Remote Voting System Using Biometrics

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Abstract: *In India, elections are conducted using EVMs and VVPAT machines requiring a high amount of manpower. A public election system constitutes the foundation of a democracy where people elect their leader. Remote Voting System for India, based on biometrics with the help of AADHAAR is proposed for the first time in this paper. The proposed model is a good attempt to eradicate false votes. This will help to manage the elections easily and more securely. In this model, it requires less physical infrastructure and human efforts. Remote Voting System is a way that assists the voter to vote for his/her favorite candidate from any of the polling booths irrespective of the allotted booth. The additional feature is that it reduces paperwork for the electoral roll. The tallying and the counting of the votes are done automatically, thus saving a huge amount of time for the Election Commission to declare the results.*

I. Introduction

Elections are considered an interesting topic in India. Democracy is one of the important matters in this society which authorizes the people to elect their representatives. The conduct of elections in a democratic society is very important because the right to vote is a significant right in the Constitution of India.

In view of the fact that the world is dramatically accepting the trend called Digitalization, and democracy does not only confine itself to politics but also spreads itself beyond politics down to our daily activities.

Biometrics is a technological scientific authentication method. Biometric identification authenticates secure entry, data or access via human biological information including fingerprints. The contrast- between biometrics and other systems is that biometric verification of physical information requires a person to be physically present, which adds security because other ID types can be stolen, lost or forged. The process of automatically matching one or many unknown fingerprints against a database of known and unknown prints is known as automated fingerprint identification; automated fingerprint verification systems verify a claimed identity, whereas identification system determines identity-based solely on fingerprints [3].

The significance is to transform online voting to the next level. This means, giving the voters a new look, new methods, as well as freedom to access it to their very best.

Advantages of Remote Voting System:

Remote Voting System offers various advantages compared to other voting processes. This eradicates various challenges to the existing systems like missing names in the electoral roll due to its manual preparation, as it prepares the electoral roll based on AADHAR using biometrics and ward details which are sufficient. There are physical problems associated with the durability of the EVM and VVPAT machines as addressed in [4] that can be overcome here. This satisfies the need for a system that protects the right to vote for the truck drivers as urged in [5], which counts a significant number that which could impact the election.

I. System Overview

Remote Voting System is a way that assists the voter to vote for his/her favorite candidate from any of the polling booths irrespective of the allotted booth. This system uses web technology to make the voting system more practical. This allows the voters to vote using their fingerprint, which is then verified with the electoral roll prepared by Election Commission of India using AADHAAR's database.

The voter is free to vote without any fear of registration and passwords as mentioned in [1] and [2]. The increment and counting of the votes will be done automatically, thus saving huge time and enabling Election Commission of India to announce the results within a very short period of time.

II. Flow Chart
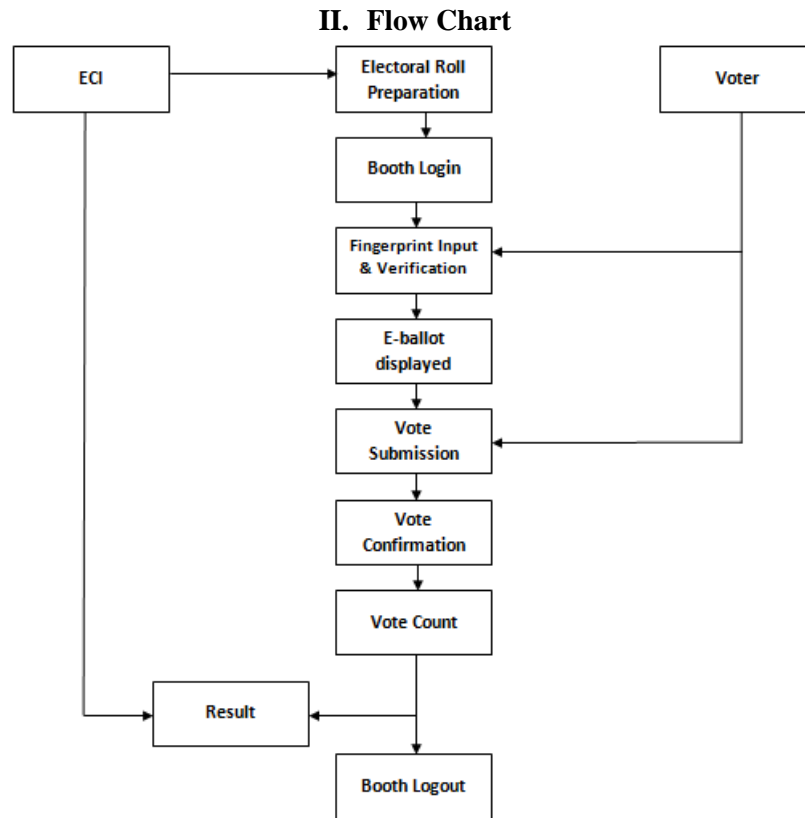
Fig. 1: Remote Voting System

III. Methodology

Initial Login

The booth in charge will first login into the system and the final logout will be done at the time, election gets over.

Voting Process

The voter will visit his/her preferable booth without any documents as the basic need is fingerprint to carry out further process.

Authentication & Authorization

The voter will be authenticated using biometrics data available with the AADHAR and once authenticated, e-ballot (of his/her constituency) will be displayed on the screen.

Voting Process

As the e-ballot is visible on the screen, the voter can choose his/her eligible candidate and vote the candidate.

Counting and Electoral roll update

Once the vote is cast, the vote count for the respective candidate is incremented securely followed by the elimination of the voter name from the electoral roll and the vote confirmation message will be displayed. Once the time for the election is over, the booth in-charge logs out the system and the database containing the vote counts is secured and can be accessed only by the election commissioner.

Result

The vote count is stored in the database; it won't take much time for the election commissioner to announce the result which saves a lot of time.

IV. Conclusion

By this project, we are competent to bring a new system for smooth and sound elections. Since technology is getting advanced day by day we are in an attempt to offer a secure and reliable voting system.

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