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Distance Online Election System - A Step towards Secured Digital Voting

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ABSTRACT: The reluctance of certain voters to visit a polling booth to cast votes besides involving huge social and human resources which in a traditional voting environment voting process sometimes becomes quite inconvenient. The implementation of internet voting is facilitated with the development of computer networks and elaboration of cryptographic techniques. A secure internet voting system that is suitable for voting over the internet is the proposed plan of the system. Offices in different cities will have suitable system due to biometric approach. Registration phase, authentication phase voting phase and counting phase involving parties, the voter, voting server and voting authority

KEYWORDS: Web server, biometric, internet voting.

I. INTRODUCTION

As we know, in every country Election is a basic process of democracy which allows people to show their opinions by selecting their candidate. Every country is spending huge money to improve our whole voting system to provide a better government to citizens. Voting system should be honest, translucent and fully secure for the better democracy. The current system is used to less transparency because there could be chances of cheating at the voting time. Authentication of Voters, Security of the voting process, protecting voted data these are the main challenges of current Election voting. That's why it is necessary to generate a secure election voting system. In this paper, we have proposed an election voting system which is based on the fingerprint of voter which is saved as Aadhar card number in a central government database. In the Aadhar's centralized database, the government collects biometric and demographic data of citizens and provides a 12-digit unique identity number to individual. Fingerprint biometric provide secure authentication because fingerprint is unique to each individual.

People are well aware of available online services and, from the last few years the use of internet has increased. Youngsters have developed interest in using internet for various purposes. The cost for conduction of election would be reduced and it will cover people of all age group. It will be a facility for the people who have different problems such as mentioned earlier. Implementing the online election system with the biometrics will provide the extra security to the voters. The voter can only vote once by using his/her fingerprint which will be matched with the aadhar card information that was given by the candidate.

The main purpose of this study is to increase the percentage of votes. For this purpose we have to view all the aspects responsible for low turnout. Some people are unable to vote due to weather conditions in different areas during the election, youngsters of age group 18 – 24 having no charm to cast the vote. People who are outside of their town/city unable to come to their area for casting the votes, Same situation is also for those who are on duty during the election, they don't have any interest to cast their vote during job or they don't have facility to submit their vote.

The second purpose is to make it more difficult to commit fraud and cheating during an election. In a manual system, sometimes people are registered in more than one area and can thus cast the vote multiple times. In some areas, officials of the Election Commission themselves cast votes and after the end of election they adjust these votes from the

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voter's list. Hence, they manipulate the result of the election. There is clearly a need of a system that could reduce the authority of officials and could sustain the true nature of voting. It would also give people options to cast an empty vote if they don't like to give the vote to any of the candidates.

Internet voting is about making the act of voting as convenient as possible and it holds great promise to improve accessibility, particularly to those who are absent from the jurisdiction, live in a remote area, or who have mobility issues. However, this voting channel introduces risks to some of the fundamental principles of democratic systems.

Due to this the voting card will not be necessary but the aadhar card number with proper information will be required. This will increase the overall voting percentage of the country will be increased and the youth will play the major role in this as their vote using biometric online election system will affect the overall result.

II. LITERATURE SURVEY

Currently the elections are done in the traditional manner either by ballot system or by using EVM machine.

Ballot System

In ballot system, a ballot is a device used to cast votes in an election, and may be a piece of paper or a small ball used in secret voting.

Each voter uses one ballot which is not shared with anyone. In the simplest elections, a ballot may be a simple scrap of paper on which each voter writes in the name of a candidate, but governmental elections use preprinted ballots to protect the secrecy of the votes. The voter has to go for casting the vote at the polling station.

Advantages of ballot systems:

1. The paper ballot is a traditional method used for vote counting. As it does not have electronic circuits, it is impossible to manipulate elections which use the paper ballot.
2. Paper ballot can be easily used even by the people with low literacy level.
3. Few of the Electronic voting machines works on the battery which might get stuck in between due to low power charge. Thus, paper ballots are the best for smooth conduction of election. Also, post usage of electronic voting machines, the batteries are dumped in open which might be hazardous to the environment.
4. Using paper ballot is time-consuming but gives a lot of employment opportunities.

Disadvantages of ballot systems:

1. Post-election, it takes a huge amount of time to count the votes before declaring the results.
2. The people who are physically challenged find it difficult to cast their votes through the paper ballot.
3. Casting votes using paper ballot is a time-consuming task.
4. Historical Data of election is not maintained..

Electronic Voting Machine (EVM)

Electronic voting (also known as e-voting or EVM) refers to voting using electronic means to either aid or take care of the chores of casting and counting votes.

Depending on the implementation E-voting can be conducted using e-voting electronic system or computer system. It encompasses 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 or precinct tallying, vote data encryption and transmission to servers, vote consolidation and tabulation, and election administration.

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Advantages of EVM are:

1. In most of the electronic voting machines, there are no external communication paths which make it difficult for the hackers to hack the machine and tamper the count numbers.
2. Electronic voting machines with touch base screen are proved to be more user friendly.
3. Electronic voting machines are cost effective and economical.
4. The best thing about electronic voting machines is that they are real time savers.

Disadvantages of EVM are:

1. The electronic voting machines are vulnerable to malicious programming.
2. Many physically challenged people have complained that the touch base screen is not efficient enough to capture the vote accurately.
3. Vulnerable to hackers attack.
4. The electronic voting machines also do not generate a slip confirm the candidate one voted post pressing the button.

III. CONCEPT OF DISTANCE ONLINE VOTING SYSTEM

Electronic elections gain more and more public interest. Offers to citizens for participate in elections using electronic channels is given in some countries. E voting is generally any type of voting that involves electronic means. The letter E is associated with anything that involves web based or computers these days. E-voting is similar to classic “paper-form” voting. In classical “paper-form” voting voters entering the polling station have to be identified. If identification is passed, they are able to vote. The identification is done by using biometric i.e. fingerprint. If the given fingerprint matches with the fingerprint that is stored in the database then the voting can be done.

This system satisfies the following requirements:

1. Peoples can vote without going to their home constituency on the Election Day means they can vote from their current city.
2. Illegal Voting will totally remove because of Fingerprint (a biometric trait which is unique to each individual).
3. Aadhar’s database permits only eligible voters to vote and, it also ensures that eligible voters vote only once.
4. It maintains privacy means authority; ballot officer or anyone else can not link any ballot to the voter.
5. The major benefit of this system is to increase the voting percentage.
6. It also saves time as well as money of traveling.
7. Quick results are possible.

Limitations of our system

1. People must be enrolled with Aadhar card.
2. Aadhar based voting website should be accessible at the voting booth.
3. Fingerprint Scanner must be present in the voting booth.
4. Electricity and the internet are required for the website.

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The 3 Tier Architecture of our system:

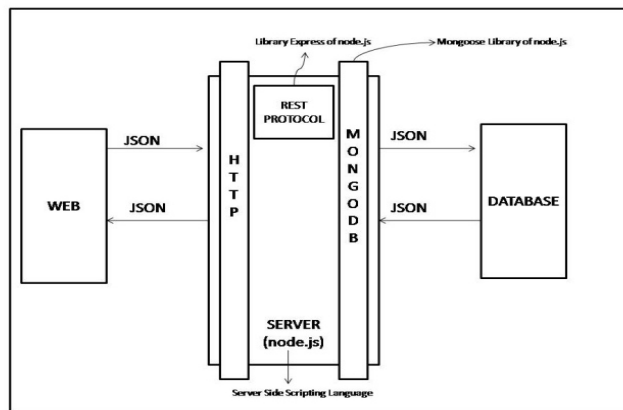


Figure 1: 3 Tier Architecture of the system

Html, CSS, javascript will be used for the front end where as JSON will be used for server side communication i.e. for forwarding a request from client/server and for receiving the response from server/database.

Rest protocol is nothing but Representational State Transfer (REST) is a style of architecture based on a set of principles that describe how networked resources are defined and addressed.

It is important to note that REST is a style of software architecture as opposed to a set of standards. Such applications are sometimes referred to as *RESTful* or *REST-style* applications or architectures. REST has proved to be a popular choice for implementing Web Services. For example, the books suggested at the bottom of many of these article pages are dynamically generated, in part, using a REST architecture.

An application considered REST-style is characterized by:

- State and functionality are divided into distributed resources.
- Every resource is uniquely addressable using a uniform and minimal set of commands (typically using HTTP commands of GET, POST, PUT, or DELETE over the Internet)
- The protocol is client/server, stateless, layered, and supports caching.

The following figure illustrates using REST for Web Services.

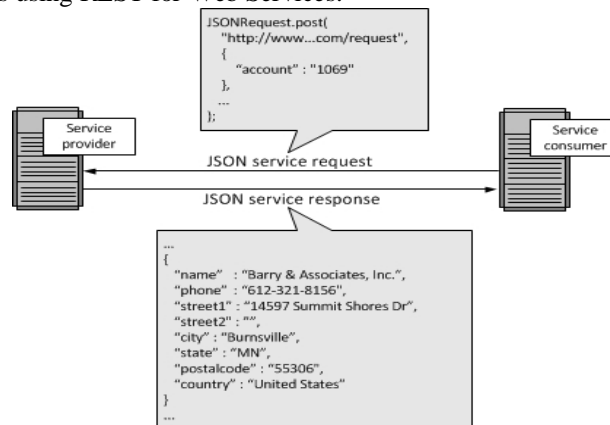


Figure 2: REST Protocol with JSON

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Here server provider refers to the server and the server consumer refers to the client machine. The client request for the data to the server and then the server responses to the request of the client.

The whole communication in the system is done by using JSON file. In JSON the object are used as shown in the figure above where a object with account “1069” `s details is to be accessed and the request is made by client for accessing the data of that object. After receiving the request from the client the server interacts with database and then responses back to the client by displaying the attributes/keys along with its values of the JSON object to the client This whole process is done using REST protocol.

The Dataflow diagram of this system is:

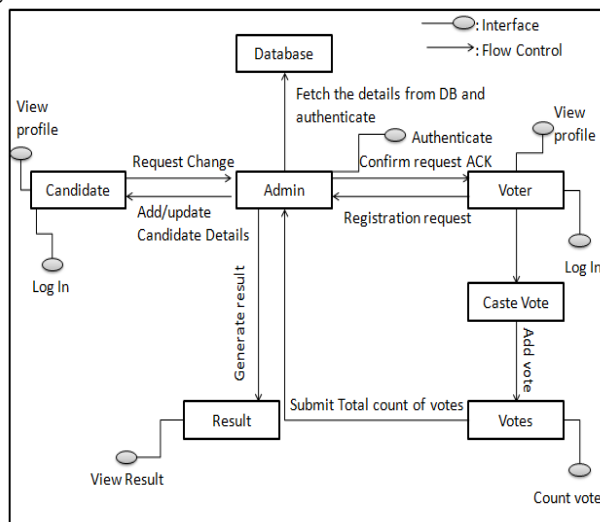


Figure 3: Data Flow Diagram of the system

In fig 3, the data flow of the system is illustrated .There are mainly 3 different panels of the system:

1. Candidate Panel
2. Voter Panel
3. Admin Panel

1.Candidate Panel: The candidate will be added by the admin after the identification of candidate from the database and will be given a id and password for logging in into the system and then if changes or any update required the he/she will have to request the admin for the changes.

2. Voter Panel: The voter will be added by the admin once the verification of the voter will be done and will be provided a unique id and password. After this the voter can see the profile and if changes are required then he/she can request for the updation.

3. Admin: The admin will have the full access of the system and can add/remove election. The admin will generate the overall report of the election.

IV. APPLICATIONS

- Ability to vote from anywhere.
- More Secured type of voting.

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Vol. 6, Issue 10, October 2017

- Effective Result generation.
- Can be implemented anywhere.

V. CONCLUSION

This system provides best solutions to problems related to the Indian voting system. This system helps to increase voting percentage. In our voting process authentication can be done using fingerprint recognition to cast voter's votes, it ensures that vote casting cannot be altered by an unauthorized person. It requires Computer/ Touch screen computer, Fingerprint scanner, and electricity. Aadhar's confidential biometric data may be hacked by the hacker. For the successful implementation of this system, it is very difficult because it involves political issues, financial issues, and regional issues.

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