Novel Pursuit: To apply, learn and improve the current voting system and to make a hassle free voting system

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Abstract: The exponential growth in the newer technologies like electronic gadgets and internet connectivity has led to many advancements in the existing systems and has provided a scope of many more such possible advancements. This research paper provides a detailed idea of the possible implementation of an efficient e-Voting system using web-based. This idea easily depicts how the voting process can be made much more easy and efficient. This e-voting system promises the safest possible way to cast a vote and the best possible algorithm for calculation of the results. This paper provides the idea of the proposed system in terms of the specifications and requirements of the system. Online Voting basically means the process of voting done through an electronic device like personal computers, laptops or smart phones etc. In the starting, an introduction and brief idea is provided about the proposed system through a general diagram. This section is followed by the concepts, surveys, design and implementation details that would be made use of in the work.

I. INTRODUCTION

This paper presents an idea of the newly proposed system, its design parameters, its implementation techniques and parameters in detail. The proposed electronic voting application for the web-based platform aims to provide the voters a clearly comfortable experience in the process of voting. The system makes sure that the new and efficient voting process does not make itself seem a long-drawn process just like the traditional way of voting process to the voters. This system makes sure the voters of the nation no longer have to shell out un-necessary money and invest more time in the voting process. The application shall be designed in such a way that makes sure of considering and working on all the system quality attributes like security, reliability, consistency, integrity and accuracy. It will make sure that the system is reliable, usable and also that it has a very promising user friendly interface. The application and the website, both shall be made sure of including some additional features like a customized help section for the new users to rely on, a secure login system, avoidance of multiple login instances from a single unique user irrespective of the instance login platform. This system specifically targets those voters who are unable to make it to the voting poll stations due to some specific set of reasons. This system in turn makes it very much possible to increase the total participation of the voters voting process. This paper explains the architecture and its components in detail in the following sections.

II. PROBLEMS WITH THE CURRENT VOTING SYSTEM

The current election voting process can be more elaborated as a drawback to the efficient voting process. The existing process has more loopholes and more disadvantages than advantages. Though the current voting process promises transparency and reliability, the following observations can be made to support the explanation on why there is a very need to have changes in the current voting system.

- Low voter participation
- Tendency to enjoy voting day as holiday rather than attending the voting process just because of the lengthy queues and time consuming process.
- Long distance travel between the polling booth and voter.
- Voter's unavailability due to certain reasons like being out of station.
- Vote counting procedure very slow due to manual process.
- Human errors possible.
- Low convenience for voters.
- Manipulations possible.
- Conventional voting results declaration takes time.

The problems listed above reduce the active participation of the voters. So, all the problems listed above must be taken into consideration and an efficient voting system must be developed. Hence, an efficient e-Voting system using Web-based platform is proposed.

III. LITERATURE SURVEY

An electronic voting system was implemented for the first time in Brazil [1] in 1996. In 1985, an automated electoral register was used by Brazil. The electronic ballot was developed in 1995. The system was made use of for the first time in the municipal elections of 1996. The first voting experience through micro-computers was realized in the city of Brusque, Brazil. Initially the electronic ballet box was called as the EVC - Electronic Vote Collector. Electoral system in India uses the electronic voting machines. India has two systems deployed for the process of voting, the first being the DRE - Direct Recording Electronic machine [4] and the second being the Identical Ballot Box [9]. A DRE system records the votes by means of the electronic display provided with the electro-optical components. These components are activated by the voter during the voting process. The Identical Ballot Boxes work in such a manner that they hold the ciphered vote. The ciphered vote is encrypted with the PMA voting key and the ciphered ID card number is encrypted with their personal 4 digit key. As discussed in [5], Although India makes use of electronic voting machines, but still there is no adoption of online voting done. The online voting system is not implemented in India on a national level till now. A foundation is being laid for implementation of such system. Unique Identity cards are being provided to the citizens of India as a base work for the unique authentication of the citizens in India. This unique authentication id card number is being planned to be made use of in the national level online voting system implementation. The issue of these cards began in India in 2010, and still is going on. There is a plan to issue over 600 million unique identity cards to the citizens of India by the end of year 2015. Internet Voting is growing in India at a very slow pace. The internet voting was first observed in India in the state of Gujarat. This trial was first carried out in September, 2010. The system was made use of later in the municipal elections that was held in April, 2011. The system used by Gujarat was developed by Scytl, a well-established internet voting system provider which is based in Spain. The facts of the April, 2011 elections say that 77.16 percent of registered voters made use of the system efficiently and had cast their votes online, either from their home computers or from the kiosks. The other implementations being carried out globally include the locations of Canada, Europe, United States and Australia. Municipal elections of Halifax and three Nova Scotia towns made use of the online voting system. The European countries are the most experienced ones in the online voting system. They have the most advanced online voting systems developed for the purpose of elections. The United Kingdom, the Netherlands, Spain, Germany, France, Switzerland [11] and Estonia, all these countries have trialled the online voting system. United States is being very cautious when it comes to online voting system. They have implemented the online voting system and trialled four times including the presidential elections in 2000 in Alaska and Arizona. The 2007 federal elections in Australia were through online voting system. The overseas defence personnel were issued a unique personal identification number to login to the online voting portal application via a secure internet. The other systems implemented earlier included usage of [10] thumb impression, the security provided was using steganography and cryptography. Face recognition system was also used for authentication system.

The Caltech/MIT Voting Technology Project was used to develop a new voting technology to prevent a recurrence of the problems. [2] These problems had threatened the 2000 US Presidential Elections. Jambhulakar, chakole and pradhi [3] proposed a novel security for online voting system by using multiple encryption schemes. Provide security for cast vote when it is submitted from voting poll to voting server. Multiple encryptions to avoid DOS attack. They use cryptography concepts to take pros of digital signature. Encrypting the send forth vote to client server then send to voting server with the help of net. After sending encrypted vote then server side decrypt the vote before counting. On server side decryption of that vote is done before counting. So for this purpose we need a pair of asymmetric keys. To provide security from active intruder who can alter or tamper the casted vote when vote is transferring from voter to voting server, we are using digital signature. When a voter cast his/her vote after that he/she will digitally sign on that by using his/her own private digital signature, and send this to voting server, on voting server side that signature is checked by digital signature verifier of that voter which is publicly known. For this purpose each voter should have a private digital signature and a public digital signature verified. The feasibility of this is not justifiable to the people of a large democratic country. Pashine, ninave and kelapure [4] proposed an android platform for online voting system. They suggested security to the voter and his comfort. They suggested that the voter need not to go to the polling booth. In this application which is partitioned into three panels on the basis of its users as follows: Admin Panel: This panel will be specifically used by members of election commission to administer all the electoral processes including registrations of candidates & voters; and monitor all other actions carried out by them. Candidate Panel: This panel will be specifically used by electoral candidates to interact with the election commission & voters which will help them to work efficiently. Voter Panel: This panel will be specifically used by each individual voter who is eligible for casting his vote i.e. a person ageing 18 years or the above. These are the main users, for whom the application is being developed.

IV. OBJECTIVES

The main and the foremost objective of this project is to enhance and optimize the various technologies related to Existing voting paradigm can be made more secure and

reliable and easily accessible for all the people. The bootstrap will be used in our project to make the design responsive. The main focus of the project will be on the research part for various domains which are security, accessibility, implementation of enhancement techniques etc.

The various objectives of this project are:-

1. Study about current research for optimization of existing voting paradigm.
2. Enhancement of security of the existing voting system by implementing current research oriented techniques.
3. Enhancing the voting system accessibility for different users.
4. To develop a secure user interaction system to be used for voting system.

V. FEATURES OF THE PROPOSED SYSTEM

This Online Voting System will manage the Voter's information by which voter can login and use his voting rights. There is a DATABASE in which complete data of voter with complete information is stored. At the time of registration voter will be asked for this: Full name, age, AADHAR card no, mobile no. email id, finger prints and verified the details by administrator. At the time of requesting vote, voter will be asked to enter his AADHAR id. Then voter will be authenticated, and he can give vote from one of the candidate from the list. If voter already has AADHAR Id then he/she don't need to register, else before voting he/she need register himself/herself in AADHAR database.

In this project we will develop a comprehensive scientific solution for electronic voting web application with the capability to cast vote from any location using internet. The scope of the project is a web application that is applicable to run on any system including desktop, Palm top, laptops or any other smart phone devices via Wi-Fi or internet, the electronic voting system consist of two main components: a client-side application which will run on desktop or laptop and a server-side application which will support and interact with various client side-side features. The system is designed to facilitate the user to enables them cast vote at any time through web application. The scope of our end product is a web based application for secure voting that is applicable to general elections. [12] The project scope can take further enhancement in adding new platform e.g. android application, MAC application.

The proposed e-Voting system is expected to exhibit certain features and quality attributes [3], [6] listed below:

1. The accuracy shall be maintained in the proposed system and the level of the accuracy shall be high. All operations done correctly shall be again verified to ensure accuracy of the system working process. This will lead to maintain the accuracy quality factor.
2. The system shall be highly reliable due to the reasons stated above. The reasons above make sure that the system becomes reliable and very much efficient. The proper storage of necessary data and information is the main reason behind the increase in the reliability of the system. The system shall be made sure of resisting any sort of system failures so that there is no loss of data collected from the voters. As referenced in the Figure 3, a voting web application exhibits architecture similar to the same shown in the figure.
3. This feature is the heart of the system. This is the feature that enables a voter to vote securely from anywhere without moving to a voting machine. The voter can cast a vote by either using the website through a personal computer or a laptop else the voter can also use the android application that runs on the android powered smart phone. A voter can have exactly one login instance irrespective platform i.e. android app or from website.
4. In the proposed system, no person would ever come to know whom a voter voted to. Each voter will have his own authentication user id and a password. The complete data from android device to web server shall be encrypted resulting in the greater security of the complete system.

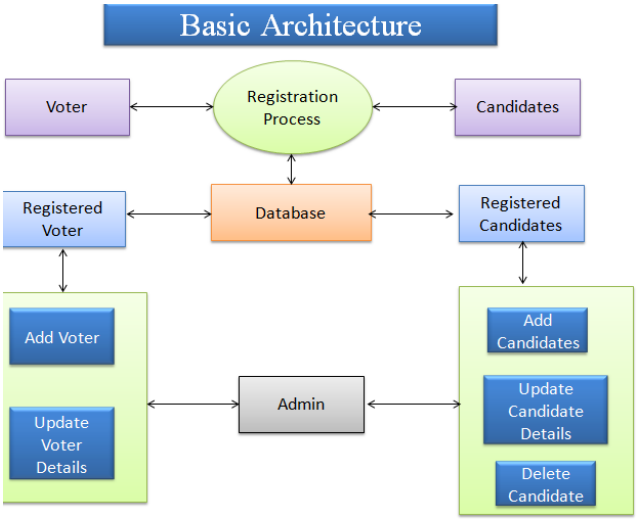

Figure 1: Web voting application architecture

VI. CONCLUSION

This paper has successfully made an introduction to a new and efficient design of electronic voting application for the process of voting using the web-based platform along with its android application. This system is more reliable for the voting process as the system will provide the desired comfort for voting process along with the security factor to the voters. The system easily bypasses the current lengthy process of voting which makes the voter spend un-necessary money and extra time for the process. It can efficiently handle the post-voting procedures like accuracy in counting the votes, generating proper and accurate results of the elections, displaying the results within a couple of hours post the election process and to make sure there is no

compromise in the system. One Time Password feature makes sure that there is no misuse of the system during the process of voting and hence the system is highly reliable.

VII. REFERENCES

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