VIRTUAL VOTING SYSTEM

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ABSTRACTS

India's voting system plays an important role in Indian Democracy. The existing system is offline and has certain weaknesses. In recent years, the spread of covid-19, inefficient rural voters, people far from their place of birth, paper waste affecting nature, budgets that should be used for development, invisible fraud, waste of human labor, have been recorded and can be avoided by the virtual voting system. The research aims to supply an easy and secure electoral system in India. The method used descriptive qualitative. The results indicate that a virtual voting system is environmentally friendly and is considered a resource-saving way for the election. It is because minimizes errors and increases voter participation through convenient virtual voting. In conclusion, a virtual voting system can develop an Aadhar based advanced Electronic Voting Machine (EVM), which helps in a free and fair way of conducting elections.

1. INTRODUCTION

Election is an activity for selecting regional leaders for countries that adhere to a democratic system. The electoral system is generally carried out by filling out the ballots of one of the candidates by the community. If one of the candidates gets the highest number of ballots, that candidate will be inducted to become the next leader, both at the state and regional levels within a country (Loke *et al*, 2020). Meanwhile, according to (Roopak & Sumathi, 2020) currently election activities have been developed using technology assistance. This is because the concept of an efficient election using virtual has begun to be applied, to assist

the community in giving voting rights without being effective and in accordance with the location of the community. This is in line with (kathan *et al,* 2020) who said that the virtual election system is a tool used to provide certainty about the voting system by using biometric nuances and citizen VID (Virtual ID) obtained from the Aadhar Database to complete the Voting and moreover using serious signature as key for voice encryption. The Aadhaar card voting system is a voting system with citizen fingerprints. The QR code Aadhaar will provide detailed information about the biodata of citizens who have voted (Srinivasu & Rao, 2018; Thamizharasan & Geetha, 2017).

Election plays important role in the democracy of India by giving chance to people to appoint their representatives from their respective constituencies. The virtual voting system using biometric can bring revolution by digitizing the process and by intensifying the trust and confidentiality of people who are keen to save their time, energy, and privacy and are friends with the virtual world of the internet. The need for a Virtual Voting System is to enable people to participate in the election from their homes in the pandemic era. In addition, the ineffective and inefficient traditional system can be minimized by the virtual voting system. Other benefits of virtual voting system are (1) provide uniqueness and increases security through biometric, (2) easy to monitor and will require less manpower, (3) promote environmentally friendly election through the paperless system, (4) each vote in virtual voting system with a fingerprint is verifiable.

The previous study has explained about virtual voting system (Freitas & Marie Macadar, 2017) stated that e-voting

system in Brazil has many beneficial compares to the traditional system. Unfortunately, there are some concerns about auditability, security, and costs of e-voting systems. (Adamescu, 2021) stated that online voting in Estonia could increase turnout and facilitate the category of voters who are less fortunate (older, foreign, and disabled) to express their political preferences. This support by (Goodman & Stokes, 2020) describes that Online voting, in particular, has been found to increase voter turnout especially for marginalized populations, and provide counting efficiency in Canada. E-voting in Indonesia can reduce errors and speed up the counting process are some of the benefits of electronic voting according to (Sensuse, 2020). In addition, the E-Voting system needs to provide proper arrangements in terms of discretionary procedures and This system adds the number of voters in Pakistan (Baidani, 2018). In addition, the previous research was conducted in other countries. Therefore, the research about virtual voting systems needs to be performed based on specified areas such as India. It is because every country has a different election system. In conclusion, a virtual voting system can develop an Aadhar based advanced Electronic Voting Machine (EVM) which helps in a free and fair way of conducting elections. Additionally, the citizen can be sure that they can choose their leaders and realize their rights in a democracy

2. LITERATURE REVIEW

We made the prototype by using the tools below:

1) JAVA

The program is developed on one machine and it is possible off on another

machine and get more secure JAVA exploits.

2) MySQL DBMS

It permits combination, extraction, manipulation, and organization of knowledge within the voter's info. Its platform is freelance and thus may be enforced and used across many like Windows, Linux servers and is compatible with varied hardware mainframes. It is quick in performance, stable, and provides business price at a coffee price.

3) XAMPP Server

XAMPP helps an area host or server to check its website and purchasers via computers and laptops before emotional it to the most server. It is a platform that furnishes an appropriate setting to check and verify the operating of comes supported Apache, Perl, MySQL info, and PHP through the system of the host itself.

4) NetBeans IDE 8.0

The NetBeans IDE is an associate triumph integrated development setting offered for Windows, Mac, Linux, and Solaris. The NetBeans project consists of associate ASCII text file IDE associated an application platform that modifies developers to speedily produce internet, enterprise, desktop, and mobile applications exploitation the Java platform, moreover as PHP, JavaScript and Ajax, Groovy and Grails, and C/C++.

The technology used in the devices are shown in Table 1.

3. RESULTS AND DISCUSSION

The new legal system can be enforced, victimization logins that require scanning of the candidate's fingerprint and name. This internet application supports all browsers. Eligible voters can have their name, fingerprint, and alternative details in government information in each state or district as a visible match. Thus, the fingerprint scanner can ensure that only legitimate voters will fake their votes.

This app also ensures that the option is anonymous, when they log in each user is assigned a single and random id, which cannot have any ties to any user details, so there is no point in specifying that the user voted for that candidate. The focus is more on knowledge visual illustrations, and no free links are used, the interface is made as easy as possible with only basic functionality.

The Steps to use the device are:

1) Scan your fingerprint and the application can match it with the info at the server.

If the match is booming, the user is mechanically switched to succeeding Voting window.

2) The ballot screen has all the logos and names of candidates standing for the post, the user simply must press the vote link next to his/her favorite candidate.

If any user does not want to select any candidate for any reason, then he/she may directly log out exploitation the logout possibility.

3) Auto-logout feature takes care of the remainder once a vote has been placed and the main login screen is restored.

In this, we have made a system, which is fully web protocolled. The voter has been registered before voting so he/she can vote on voting day. They can vote wherever they are living and they do not need to come to hometown for voting.

They have been given a password. Hence, when voting they have to register their Aadhar number and then it will scan their fingerprint, which will be encrypted in the form of a hash code. When the captcha and fingerprint are verified then the process will continue.

If the process fails then the user cannot vote and if the data matches, then the process will continue.

The project is designed to implement a virtual voting system using biometrics which eliminates the drawbacks of traditional voting systems in India. The benefits of virtual voting system:

• Online voting is an environmentally friendly and resource-saving way to participate- Paper voting is expensive and polluting. One of the advantages of online voting is its low resource requirements: compared with mail voting, online voting reduces CO_2 emissions by 98%. By switching to the Internet, make environmentally friendly choices and save paper, printing, and transportation costs. You can also save staff and time by choosing online voting, and skip the tedious manual counting process.

• Minimize errors - By casting off the usage of bodily put up and guide vote counting you may keep away from result-distorting errors inclusive of lack of balloting files and miscounted votes. Automatic vote counting with POLYAS online voting lets you get the right of entry to outcomes rapidly after the election. Results also can be established through the usage of an outside tool.

Increase voter participation through convenient online voting:

• Voting should be hassle-free and easily accessible. Reduce electoral barriers and provide safe online voting for eligible voters to increase voter turnout.

The device can be used to:

1. Create a secure online voting platform where authenticity of votes, voters and candidates is ensured using validated Code on the backend.

2. Improve Voter identification as biometric features cannot be shared

3. Relieve the problem of queuing at several points during the voting period in the election.

There are some characteristics of virtual voting as follows:

1. Eligibility: Only eligible voters are allowed to cast their ballots.

2. Privacy: There is no affiliation between voter identification and tagged ballots

3. Uniqueness: voters can only vote once.

4. Completeness: No one can enter valid ballots and voter ballots cannot be changed, valid ballots are counted correctly.

5. Justice: No one can change the voting results.

6. Verifiability: Voters can verify their vote.

7. Enforceability: No voter can show what he or she voted for to others to prevent bribery.

8. Efficiency: Calculations can be performed in real time.

9. Mobility: The voter can vote anytime and anywhere through the internet

Table 1. The technology used in the device of virtual voting system

No	Technology Used	Application
1	Operating System	Windows 7 or above or Linux
2	Programming Language	Java/J2EE
3	User Interface	HTML, CSS
4	Client-Side Scripting	JavaScript
5	Server Deployment	Glassfish Server 4.6
6	Database	MySQL
7	Software	JDK 1.7
8	Web Applications	JDBC, JSP, Servlets

4. CONCLUSION

The "Virtual Voting System" project was completed to develop an advanced Aadhar based Electronic Voting Engine (EVM) that assists in the free and fair conduct of elections. The advent of this project will enable the hosting of a fair election in India. It will preclude illegal practices like rigging. The citizen can be sure that they can choose their leaders, thus exercising their rights in the democracy. This project not only covers all drawbacks of the traditional voting system but also provides additional security. Since fingerprint is unique, it reduces the chance of invalid and multiple votes. The manufacturing of this project is simple and low-cost.

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