E-Election system will increase the reliability, opacity and security of the existing election system.

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