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Smart EVM using Biometric Scanner

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ABSTRACT

This project is designed for electronic voting machine by using the fingerprint identification method. Here voters thumb impressions are used for Identifying the voters. During voting, when the voter keeps his/her thumb on the scanner, the system will check whether it matches with pre stored impressions in the database. If it matches then system will give permission to voter to cast his vote and otherwise prevent the voter from polling. The database of multiple booth are centrally collected towards the admin. Therefore counting become easy. Over all the system provides clarity in the election process.

Keywords : Biometric authentication, Central database, Electronic voting Machine.

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I. INTRODUCTION

MOTIVATION : As we know that from 2015,Digital India concept came across over all India in each field. We are the part of democracy, so Election process should be at digital platform.

AIM : There are two type of problems with EVM.

Security Problems: 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 favor of a chosen candidate.

Illegal Voting (Rigging):
The very commonly known problem, Rigging which is faced in every electoral procedure. One candidate, casts the votes of all the members or few amount of members in the electoral list illegall.

OBJECTIVE:

The project demands the user to submit his Finger print at the polling booth. The project used the biometric scanner and Embedded Systems to design this application. The main objective of this project is to design a system that asks the user to show his Finger print as an identity proof. The system reads the data from the Finger print and verifies this data with the already stored data in its database. This proposed system increase the transparency in election process.

II. RELATED WORK

Before some days biometric EVM has become new trending technology. In this section, the previous work related with this technique is given below.

In a study [1]. The paper describe function of EVM using microcontroller , RFID, GSM technology to avoid fraud in election process.The RFID tag is embed in the voter ID card. When the voter scan his card the controller check ID, if it is match then OTP is generate & send to the voter. Voter insert password ,if password is conformed then voter is able to cast his vote.In this research cost required is very high,as I t consist of hardware RFID, Voter ID embedded with that RFID.

In a study [2]. This paper introduce EVM machine instead of manual system & design biometric voting system with convenient user interface. Casted votes will be counted automatically & result will be display. The proposed system improve the voting system. We were adding new module to this research or implementation. That is nothing but centrally collect the database. Database in the terms of casted votes from different booths.

In another study [3], the authors proposed a system in which voter can give the vote in two ways-online and offline. In online voting system, voters could give vote through internet with only a password verification, therefore hackers may apply brute-force attack and hack the system. In offline system, voters could give vote by using a voting matching appearing in the booth where iris recognition technology and finger print sensor were used.

A research done by Baig [4], discussed an Electronic Voting Systems,where user can give vote using smart phone application with QR code verification and this application uses the user information stored in Adhar card. In sum, each of the research work introduces different ways for the authentication of electronic voting system.

III. PROPOSED SYSTEM

The main aim of the project i.e. electronic voting machine using fingerprint technology is to provide more security in authentication of a candidate in elections by providing a unique identity to every user using the Fingerprint Technology . If we maintain the fingerprints of all the voters in a Database. Each and every user uses his fingerprint for casting his vote in the procedure of electing his choice of candidate from the list of candidates in the elections conducted by [7]. the Election commission of India. Here we are using Dual security i.e. not only fingerprint but also a unique numerical password for authentication for every user/voter.

The output of this project is conducting election without any fraud .Database of multiple booth are collected centrally. The result analysis of election get in the form of pie chart. Therefore analysis becomes easy.

In the following figure we get clear idea about our proposed system. System Architecture shows how the whole flow of election process should conducted by an Evoting System.

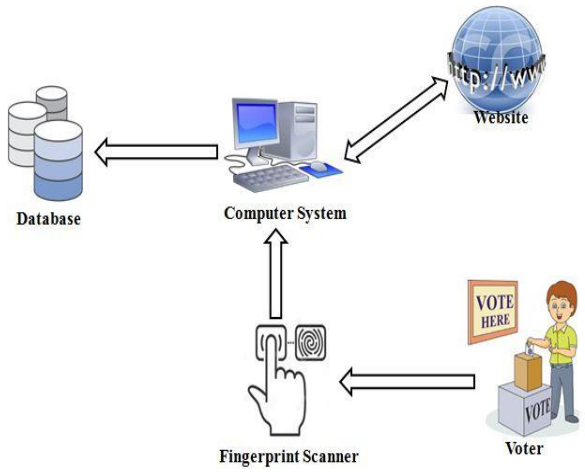

Fig. 1: Conceptual Architecture of the System.

[8]. In above architecture, there are composition of four different modules. Listed as mainly the computer system, Website, Database and Fingure print scanner. each module describe as follows.

A. Website:

It is the user graphical interface for actual voting process. It having the same working as Election Commity .The following tree diagram shows the actual sub modules present in the website. It consist of admin module, which has same authority like member of election commity for adding election, candidate registration, result declaration. All the sub processes which are involve in election process all are summarised in the website.

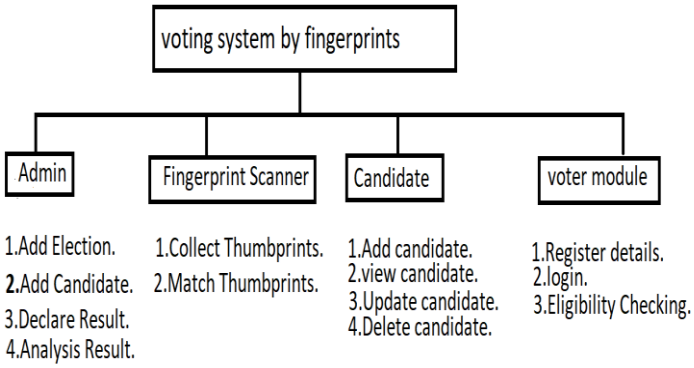

Fig.2: Architectural modules of Website.

B. Biometric Scanner:

As we can see the fig.1 ,which shows when voter is entered in voting booth to cast his/her vote, firstly he have to authenticate his figure by using biometric scanner with registered database In our implemented system uses the Mantra's MFS 100 device. We uses

figureprint scanner for authentication as it gives 99.9% accuracy. We can set threshold value for matching the fingureprint. That means in situation like injuries to figure,we can set 85 out of 100 as threshold value for matching algorithm.

C. Database:

For authentication of the voter we have to create registration of all the voters before election process.This process is must for our proposed system.it may require much time to registration of all the voters.

IV. RESULT AND DISCUSSION

After implementing this system Election process become transparent. We know that from 1998 ballet papers are used for election process, it require very large amount of time to generate the result. after that EVM is working for election. But by using this EVM systems electronical frauds are happen at large scale. But our proposd system overcome all such type of frauds. As we using biometric scanner for identification of voter, it provides complete transparency and clarity in election process.

Our smart EVM system consisting one feature to aware the voter before one day of election process.it uses message forum to send the message to each voter. outcome of our implemented system is result declaration and analysis with very small time span as well as 99.9% accuracy of voter's Identification. For testing the system we done the experimental election among few people, according to there feedbacks and reviews we say that this proposed system is very user friendly. For each voter it require only 3 seconds for authentication.

V. FUTURE IMPLEMENTATION

For our smart EVM system, Registration of each voter is the important prerequisite. Since it require as much time to create a dataset with all data of the voters. It is not possible to do the registration of all voters in few days. To overcome this we can use Aadhar's data as database for EVM system.

We all know PAN Cards, Banks all are connected to the Adhar Identification. By linking election process to Aadhar it will be very easy and fast to accept this smart Electronic Voting System.

VI. CONCLUSION

Being a democratic country, India needs a fair and transparent election. Use of a biometric EVM is one of the most secured ways of conducting a fair election. Using biometric identification process, no one will be able to cast someone elses vote or vote multiple times. Election commity of India helps to overcome the drawbacks of the current EVM system recollecting the voting information which will provide evidence of the EVM's integrity and accuracy. Therefore we can say that implementation of smart EVM system can provide transparent, fair, secure and accurate election process which is the main desire of every democratic country like India and thus hold democracy upright in our country.

REFERENCES

[1] Ch. Jaya Lakshmi, S. Kalpana, **"An RFID based smart EVM system forreducing electronic frauds."**, Proceedings of the Second International Conference on Inventive Systems and Control (ICISC 2018).

[2] Md. Mahboob Karim, Nabila Shahnaz Khan, Ashratuz Zavin, Shusmoy Kundu, Asibul Islam, Brazab Nayak Department of Co Military Institute of Science and Technology, Dhaka-1216, Bangladesh, **"A Proposed Framework for Biometric Electronic Voting System",** International Journal of Engineering Research & Technology (IJERT 2017).

[3] Balaji, Speech of Shri V S Sampath, CEC for Defence Estates Day Lecture 2014.

[4] R. Haenni, E. Dubuis, and U. Ultes-Nitsche, **"Research on e-voting technologies."** Bern University of Applied Sciences, Technical Report 5, 2008.

[5] G.V.L. N. Rao. Democracy at Risk! Citizens for Veri_ability, Transparency & Accountability in Elections, New Delhi.

[6] Election Commission of India.

[7] A. K. Agarwala, D. T. Shahani, and P. V. Indiresan. Report of the expert committee for evaluation of the upgraded electronic voting machine (EVM). Sept. 2006.

[8] Wikipedia. Results of the 2009 Indian general election by parliamentary constituency Sanjay Kumar, Manpreet Singh "DESIGN OF A SECURE ELECTRONIC VOTING SYSTEM USING FINGERPRINT TECHNIQUE", IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 4, No 1, July 2013.

