

Aadhar Based Election Voting System

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Abstract : "Vote" means to choose from a list. Citizens choose a leader in all candidates from a list by casting their votes, this process is voting. In this paper, we propose a system in which, people who have citizenship of India and whose age is above 18 years they can vote without going to their home constituency on the Election Day. Our purpose of Aadhar based Election voting system in public elections that would allow people to vote electronically, from their current city. In this system, voting is based on Aadhar's biometric database that is a fingerprint. This voting system would offer higher security and it will increase voting percentage.

Keywords: Aadhar, Biometric, Electronic Voting Machine, Fingerprint and voting system.

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. India is spending huge money to improve our whole voting system to provide a better government to citizens. In India, 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.

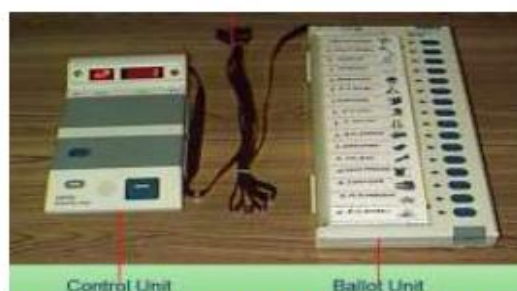
II. Literature Review

2.1 Old traditional voting system

In the old system of voting, votes are cast by ballot paper. After entering the polling station, the officer checks identity proof (election ID card) of voters and allocated a ballot paper to a voter. The voter votes by marking the ballot paper with candidates name and symbol by rubber stamp, inside a voting compartment in the polling station. Then voter folds the ballot paper and inserts it in a ballot box.

2.2 Existing Voting System

From 1998, Ballot boxes were replaced by Electronic Voting Machine in India. A Control Unit and a Balloting Unit, these two units is a part of Electronic Voting Machine which is connected by a five-meter cable. The Control Unit is located with the Polling Officer and therefore the Balloting Unit is located inside the voting compartment. Instead of supplying a ballot paper, the Polling Officer can press the Ballot Button. Rather than issuing a ballot paper, the Polling Officer will press the ballot Button. This will allow the voter to cast his vote by means of pressing the blue button on the voting Unit against the candidate and symbol of his choice [1]. The following figure shows the component of Electronic Voting Machine. [2]



e Fig 2.2.1: Components of Electronic Voting Machine

Saurabh Yadav and et al.[3]have proposed an E-voting system using Aadhar's face and fingerprint biometric, in that they used biometric with EVM. Gaike and et.al.[4]have developed an Electronic voting system that has Fingerprint and Hex keypad. In that system, the database should be updated every time before an election. Soumyajit Chakraborty and et.al.[5]have design Biometric Voting System using Adhar Card in India, according to that system casting voting process is much speedy and most of the tasks are done automatically by the system. They are used correlation-based fingerprint matching technique to improve the performance and to get much reliable fingerprint recognition. Anil k. jain and et.al.[6]have a given brief description about biometric in the book "Handbook of biometric". Sanjay Kumar and et. al.[7] developed a framework for the electronic voting system based on fingerprint biometric and their objective of this system is eliminating bogus voting and vote repetition. Following are the problems of Present Voting System

2.2.1 People do not vote because they away from their home constituency on the Election Day: Most of the people between age group 18-25 are studying in their college. If their college is far away, nobody would want to spend thousands of rupees and 2-3 days of travel to cast a single vote. Similarly, many of the people between age group 25-40 are working in places thousands of kilometers from their home like Bangalore, Chennai, Mumbai, and Delhi etc. from where they are not able to come home on Holi, Diwali. How can we expect they come and cast a vote? And that's why the voting percentage is low.

2.2.2 Illegal Voting: The very commonly known problem Illegal voting, which is faced in every election procedure. One candidate casts the votes of all the members or few amounts of members in the list illegally. This results in the loss of votes for the other candidates participating and also increases the number of votes to the candidate who performs this action. This can be done externally at the time of voting.

2.2.3 The existing EVM's elections systems were done using the ballot, ink and tallying the votes later. But our proposed system offers the election accurately.

III. Our proposed system

We design one demo website in ASP.NET with SQL database and with the help of that website we can easily get the vote of people.

Aadhar based Election Voting System

3.1 Steps of System:

Step 1: Go to any polling station in State.

Step 2: Then after your turn go in voting compartment.

Step 3: Then give a fingerprint to a scanner.

Step 4: System checks your fingerprint with Aadhar database's fingerprint and also checks you are eligible or not means you are above 18 or not.

Step 5: Then if you are eligible then it shows message "You can vote" else it shows "You can't vote because you are not eligible"

Step 6: Then we can choose the candidate from the list of candidate.

Step 7: Then your vote is successfully registered.

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.

Figure 3.1 shows the architecture of Aadhar based Election Voting System [8][9].



Fig 3.1: Architecture of Aadhar based Election Voting System

3.2 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.

3.3 About Biometric, Fingerprint and Aadhar

Biometrics is the science of establishing the identity of an individual based on the physical, chemical or behavioral attributes of the person. Physical or behavioral characteristics include fingerprint, face, hand/finger geometry, iris, retina, signature, gait, palm print, voice pattern, ear, hand vein, odor or the DNA information of an individual to establish identity. This information is unique to each person. In the biometric system, biometric data acquire from an individual, extracts a related feature set from that data, compares this feature set with the feature set stored in the database, and then perform an action based on the result of the comparison [6]. People have used fingerprints for personal identification for many decades. The matching means identification accuracy using fingerprints is very high. It has been determined that the fingerprints of each person are unique, also each finger’s fingerprint of the same person is unique and fingerprints of identical twins are also different. Today, most fingerprint scanners cost less than Rs.5000, so it is affordable for security reasons.

India’s central government agency, Unique Identification Authority of India (UIDAI) issues an Aadhar card. In the Aadhar database government collect biometric and demographic data of residents, store them in a centralized database and issue a 12-digit unique identity number to each individual. It is considered the world’s largest national unique identification number [10].

IV. Experimental Work

This proposed framework has been implemented in ASP.NET with SQL. The first page of our work is Home page (as shown in fig 4.1) and the system takes Aadhar number after clicking “Vote” tab, it verifies aadhar number and age (age should be above 18 years, fig 4.2). After verification system shows voter’s information like, Aadhar number, Name, Address and Date of birth, that are already stored in Aadhar’s database and system ask for voter’s fingerprint (as shown in fig 4.3 and fig 4.4). If fingerprint image is matched with template image which is stored in Aadhar’s database then next page shows candidate’s list with their election party symbol for selection of a candidate (as shown in fig 4.5 and fig 4.6). After selecting a candidate, the system asks for vote confirmation. Finally, the system shows result “Vote successfully” (as shown in fig 4.7 and fig 4.8) [11].



Fig 4.1: Voting system page(a)



Fig 4.2: Voting system page(b)



Fig 4.3: Voting system page(c)



Fig 4.4: Voting system page(d)



Fig 4.5: Voting system page(e)



Fig 4.6: Voting system page(f)

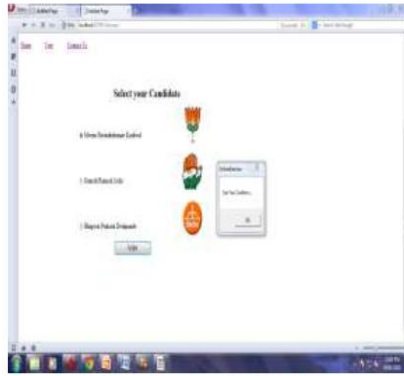


Fig 4.7: Voting system page(g)

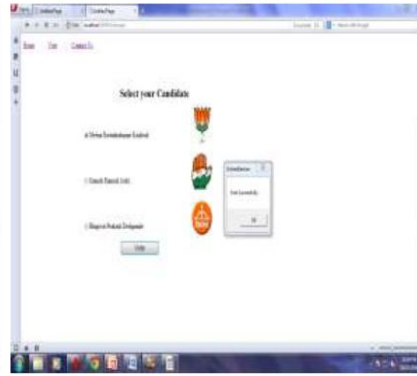


Fig 4.8: Voting system page(h)

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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