A Frame Work for Anti-Rigging using New Generation of EVM's

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ABSTRACT

In the previous voting system, it is a time taking process for casting votes. In the earlier system the voter has to go to the polling station and waits for a long time to poll their vote and there may a chance to occurring of disturbances like rigging.

In the proposed voting system, voters has the flexibility to poll their vote through their mobile instead of going to the polling station and cast their vote as by spending more time. Now-a-days mobile is the most common device to the all humans. Replacing of EVM's by Tablet PC will avoids the major problems that we see in generally in using normal voting system procedure like rigging and all other security problems.

Keywords – Electronic Voting Machine (EVM), Tablet Pc, Mobiles, Voter, Election, Nomination, Ballots, Democracy, Rigging.

1. INTRODUCTION

The goal of the first part is to present the current state of the art of paper ballot and Electronic voting systems in all their aspects. The state of the art is summarized in a table listing the systems used in various countries, the number of eligible voters, the electoral system, their pros and cons, and the system costs. The first part of the study also evaluates all aspects of the Indian electoral system includes traditional voting system based on paper ballots.

The goal of the second part of the Study is to propose technical and specific requirements for a new voting system for India. The system specified in the second part of the Study needs to be compatible with the India and Regional electoral systems.

The Consortium studied two different Voting systems. Advantages and drawbacks of each system are presented. An abstract view on voting systems is given in the Figure 1. A voter either marks his vote manually on a paper ballot or by means of a voting machine. The ballots may be counted by hand and by machine. They can be processed immediately after the ballot is cast, or at the end of the voting period on Election Day.

Figure: a) Voting System that uses paper ballots, b) Voting System that uses EVM's.

We divided this system into several sections. In the **section I,** we are discussed about the evolutionary part, in the **section II,** discussed about the presenting election procedure in India, in **section III,** discussed about the problems faced with the presenting voting system. **Section IV** gives some better solution which provides more **security** and it is easier way to cast votes.

SECTION- I: EVOLUTION

The first election test of Indian democracy 1952

The Congress Party of India, led by Pandit Jawaharlal Nehru, has won an outright victory in the country's first general election. The party has won 249 of the 489 seats contested in the Lower House, and even with 133 results yet to be declared it is clear that the Congress Party will control the next Parliament. The victory has earned Pandit Jawaharlal Nehru a further five-year term in office. He has led the interim government since 1947, when power passed from British to Indian hands, but this makes him India's first prime minister to be elected by universal suffrage.

Democracy voting test:

- The elections are widely seen as a test for India's ability to succeed as a democracy following independence from Britain two years ago.
- There were fears that extremist groups would use the opportunity to whip up inter-ethnic tensions, but to everyone's relief voting has so far gone peacefully.
- The polling operation is on a massive scale.
- There are 176 million people eligible to vote, although only 15% can read or write.
- Symbols are being used on ballot papers for each of the parties and independent candidates, so that those who cannot read know where to cast their vote.
- Voters are not even required to mark their ballot papers - they simply have to put them into a box marked with the symbol of their interested candidate to be as a leader.

SECTION-II: ELECTION

PROCEDURE

An election contains a procedure in order to select a candidate; the candidates are from different/various parties those are nominated. In this the voter will poll or elect a representative on his/her own choice of interest. In this it includes the following election procedures:

(a) Delimitation of constituencies:

Initially, the entire country (India) is divided into several particular States of Legislative Assembly. Further those are divided into small constituencies based on the seats reserved.

(b) Preparation of voter's list:

After the demarcation of constituency, the voters' list of each constituency is prepared and published.

(c) Filing of nomination papers:

The dates of election, filing of nomination papers and withdrawals are fixed by the Election Commission. Any person can file his nomination papers by the due date. That person name must be there in the voters' list and he should be eligible to give their nomination in the election. The nominated person name should be proposed and elected by the voters of that Constituency. Every candidate has to deposit some security along with his nomination papers.

(d) Scrutiny of nomination papers and withdrawals:

A date is fixed for the scrutiny of all the nomination papers. If the nomination papers of any candidate are found to be not in order, they are rejected. The candidates can also withdraw their names from elections up to a certain date fixed by the Election Commission.

(e) Election campaign:

The next stage in the election is the election campaign by various candidates and political parties. Posters are distributed, meetings are held and speeches are delivered. Processions are also taken out and sometimes use of Radio and Television is also made. Through all these means voters are requested for votes.

(f) Voting:

On the date fixed earlier, voting takes place. For voting, election booths are set up. Voters go to the polling booths and cast their votes for the candidates of their choice. Voting is held by secret ballot. These days Electronic Voting Machines (EVM) is used to record votes. EVM has the names of the candidates and their election symbols. The voters have to press the button against the name and symbol of the candidate they wish to vote for.

(g) Counting of votes and declaration of result:

After the voting is over, the ballot-boxes are sealed and taken to the counting centers. There the ballot boxes are opened before the candidates or their agents and votes are counted under the supervision of the returning officer. A candidate who gets the highest number of votes is declared elected.

SECTION III: EXISTING SYSTEM:

There are 2 types existed in voting system. Those are

i. Paper ballots based voting system
ii. Voted by using EVM's.

i. **Paper ballots based voting system:** In this system the voter has to go to the polling station and wait for a longer time in the queue to cast their vote. In this system it is also difficult to cast their vote within the corresponding location for voters who were staying in another location. There may a chance of occurring rigging (confusing of votes or one person may poll the vote of another or destroying of ballot boxes).

ii. EVM based voting system: In this voting system, again the problem is to waiting for a long time to poll their vote. It is somewhat better than the earlier paper ballots based voting system. In this, reduced the duplication of votes but is not much effective as again need to go to the polling station and waiting for a long time.

SECTION-IV: PROPOSED SYSTEM:

This is a very new approach to the Indian Voting system. As earlier we had seen many problems regarding existing voting system; having the duplication of vote and possible of giving wrong counting values in the election result. Having huge confusion whether the result is true or not after declaration of the final result. Some of the persons in the India are doing the process of voting twice or thrice by having a single identity. It is a big crime according to the government but there is no such flaw detection method to reduce those problems.

It is also a major and serious problem in the present voting system that is non-availability of a way to let voters cast their votes who are residing outside their election-areas.

For those reasons we are supposed to suggest an implementing a "New approach" in the Indian federal system to overcome those un-solvable problems.

We have tried to solve this issue with the design and development of **new voting protocol** which is not only very easy to use but is also robust, secure and trusted. Here we focused on designing an application to enable Indian citizens to cast their votes in their respective country's election via their **smart phones** from anywhere in the globe irrespective of their physical location.

The second part is that those people who are aware of the **smart phones** can poll their vote via **Tablet PC's** those follow the same mechanism as in the **Smart Phones**. This type of replacing **EVM's** helps in removal all security problems those are suffered from the existing voting procedure.

In our system, we are developing an application that initially takes the voter id and based on that voter id retrieves the information from the database after that, captures thumb impression and by keeping thumb on the screen, the thumb impression is the major primary key which will says that the voter is authorized or not. Because of matching is done with the existing thumb impression. If valid only it captures the voters face then the system verifies the captured data and previous data which is available in the database are matched or not for validating that person is authorized or not. If the thumb print and face which are captured are valid that person has allowed casting their vote otherwise doesn't allow. The structure of the new voting system is described in the below figure:
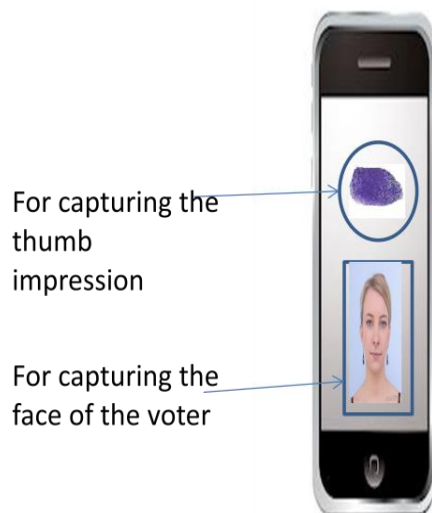
Figure (a): Shows frame work in Smart Phones.

Figure (b): Shows the frame work implementation in Tablet PC.

The proposed system has three modules. Those are

a.   Thumb acquisition module
b.   Face acquisition module and
c.   Database

a.   **Thumb** a.   **Thumb** A**cquisition module:** In this module, before capturing the thumb the system takes the voter id of the person , if it is an valid voter id then the system focused on the thumb impression of the that particular person. By focusing on the thumb impression, the system captures the thumb and performs matching. If it is valid thumb

Field	Constraints	Data type
Voter id (UID)	Primary Key	Varchar2
Thumb print	Not null	Large data objects
face of the voter	Not null	large data objects

ion then the system goes to the further step.

b.   **Face acquisition module:** After completion of the first step, the system captures the face of the person by keeping thumb on the screen.

c.   **Database:** In the database, we will contain the information regarding the person like voter id, name, parent's name, and age, date of birth, residential address, thumb impression and image of the person. Used the centralized database.

Figure 1.1: Shows the secured centralized database

ALGORITHM FOR THE IMPLEMENTATION OF THE FRAMEWORK

1. Initially we will take the voter id as the primary key. After entering the id number it searches in the database and if found retrieves it.

Figure 2.1: Shows the voter id entering

2. After entering the valid voter id number. It scans the thumb impression and using that impression it matches in database and shows that the voter is the valid person or not. If not a valid person then it will not enters for the further process of polling.

Figure 2.2: Shows the Capturing of Thumb Impression

3. Simultaneously takes the image of the voter when having the thumb impression entered. That image taking will helps in storing the database that this person had this poll of vote entered if already done with it once.

Figure 2.3: Shows the Capturing of Image after recognizing the thumb impression.

4.The voter will now has the right to give the valid vote on their choice. After the completion of the process it shows that the voter is successfully done with the voting process.
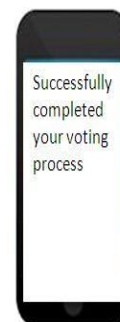
Figure 2.4: Shows the successful completion of process

5. Immediate result will be shown by using of statistical report. If voter votes for a party then the result will be having of that selected candidate will be raising of one vote.
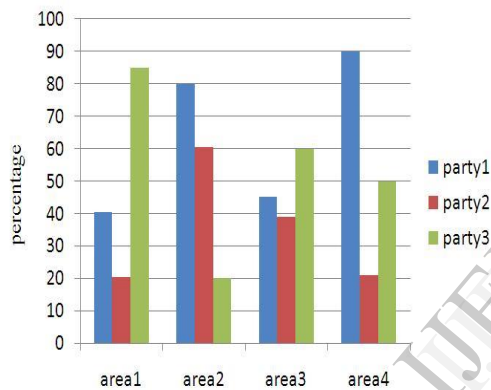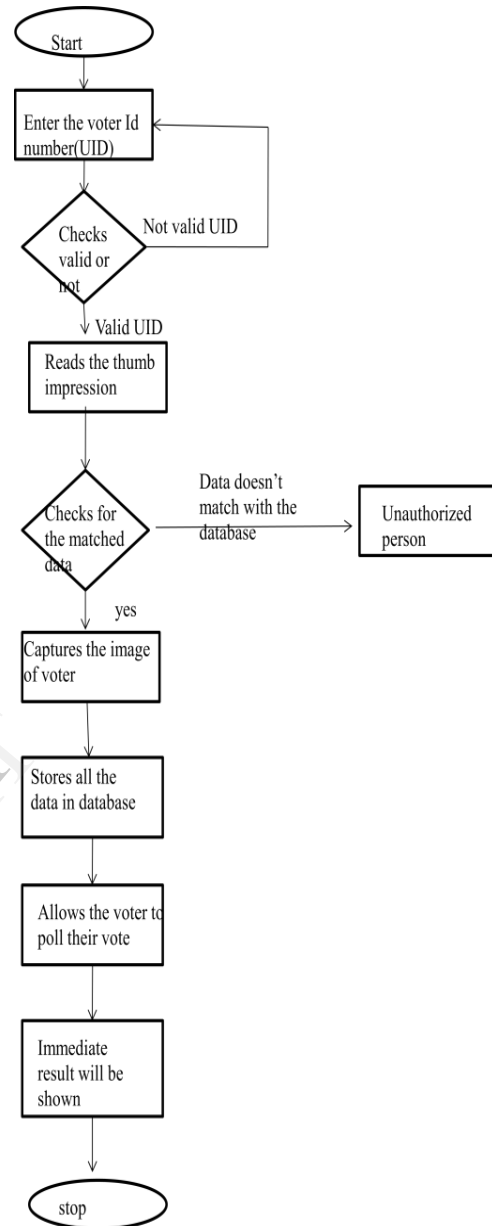

Fig 2.5: shows the result immediately

FLOWCHART IMPLEMENTATION:

CONCLUSION AND FUTURE WORK

In this paper, we introduced a new voting system that uses the mobile for casting votes of the voters. It is more useful for the persons who were resided in outside of the location. It saves valuable time as no need to go to polling station and waits for an hours of time in a long queue. It is more effective when the mobile contains the camera with more pixels. If the camera has lesser pixels, it takes repeated number of times for detecting the images clearly. In the future, if

the government accepts this project we will implement and dedicate it to it.

REFERENCES

[1] 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.

[2] Fujioka, T. Okamoto, and K. Ohta.(1992) A paractical secret voting scheme for large scale elections. In J.Seberry and Y. Zheng, editors, Advancesin Cryptology Auscrypt'92, volume 718 of Lecture Notes in Computer science, pages pp.244-251, Gold Coast, Queensland, Australia, 13-16. Springer-verlag.

[3] Chaum. D (1983) Blind signatures for untraceable payments. In D. Chaum.R. Rivest, and A. Sherman, editors, Advances in Crytology—Crypto'82, pages 199-203, New York, 1983. Plenum Press, Emerging Technologies in E-Government 330.

[4] Jefferson, d.,Rubin, A D, Simons, B. and Wagner. D (2004) A Security Analysis of the Secure Electronic Registration and Voting Experiment (SER VE). ETS 300 506. Security aspects (GSM 02.09 version 4.5.1), Digital cellular telecommunications system (phase 2). 2000.

[5] Lin, Y. and Chlamtac, I. (2000) Wireless and Mobile Network Architectures. Wiley Publications.

[6] A. W. Appel. Certification of December 1,2008. http://citp.princeton.edu/voting/advantage/seals/appel-dec08-certif.pdf.

[7] A. W. Appel, M. Ginsburg, H. Hursti, B. W. Kernighan, C.D. Richards, G. Tan, and P. Venetis. The New Jersey voting-machine lawsuit and the AVC Advantage DRE voting machine. In *Proc.EVT/WOTE* 2009, Aug. 2009.

[8] D. Chaum. Secret-ballot receipts: True voter-verifiable elections. *IEEE Security and privacy, 2(1):38-47,2004.*

[9] D. Chaum, A. Esser, R. Carback, J. Clark, S. Popoveniuc, A. Sherman, and P. Vora. Scantegrity: End-to-end voter-verifiable optical – scan voting. *IEEE Security and Privacy,* 6:40-46,2008.

[10] G. V. L. N. rao. *Democracy at Risk!* (Book on Indian EVMs published by Citizens for Verifiability, Tranparency & Accountability in Elections), New Delhi, 2010.

[11] Science Applications International Corporation. Risk assessment report Diebold Accu Vote- TS voting system and processes, Sept. 2003.

[12] G.Shah, A. Molina, and M. Blaze. Keyboards and convert channels. In *Proc. 15th USENIX Security Symposium,* 2006.

[13] UNICEF. India statistics. http://www.unicef.org/infobycountry/india_statistics.html.

[14] RABA Innovative Solution Cell. Trusted agent report: Diebold AccuVote- TS voting system, Jan.2004.

[15] Wikipedia. Results of the 2009 Indian general election by parliament constituency-Wikipedia, the free encyclopedia. http://en.wikipedia.org/w/index.php?title=Results_of_the_2009_Indian_general_election_by_parliamentary_constituency&oldid=347683199,2010. [Online; accessed 17-April-2010].