E-VOTING SYSTEM

Anushka Bodke[1], Hrutuja Jadhav[2], Kavita Avhad[3], Shruti Avhad[4]

[1] *Student, IT, Sir Visvesvaraya Institute of Technology, MH, India*

[2] *Student, IT, Sir Visvesvaraya Institute of Technology, MH, India*

[3] *Student, IT, Sir Visvesvaraya Institute of Technology, MH, India*

[4] *Student, IT, Sir Visvesvaraya Institute of Technology, MH, India*

ABSTRACT

In developing countries like" INDIA" the election commission follows homemade voting medium which is done by electronic voting machine. This machine is placed in the bean cell centre and is covered by advanced officers. Due to some illegal conditioning the polling centre are misused and people's vote to right has been denied. This infrequently occurs in pastoral areas as well as in civic metropolises because the educated people aren't interested in casting their votes to campaigners who represent their separate areas. Biometric is a technology of measuring, wisdom and it dissect the natural data. In the ultramodern dispatches roughly it has accessible electronically, druggies of computer technology, it has proliferation in electronic services and with the security system. It improves in the election system with the help of new technologies in voting process. The information about election data is stored, recorded and reused. The below information as a digital information. This machine can reduced the time of choosers and easy to count by comparing the ballot system. A secured electronic voting machine using unique identification number i.e. AADHAR number has been developed. To give fresh security along with the AADHAR number biometric identification is used. At the time of voting in the choices, the namer authentication can be done through biometric pattern at that time image will be prisoner. For cutlet print authentication we can used AADHAR card number as a primary key. If the biometric information of the voter matches the database of the AADHAR also the person is allowed to cast their vote. In this proposed system we've used Arduino and Finger publish Scanner that can identify each voter, count votes and can help fake votes

Keyword :- - *Electronic Voting Machine, Finger Print Scanner, Arduino, voter id*

1. INTRODUCTION:

The election should be conducted in a right manner to ensure that the term “Democracy" should not lose its value. It is observed that there are so many problems associated with conduction of elections in the country such as percentage of voting is at most 60 % in most of the cases, rigging in the elections etc. In Times of India (TOI) 24th Jan, 2009 11 lakhs fake voters in Delhi have found. Election commission has found 30,000 illegal voters in the constituency of Sheila Dikshit. In total 1358179 voters have been found illegal in Delhi. In Bihar, Ram Vilas Paswan alleges 30 % voter cards are identified as fake in Bihar. In a voting system the random citizens elect a candidate by law who represents them and works for them for their welfare. If a wrong candidate is selected, it brings a disaster to the nation. In developing countries like India, the random way of election is ballot based system which is very much time consuming and sometimes very much unsafe. By this system there is always some risk to elect the wrong candidate. Considering these problems, in this project a new system of voting is proposed based on electronic voting machine. The additional feature of this system is biometric security which will be realized by the fingerprint of the voters. In voting system, the system should be easy to authenticate and verify, it also should have high accuracy rate and reliability. The system also has to be cost eff ective and unique. To collect the biometric data stored into a database. The government also issued AADHAR card to identify the persons unique identity. Using the AADHAR card, we can easily make the voters to cast the vote without difficulty

1.1 Motivation

1. Elections are the essential parts of every democratic society and organizations. Hence it is very important to hold up as multiple elections as possible.
2. To eliminate the problem brought on by the use of paper ballots and integrate safety policies designed to rootout fraud and scandal.
3. To provide transparency in the counting process. Due to addition of biometric authentication the chances of fake voting is reduced.
4. Reduced the staff of voting center.
5. This system provides a efficient data management.
6. Easy and user friendly environment for interaction of the voter with the system.
7. Election procedure seem to be outdated, involving processes of scribbling down numbers and checking that final sums add up these processes are error prone, costly and time-consuming.

1.2 Objective.

1) To study about traditional voting system.
2) To learn about different hardware components like Ardunio, Fingerprint module and keypad.
3) To understand secure voting system for the purpose of accuracy fast voting.
4) The main objective of our project is to design a system that ask user to show his/her fingerprint as an identity proof.
5) To introduce the concept of fingerprint impression instead of push button in order to improve security.
6) Fast and accurate biometric technique into electronic voting system to prevent and unauthorized person to vote.

2. PROBLEM STATEMENT-

The proposed system is secured electronic voting system that uses UIDAI (Unique identification Authority of India) or aadhar database as its backend. The system ensures authentication of an individual by matching fingerprints and eligibility is checked by calculating the age of voter thus making the existing voting card redundant. The proposed system contains two databases. One is Central database and another is Local database of the pooling booth. The Central database called Central Identities Data Repository(CIDR) which forms the backbone of the system. It contains all the demographic and biometric data of every citizen of India. In order to reduced load on Central database there are local databases that will be located along side the server which will contained copies of data of the inhabitance that fall under it zone these zones are decided on the basis of population density, area and other factors.

3. PROBLEM STATEMENT-

In the implementation of this

1. User Voting: The proposed system would schedule elections by going through the following:
    - Voters access the online voting portal and logs on with their personal Voter's Identification Number, in order to view to the voting page.
    - On submission of the login request, the system checks to see if the specific voter is eligible to vote in the particular election and performs appropriate actions based on the result status returned from the check.
    - If ineligible to vote, the system displays a corresponding message to the voter (staff) that he/she is not permitted to vote. If on the other hand, the voter is eligible to vote – an OTP (One Time Password) is sent to the voter's registered phone and email. The OTP is then

required to be entered on the appropriate screen after which the voter is shown the voting screen to select their choices for the given election.

2. Voter Authentication: This achieves our objective of ensuring a secured method of validating voters before they are allowed to cast their votes. Voters would be authenticated by verifying the unique identity details possessed by them. A common and easily implemented mode of verification is by OTP combined with the unique personal Voter's Identification Number.

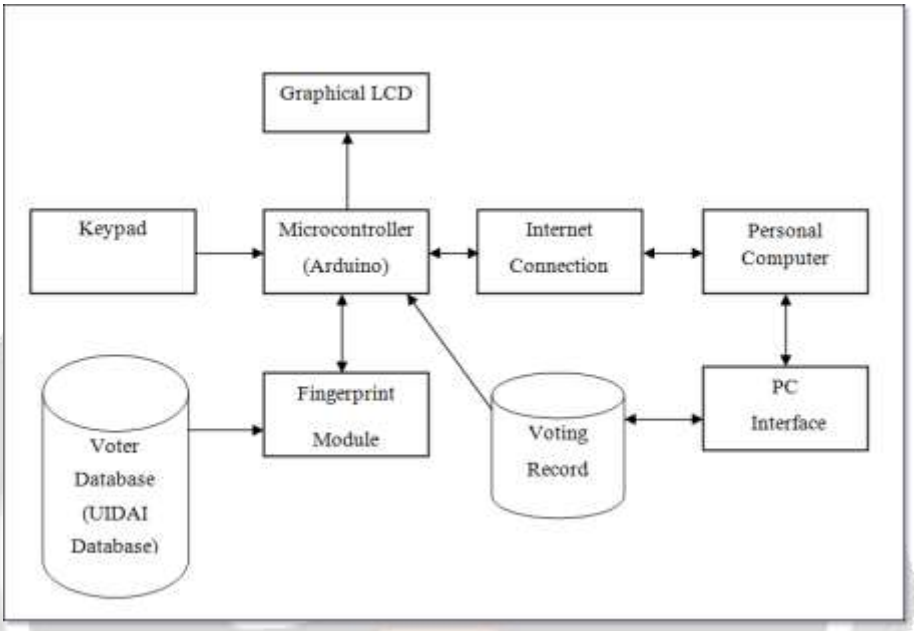

Table -1:System Architecture

3. Data Collection and Verification: Before voters (staff) can be verified, there's a need for pre recorded data in the memory i.e. database of the system. Conse- quently, the data of every prospective voter (staff) needs to be collected to allow verification. Data of currently employed University of Ibadan Staff would simply be obtained from the University's ITeMS unit after.

4. Data Communication: The proposed system would operate on an internet. This allows all voters to have access regardless of location as well as increase their ability to use a range of devices to cast their votes. This is a network only accessible by members of a particular organization. In this case, the university information would be sent over this network, from the hall. This information is not necessarily complex, but simply a list of students permitted to exit the campus from the hall. Essential additional information about the student may be sent. Other information concerning destination name of host, need not be sent. This information is simply required in the hall as this is the current requirements, to take a leave. At points of exits, precisely the school gate, information required is whether or not you have been cleared at your residential hall to exit school.

4. LITERATURE REVIEW

1) **Paper 1** :"Biometrically secured electronically voting machine".
Author Name : Rahil Rezwan, Huzaifa Ahmad, M. R. N. Biplob, S. M. Shuvo, Md. Abdur Rahman
Year of Publication : 2017
Abstract : Voting is one of the fundamental rights of every citizen of a demo- cratic country. By utilizing the right of the voting, people elect their most suitable leader who will lead them. In this modern era where technology is being used in every aspect of life, election is a place to apply the best technology. In this, they developed a system which is suitable for elections in countries like India. The usual system for voting in India is ballot based voting system, where voting is sometimes unfair. In this proposed system they used Arduino and Finger Print Scanner that can identify each voter, count votes and can prevent fake votes. The proposed system is more digital, technology-based and secured system.
Methodology: Voter identification is needed during two phases of the electoral process: first for voter registration so as to determine the right to vote and subse- quently, at voting time, to allow a citizen to exercise their right to vote by verifying if the person satisfies all the necessities required to vote (authentication). The elec- tion procedure dates back to ballot papers. Ballot papers had been used for almost 5-6 decades. In this paper based election voters cast their votes by simply deposit- ing their ballots in sealed boxes distributed across the electoral centres around a given country. When the election period ends, all these boxes are opened and votes are counted manually in presence of the certified officials. In this process there was an error in counting of votes or in some cases voters find ways to vote more than once. Sometimes votes are even manipulated to distort the results of an elec- tion in favor of certain candidates. With the advent of technology, ballot papers have been replaced by EVM (Electronic Voting Machine) to overcome drawbacks associated with ballot papers like stealing of ballot boxes, tearing of ballot papers, massive rigging, and physical damage to the ballot papers by pouring fluids etc.
Limitation:
- Accuracy: It is not possible for a vote to be altered eliminated the invalid vote cannot be counted from the finally tally.
- Democracy: It permits only eligible voters to vote and, it ensures that eligible voters vote only once.
- Security Problem: One can change the program installed in the EVM and tamper the results after the polling. By replacing a small part of the machine with a look-alike component that can be silently instructed to steal a percentage of the votes in favour of a chosen candidate.
- Illegal Voting: One candidate cast the votes of all the members or few amounts of members in the electoral list illegally. This results in the loss of votes for the other candidates participating and also increases the number votes to the candidate who performs this action.
- Privacy: Neither authority nor anyone else can link any ballot to the voter.
- Verifilability: Independently verification of that all votes have been counted correctly.

2) **Paper 2** : "Secured Electronic Voting Machine using Biometric"
Author Name : Anandaraj S., Anish R., Devakumar P.V.
Year of Publication : 2015
Abstract : In democratic societies, voting is an important tool to collect and re-act people thinking's. Traditionally, voting is conducted in centralized or dis- tributed places called polling booths. Voters go to polling booths and cast their votes under the supervision of authorized parties. Then the votes are counted manually once the election has completed. With the rapid growing development of computer technology and cryptographic methods. The electronic voting sys- teams can be employed that replace the incident and most importantly error-prone human Component. This project proposes and implements a simple and secured method of polling vote by using biometric. Due to the changes occurred in the technology, so many advancements were introduced in the field of voting. The improvisations aim at increasing the flexibility

security, reliability, scalability of the model and provide less time consumption to announce the result. Nowadays, the voting procedure was held by manually operating machines and even through SMS also. But this electronic voting machine is a unique and new concept which saves a lot of time and avoids the false voting by a false person. In this system, the user has to use his fingerprint to poll the authenticated vote.

Methodology: The personal computer is used to collect and store the database of the peoples before voting. The ARM cortex processor is connected with a personal computer through the PC interface to access the database which is stored in the personal computer. A module of 16X2 dual line LCD is used to show the details of the processing which is happened in the voting machine. An optical finger print module is used to scan the finger print of the voters. The finger print scanner sends the scanned signal to the processor for the verification. The processor veri- fies the finger print with the database which is stored in the personal computer. A touch screen is used to give the input to the processor to select the candidate. An Alarm/indicator is used to produce the sound after the selection of the candidate. A printer is used to print the name of the voters and giving a receipt to the voters for the confidential polling. Finally a GSM modem is used to send the result to the corresponding authority which helps them to announce the result within short period.

Limitation: There might be a false vote by the person who can built the SIM having the same number and also if the person lost his/her phone number then false voting will be possible[3].

3) **Paper 3 :** "Micro-Controller Based Smart Electronic Voting Machine System"

Author Name : Sahibzada Muhammad Ali, Chaudhary Arshad Mehmood, Ah- san Khawja, Rahat Nasim, Muhammad Jawad, Saeeda Usman, Sikandar Khan, Saqib Salahuddin, Mian Atif Ihsan

Year of Publication : 2014

Abstract : The voting system is set of rules which define how the desire of people may be express and how results may be achieved from it. For this purpose an electronic voting machine EVM is introduced in this paper which replaced con- ventional methods of voting i-e manual voting. Proposed machine in this paper is faster, efficient, and reliable and error free as compared to manual voting system which is slower, poses full day fatigue on people and chances of error are greater. Its main feature is its ease to operate .Voter polls a vote very easily and final results are displayed in no time by just pressing a result button, after the elections have been conducted.

Methodology: The control unit keeps track of the input switches. When a vote is polled, the control unit increments the contents of the memory locations/registers reserved for the candidate polled for. It then turns ON the Busy-Lamp, indicating that all the input switches are disabled for a calculated amount of time. This helps in avoiding any attempt of tampering if a voter tries to poll more than one vote to a candidate or to poll votes to more than one candidate. This is the main control of our EVM. After the voting is over the results of voting can be seen in LCD using a button, "RESULT", on control unit. The ballot unit is also an essential section of EVM. It has the following functional parts: Switches, Busy-Lamp, ReadyLamp, Ballot paper. There are six switches on the ballot unit for six candidates. Each switch has a specific election-mark in front of it for a specific candidate. These switches are available to the voters to select a candidate of their choice. When the EVM is powered ON the Ready-Lamp turns on indicating that the EVM is ready to accept a vote. When a vote is polled at the ballot unit, a signal is passed to the control unit through one of the six wires through which the ballot unit and the control unit are connected. The control unit then turns ON the Busy – Lamp.

Limitation: Delay calculation is an interesting but a bit trickey calculation[8].

5. CONCLUSION

In this system, a framework for electronic voting machine based on biometric verification proposed and implemented. The propose framework ensures secured identification and authentication processes for the voter and

candidates through the user of fingerprint biometric. In the project we have try to reduced the search time by using the local database instead of using one centralized database. This system provides transparency in the counting process and capturing the image. The advantages of this system are economic, faster tabulation of results, improved accessibility, greater accuracy and lower risk of human and mechanical errors. Database consisting of the details like age, bio- metric of the people should be updated every time before election. Our project enables secured voting and reduces manpower.

6. REFERENCES

[1]Ch. J. Lakshmi, S.Kalpana, "SECURED AND TRANSPARENT VOTING SYS- TEM USING BIOMETRICS" Proceedings of the Second International Conference on Inventive Systems and Control (ICISC 2018).

[2]R. Rezwan, H. Ahmed, M. R. N. Biplob, S. M. Shuvo, Md. Abdur Rahman "Biometri- cally Secured Electronic Voting Machine" IEEE Region 10 Humanitarian Technology Conference (R10-HTC) 21 - 23 Dec 2017, Dhaka, Bangladesh.

[3]Anandaraj S., Anish R., Devakumar P.V., "Secured Electronic Voting Machine using Biometric" IEEE Sponsored 2nd International Conference on Innovations in Infor- mation,Embedded and Communication systems (ICIIECS)2015.

[4]J. Deepika, S. Kalaiselvi, S. Mahalakshmi, S.Agnes Shifani, "Smart Electronic Voting System Based On Biometric Identification-Survey" Third International Conference on Science Technology Engineering Management (ICONSTEM) 2017.

[5]Khasawneh .M, Malkawi. M , Al-Jarrah .O, "A BiometricSecure e-Voting System for Election Process", Proceeding of the 5th International Symposium on Mechatronics and its Applications (ISMA08). Amman, Jordan 2015.

[6]Sahibzada Muhammad Ali, Chaudhary Arshad Mehmood, Ahsan Khawja,Rahat Nasim, Muhammad Jawad,Saeeda Usman, Sikandar Khan, Saqib Salahuddin, Mian Atif Ihsan, "Micro Controller Based Smart Electronic Voting Machine System" IEEE 2014.

[7]Nikhil Shekhar Tilwani, Nivedita Majumdar, Pragati Bhargava, " Fair Election Sys- tem in India Using UID Data and Biometric Technology " International Journal of Scientific Engineering Research, Volume 4, Issue 11, November-2013.

[8]Sahibzada Muhammad Ali, Chaudhary Arshad Mehmood, Ahsan Khawja, Rahat Nasim, Muhammad Jawad, Saeeda Usman, Sikandar Khan, Saqib Salahuddin, Mian Atif Ihsan, "Micro-Controller Based Smart Electronic Voting Machine System" Con- ference Paper, June 2014.

[9]Bhuvanapriya.R. , Rozil banu. S., Sivapriya.P., Kalaiselvi.V.K., "SMART VOT- ING", SecondInternationalConference On Computing and CommunicationsTech- nologies(ICCCT'17) 2017.

[10]R. Rezwan, H. Ahmed, M. R. N. Biplob, S. M. Shuvo, Md. Abdur Rahman "Biometrically Secured Electronic Voting Machine" IEEE Region 10 Humanitarian Technology Conference (R10-HTC) 21 - 23 Dec 2017, Dhaka, Bangladesh.