A SECURE AUTOMATIC VALIDATION USING MULTIPLE ENCRYPTION FOR WEB BASED ONLINE VOTING SYSTEM

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Abstract: Election mechanisms are no exception. Current election mechanism is more expensive both in terms of money and time. Electronic Voting Machines (EVMs) are replacing paper based and mechanical balloting system. e-vote or Online voting system has evolved into the election service other election services want to be when they grow up. We take democracy seriously. Using Simply Voting has many advantages and our online voting system sports a vast array of features to meet your requirements. Cryptographic schemes and digital signature that ensures integrity of the vote cast by voter and authentication of voter at the two levels. Such internet voting system will satisfy requirements such as accuracy, simplicity, democracy, verifiability, privacy, security. Online Voting enables voters to securely and easily cast their vote from any location and on any device with a stable Internet connection. Internet voting enfranchises all voters, including remotely located voters, while ensuring privacy and results integrity and reducing the costs involved with conducting an election. This system Provides Security from all types of attacks when vote is traveling from voting client to voting server.
Keywords: Online voting, encryption, Internet Security, Privacy.

I. INTRODUCTION

Online voting or E-Voting (also known as e-voting) is voting using electronic means to either aid or take care of the chores of casting and counting votes. Depending on the particular implementation, e-voting may encompass a range of Internet services, from basic data transmission to full-function online voting through common connectable household devices. Similarly, the degree of automation may vary from simple chores to a complete solution that includes voter registration & authentication, vote input, local tallying, vote data encryption and transmission to servers, vote consolidation and tabulation, and election administration. Our approach suggests a practical application of the existing cryptographic schemes and digital signature that ensures integrity of the vote cast by voter and authentication of voter at the two levels. In general, such internet voting system should satisfy such requirements as Accuracy, simplicity, security, privacy, verifiability. A worthy e-voting system must perform most of these tasks while complying with a set of standards established by regulatory bodies, and must also be capable to deal successfully with strong requirements associated with Accuracy, Integrity, Swiftness, Privacy, Audit ability, Accessibility, Cost-effectiveness, Scalability. Electronic voting technology can include punched cards, optical scan voting systems and specialized voting kiosks (including self-contained direct-recording electronic voting systems, or DRE). It can also involve transmission of ballots and votes via telephones, private computer networks, or the Internet.

In general, two main types of e-Voting can be identified:
- e-voting which is physically supervised by representatives of governmental or independent electoral authorities (e.g. electronic voting machines located at polling stations);
- remote e-voting via the internet (also called i-voting) where the voter votes at home or without going to a polling station

Many insecurities have been found in commercial voting machines, such as using a default administration password.[6][7] Cases have also been reported of machines making unpredictable, inconsistent errors. Key issues with electronic voting are therefore the openness of a system to public examination from outside experts, the creation of an authentic-table paper record of votes cast and a chain of custody for records. Electronic voting technology can speed the counting of ballots, reduce the cost of paying staff to count votes manually and can provide improved accessibility for disabled voters. However, there has been contention, especially in the United States, that electronic voting, especially DRE voting, could facilitate electoral fraud and may not be fully auditable. In addition, electronic voting has been criticised as unnecessary and expensive to introduce. Several countries have cancelled e-voting systems or decided against a large-scale rollout, notably the Netherlands and the United Kingdom. Electronic voting systems for electorates have been in use since the 196 s when punched card systems debuted. Their first widespread use was in the USA where 7 counties switched to this method for the 1964 presidential election. The newer optical scan voting systems allow a computer to count a voter's mark on a ballot. DRE voting machines which collect and tabulate votes in a single machine, are used by all voters in all elections in Brazil and India, and also on a large scale in Venezuela and the United States. They have been used on a large scale in the Netherlands but have been decommissioned after public concerns.

II. RELATED STUDY

Electronic Voting Machines (EVMs) are replacing paper based and mechanical balloting system. Electronic voting technology can speed the counting of ballots and can provide improved accessibility for disabled voters. But some concerns with these machines are trustworthiness of both

their hardware and their software. Generally public and political parties have raised their doubts that whether presently used EVMs are developed without any scope for tampering. Voting systems use to ensure that votes were cast correctly to detect possible fraud or Malfunction provides a means to audit the original machine. Hence it is required to increase confidence in the EVM-based election process[3]. Trustworthiness is a complex concept which is difficult to quantify and hard to achieve but is a necessary condition for the legitimacy of the electoral process. Election and voting are well known things in modern days of Democracy. Electronic online voting over the Internet would be much more profitable. Many voters would appreciate the possibility of voting from anywhere. A company having their offices in different locations, can use internet voting for their election[7], in their employees from all offices will take part in election from their own offices. Electronic voting, as the name implies, is the voting process held over electronic media, i.e. computers. For such an internet voting system, security and privacy are main concerns. From that point of view, an implementation of secure Internet voting system appears to be another application of cryptography and network security[6]. Electronic voting has been intensively studied for over the last twenty years. Many e-voting system, therefore, have been proposed in the last several decades and both the security as well as the effectiveness has been improved. Design of secure e-voting system over a network is indeed a very difficult task as all the requirements of the voting system have to be met. Failure to ensure even one of the specifications can lead to chinks and glitches that can be exploited by a middleman to forge or manipulate the intricate details. Subsequently, the result of the election is computed from the sum of the votes which is jointly decrypted by the authorities. A voting scheme must ensure that the voter can keep his vote private. "Internet Voting is one form of Electronic voting and offers many advantages over traditional systems as it has the ability to easily handle multiple languages[1] and by meeting the needs of voters with disabilities and also eliminates problems such as over voting and other voter intent issues. In this proposed Secured Internet Voting people from various remote locations can access the voting system from their computer and the results are encrypted and stored in database. It is easier to prove that a network can be penetrated, than to prove that it is completely secure[4]. Security system is expensive and introduces unpleasant user limitations. Recent years, a considerable number of countries has adopted E-voting for their official elections. These countries include; America, Belgium, Japan and Brazil. Advanced Online Voting System deals with the online voting system that facilities user to vote in different languages, voting schemes in rural areas through Tele-voting. Tele-voting extends to the voting by SMS (text message) via a mobile cell phone. In "online voting system" a voter can use his\her voting right online without any difficulty. He\She has to be registered first for him/her to vote. Registration is mainly done by the system administrator for security reasons[9]. The system Administrator registers the voters on a special site of the system visited by him only

by simply filling a registration form to register voter. Citizens seeking registration are expected to contact the system administrator to submit their details. After the validity of them being citizens of India has been confirmed by the system administrator by comparing their details submitted with those in existing databases such as those as the Registrar of Persons, the citizen is then registered as a voter.

An Efficient Online Voting System deals with design, build and test a online voting system[10] that facilitates user (the person who is eligible for voting), candidate (Candidate are the users who are going to stand in elections for their respective party), Election Commission Officer (Election Commission Officer who will verify whether registered user and candidates are authentic or not) to participate in online voting. This online voting system is highly secured, and it's design is very simple, ease of use and also reliable. It can count votes automatically, but if the voter's perforation is incomplete, the result is probably determined wrongfully.

This system guarantees privacy of voters, public verifiability, and robustness against a coalition of malicious authorities. The proposed software is developed and tested to work on Ethernet and allows online voting. It also creates and manages voting and an election detail as all the users must login by user name and password

III. PROPOSED TECHNIQUES

This approach suggests a practical application of the existing cryptographic schemes and digital signature that ensures integrity of the vote cast by voter and authentication of voter at the two levels. In general, such internet voting system should satisfy such requirements as follows:

- Accuracy
- Simplicity
- Democracy
- Verifiability
- Privacy
- Security

Design of secure e-voting system over a network is indeed a very difficult task as all the requirements of the voting system have to be met. The proposed solutions were correspondingly outlined to hold back these attacks. For example, to avoid hacker making incursion into the voting system via network, we can design our system to transmit data without network. Another example is to limit voter to input particular data, so that we can prevent the command injection from running

Provides Security from all types of attacks when vote is traveling from voting client to voting server

- Security threats from passive as well as security threats from active intruder are addressed here.
- We can also use this system for taking the opinion of a voter on certain issue.
- Portable: It is very much portable system as the system works on internet only the internet supporting device is required.
- Fast: It is very fast as compare to traditional paper

ballet voting system. The voter doesn't need to wait in long queue for voting. He /She can cast their vote just on a single click. Flexibility: As this system is functional on the internet that makes this system more flexible to support variety of paper ballot question formats.

- Mobility: This system gives the freedom of casting the vote from anywhere in country. This is beneficial for the voters who are regularly out of station.
- Reusability: The extent to which the existing application can be reused in new application. The system can be reused a number of times without any technical difficulties.
- Online voting system facilities users to vote in different languages. Users can commit their votes by selecting their understandable language to commit vote.
- This will make voting easy for people from different regions. User can commit votes from rural areas by Tele-voting. Tele-voting, telephone voting or phone voting is a method of decision making and opinion polling conducted by telephone.
- Tele-voting can also extend to voting by SMS text message via a mobile cell phone.
- Absentee voting refers to registered voters who cannot make it to the polls on Election Day, may vote by absentee ballot. This voting can be committed through E-mails.

All the main security issues have been covered in this project by providing encryption and digital signature.
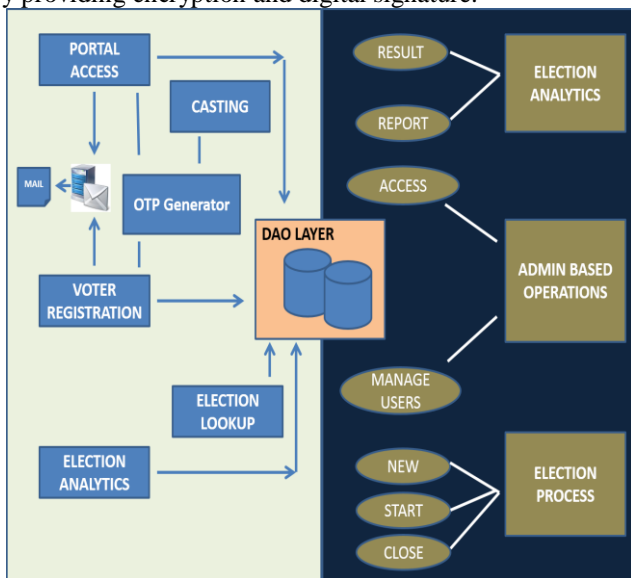

Figure 1 : Architecture diagram

IV. SYSTEM IMPLEMENTATION

Implementation is the realization of an application, or execution of a plan, idea, model, design, specification, standard, algorithm, or policy. In other words, an implementation is a realization of a technical specification or algorithm as a program, software component, or other

computer system through programming and deployment. Many implementations may exist for a given specification or standard. Implementation is one of the most important phases of the Software Development Life Cycle (SDLC). It encompasses all the processes involved in getting new software or hardware operating properly in its environment, including installation, configuration, running, testing, and making necessary changes. Specifically, it involves coding the system using a particular programming language and transferring the design into an actual working system. This phase of the system is conducted with the idea that whatever is designed should be implemented; keeping in mind that it fulfills user requirements, objective and scope of the system. The implementation phase produces the solution to the user problem.

Encryption: In cryptography, encryption is the process of encoding messages or information in such a way that only authorized parties can read it. Encryption does not of itself prevent interception, but denies the message content to the interceptor. In an encryption scheme, the message or information, referred to as plaintext, is encrypted using an encryption algorithm, generating cipher text that can only be read if decrypted.[2] For technical reasons, an encryption scheme usually uses a pseudo-random encryption key generated by an algorithm. It is in principle possible to decrypt the message without possessing the key, but, for a well-designed encryption scheme, large computational resources and skill are required. An authorized recipient can easily decrypt the message with the key provided by the originator to recipients, but not to unauthorized interceptors.

V. RESULTS

In this chapter we will present some of the screenshots of this project. The only front end interface that will be provided to the end users will be that of SBA's, whereas the Service end point (SEP) and the framework will be executing in the backend
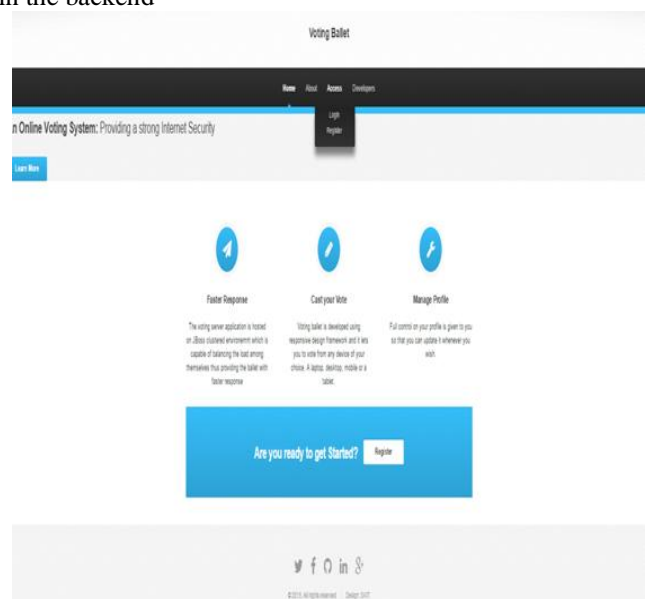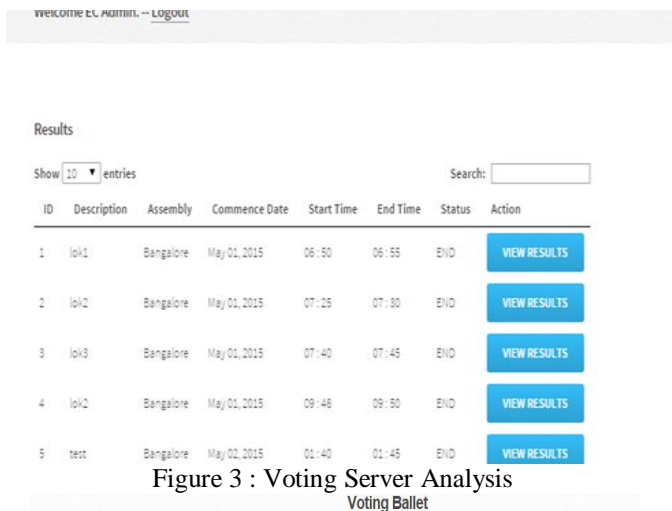

Figure 2 : Voting Ballet
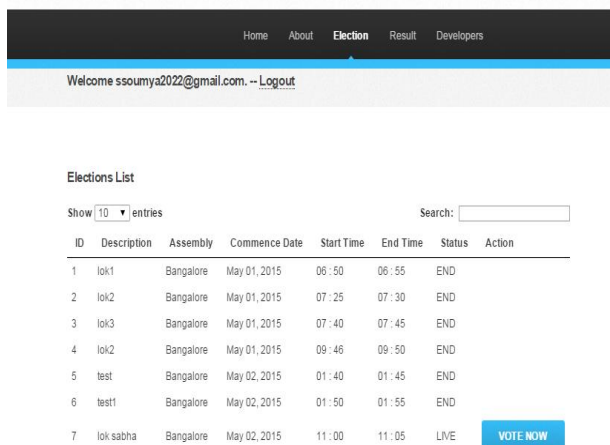
Figure 3 : Voting Server Analysis

Figure 4: Voting ballet-Election List after Scheduled Time

VI. CONCLUSION

We have done experimentation on our system and from that we conclude that the system offers significant cost benefits over paper elections in a vote to vote comparison. It saves an organization the cost of creating, printing and postage, since everything can be handled electronically. Online elections reduce the use of paper and the amount of work for both the organization, as well as voters. By doing this project we were able to bring a new system for online national voting for our country. With the advent of technology and Internet in our day to day life, we were able to offer advanced voting system to voters both in the country and outside through our Online voting system. Efficient and Cost Effective, the system offers significant cost benefits over paper elections in a vote to vote comparison. It saves an organization the cost of creating, printing and postage, since everything can be handled electronically. Online elections reduce the use of paper and the amount of work for both the organization, as well as voters. Also it is eco friendly and avoids wastage of paper. Online voting system facilities users to vote in different languages. Users can commit their votes by selecting their understandable language to commit vote. This will make voting easy for people from different regions. User can commit votes from rural areas by Tele-voting. Tele-voting, telephone voting or phone voting is a method of decision making and opinion polling conducted by telephone. These functions are automatic and do not need to be assigned to personnel in-house. Save Time and Resources, online voting system drastically reduces the time required to set up and conduct elections.

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