

A Review on Digital Voting System

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Abstract

The digital Voting system is an online voting platform for the Indian election which is proposed through this paper. The proposed model consists of two modules a voting website and an Android application. The voting website will be used by the employee of election commission at the time of election and the android application will be used by the voters. This android application and the voting website is made highly secured. On the website, Aadhar number will be used for verification which will provide instant information about the voter so that no fake vote can happen and the android application is made secured in such a way that without sign-up or sign-in the user could not use the application through which we can keep a record of the number of the application user. The additional feature of this model is that if a person is residing outside from his/her hometown can also cast their vote. They just have to do one thing that they have to apply for their vote from the mobile application or they have to visit the voting center for the registration of their vote from the current address. In the proposed model the tallying of the vote will be done automatically which will save time and it will provide a quick way to announce the name of the winning team.

Keywords--- Digital Voting, Android application, Aadhar Verification, Voting Centers.

1.INTRODUCTION

“DIGITAL VOTING SYSTEM (a step to stop the wastage of vote)” is an online voting portal which provides a platform to the citizens of India to cast vote and use their right to vote from any part of India. As it has been observed that many people cannot reach their home town on the day of election and thus their vote is wasted. so, through this platform a online voting system is provisioned in which voters can cast their vote online by going to the voting centers on the day of the election. This will surely consume less time as it does not contain any paperwork. This system will also stop the wastage of lakhs of votes (which is happening every year) because most of the people are not available at their hometown at the time of the election, they think that traveling to hometown will consume money. So, this the system will provide the facility to vote from their nearest voting center, but the voter needs to register themselves from the mobile application or through voting centers as a voter at that location. With the use of this mobile application, each person can know anything about election even they can apply for registration as a voter. Using this mobile application will surely take less time as the person need not be standing in a queue for the registration, they can also use various type of options which will be available in the mobile application.

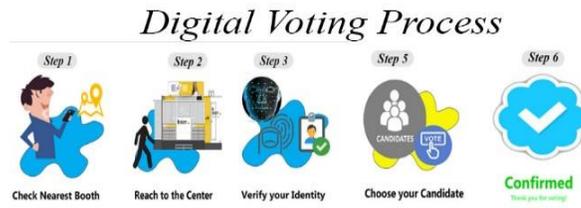


Fig.1 Voting Process

2.Problem Background

This paper address a question is that what is digital voting may mean, the intent is not to propose a particular Digital voting solution but rather to provide input for future elections and this platform can provide better platform to Election Commission of India to ensure maximum people are coming to utilize their by doing their bit for betterment of nation.

The potential benefits and risks of the Digital voting system are discussed in terms of some of the core democratic principles that shape modern electoral systems: accessibility, equal voting power, secrecy, security, audit ability, transparency, and simplicity.

3.Profile of Problem

The digital voting system is all about to make the voting system as convenient as possible. As per the records and calculations and a report generated after analyzing the vote percentage from last 20 years, it has been observed that the polling perencentage is decreasing at a radical rate on the day of elections as some of the voters who are either working in government or private sectors or students who are studying in some other state are not coming to vote because they don't understand their rights as a citizen of a democratic country and assume that their vote will not make any difference. The conventional system is a long process, it involves manual aperwork and ballot boxes are used for it and then even counting is manual.

3.1.Existing System

There are two existing systems of voting exist in the country which is EVM (electronic voting machine) and Ballot paper. During election large amount of EVM is used to vote because it has its database which is very limited and during counting, we must count all the number of an electronic voting machine in which voting has been done. Whereas ballot paper is an old method of voting in which voting is done by putting a piece of paper in which stamp is marked for the voter's wishing party the problem with this is that sometimes voters did not stamp on the proper party symbol which contains the vote become invalid. Sometimes these ballot papers can burn by some anonymity person because this kind of news has also come into the newspaper.

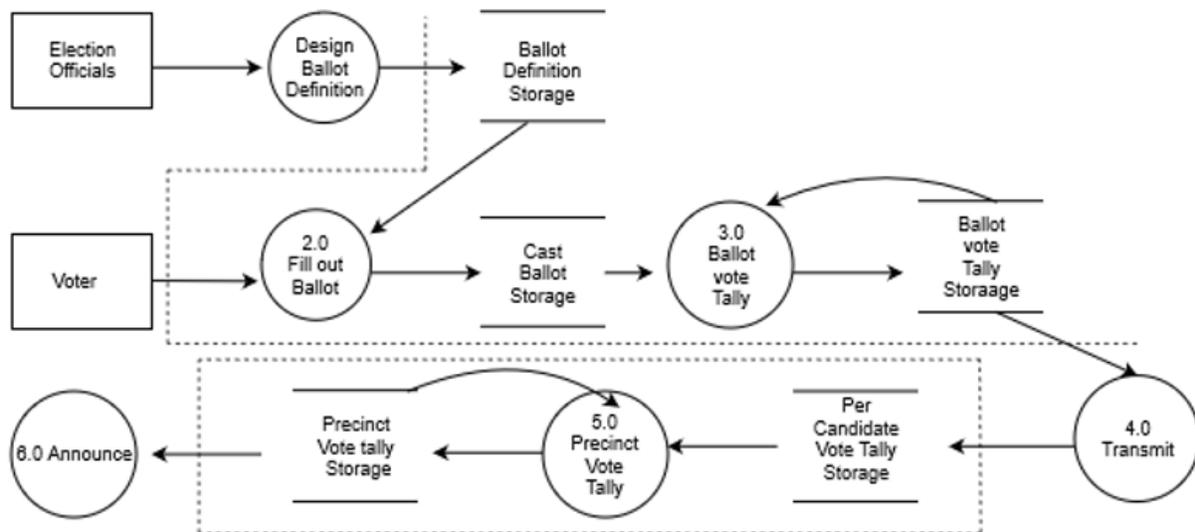


Fig 2: Ballot Paper Voting System (Existing System)

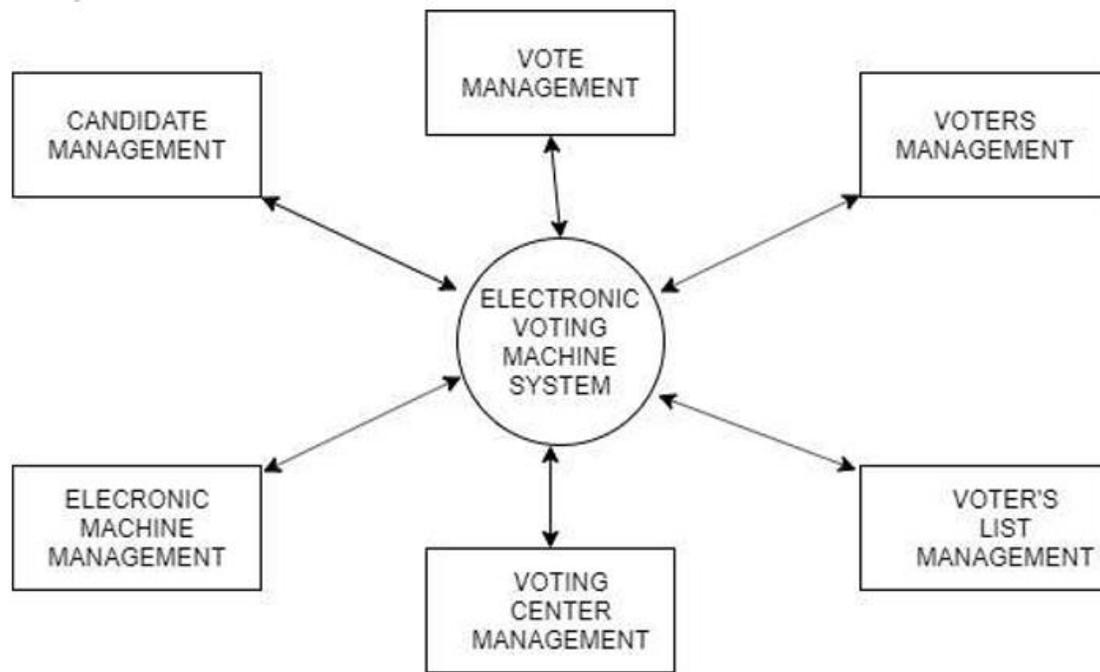


Figure 3: Electronic Voting Machine

4. Research Outcomes

Digital voting system is developed with an interactive interface which includes voting website and an android application. These two separate module is described as below:-

4.1. Mobile Application for Voter's: -

It contains various features which will be very useful to the voter's because it will provide the latest update of voting like where and which kinds of voting are happening who is the leading candidate and previous election results, state-wise voting results, and the voter's name list, candidate list even polling booth, etc. The application will also provide a facility to add as a voter option in which if a person who is above 18 years of age and has the residence of India can apply for the registration as a voter with some basic details like Full name, address, photo, and Aadhar number.

4.2. Website: -

The website will contain two screens where one side verification will be conducting and on the other screen voting will be conducted website will take very little time to verify the voter's identity and hence it will surely save time. While on the other side the screen will contain a layout like voting machine where type of election and candidate name will symbol will be display the voter need to just press the button in front of their wishing candidate and the voting will be done and these all data will be stored in the database in the real-time so no fake voting and no wastage of vote will be happen. This project will provide a quick way to count the votes and an easy way to announce the winner's name.

5. Scope of Study

The Scope of this system is that the website will be used by the employee of the election commission of India And the election commission will also provide user-id and password to their employees at some time before the election so that no fake user can be created on the website. The application will be used by the voter so for log-in into the application the user just needs to enter the email address and password which was used at the time of signing -up into the application, And it will act as the main security to the votes system.

Advanced technology: It is a type of advanced technology used now a day. It will surely increases the internet knowledge of the users which is very necessary for current generation.

Internet: It is an online facility which is very useful for the users. Voters can get any information related to the election and also register from the mobile application from anywhere at any time in India.

E-Mails: A warning email or an advisory email is sent by the Election Commission to a respective user if wrong or false credentials are entered by the user.

Image: The image which will be provided by the user at the time of registration as a voter through the mobile application will be saved into the database and this image will be matched with the Aadhar card photo. If it is matched correctly, the same will be updated to the voting website which will be further used at the time of election to identify the real voter by matching the Aadhar card photo, the voter himself/herself and the website database image of the voter.

6. Product Definition

Digital voting system is consisting of two module website for voting and mobile application for general voting information and for registration purpose. Website will be provided for authorized voting centre which will be conducted by the election commission where every agent who will be there for verification and voting will get an access key on the real time so that they can securely login for the voting function then will be continue their will be one time access key provided for the each agent of the voting centre so that unauthorized login cannot happen.

In mobile application it will provide a simple user interface where user can get news related to election by using API, they can apply for registration as a voter by the mobile application then by the approval of election commission it will be updated to the election database as a voter.

Feature of digital voting

1. Digital voting mobile application and website will work on using Google firebase and PHP the data of website will be save into the php database and mobile application data will be save in Google firebase which will be then verified by the election commission authority.

In mobile application different types of API's have been used to provides various types of facilities to the voter's so that they can feel excited for voting.

2. Real time correct data Matching: In older time of voting the voter must waste much time for casting their vote because it take very long process for their identity verification but due to this voting process identity verification will be very easy step. Once the data is matched correctly the voter can cast their vote by using second screen which will be get refreshed after each vote and refreshing will take very less time.

3. Discussion system: Along with voting application user can post any question related to the vote and the can get reply from the election commission very soon.

4. User dashboard: user can register themselves through the mobile application and can access the application in a very well-organized way.

7. Design and Implementation

The digital voting system is designed by using various types of technology for website HTML, CSS, JavaScript is used for designing purpose and the database of the website is maintained by the PHP. With the use of PHP, we have created the database for the Aadhar search in which Aadhar number is used as primary key so that it can become easy to find the Aadhar number during the time of Aadhar verification once the Aadhar number is matched with the database then the voter will be forwarded to the other screen for the voting this voting module will have other PHP database which will show the basic layout of the party name along with the symbol once the voting will be done it will be saved into the database and the vote count will be updated into the database.

Due to the facility of the automatic vote count, it will be very easy to announce the name of the winning team which makes this system different from the traditional voting system.

The Mobile application is designed by using the Android Studio which is implemented by using java programming language and it has google firebase database which will keep each record of the mobile application. Whenever a user apply to register as a voter the data will be saved into the database and this data will be verified by the election commission if it will be correct then it will be updated to the website for election. The application has various types of function like a type of election, Candidate name, News related to the election and certain awareness message which will be provided to the application user.

This application will be very useful to the voter as a voter need not hesitate anything about the voting process.

7.1.Security Features of Mobile Application:

When a user installs the voting mobile application into their mobile phone it will ask the user to sign-up for the new user and the old user can log in it by using user id and password. At the time of sign-up it will ask some details like Name email address, mobile number, password and to set profile picture and it will send one time password to the entered mobile number for verification process which will be mandatory for the user, without sign-in or sign-up, a user cannot use the mobile application so that it can provide who is using the application and their details.

7.2. Security Features of Website: -

The website will have a separate database from the mobile application so that it could not create any confusion. whenever a user applies for registration as a voter from the mobile application then after verification of their details from the election commission, the name of the voter will be updated to the voting database of the website and at the time of voting the voter's Aadhar number will be enter if this Aadhar number is matched to the database and the voter's picture on Aadhar card will same as in the database on Aadhar search is correct then the voter will be allowed to cast his/her vote.

The employees who will be there at the polling booth At the time of the election will get user id and password generated by the election commission which will be provided before some time of the election to their registered mobile number. A new employee will be added when the candidate will submit their information to the election commission and after some of their background verification.

8. Methodology

Every voter should have their Aadhar card, it used for authorization and authentication of the users. The details of the Adhar Card would be checked with the profile details stored in data base. The 12 digit Aadhar number has the voter details along with their image, the number itself contains all the information and it becomes very convenient for comparison in order to identify a genuine voter, This Aadhar number would be chosen from dataset of Aadhar number in the system which matches the Aadhar number. Aadhar number is a simple number used for personal identification of a person to prevent bogus and false voting. So, the Aadhar number for each voter is different which will reduce the chances of predicting the Aadhar number by an attacker during the whole process.

9. WorkFlow of Digital voting system

Digital voting system will have the following Workflow(fig.2) which will describe the working process of the voting system: -

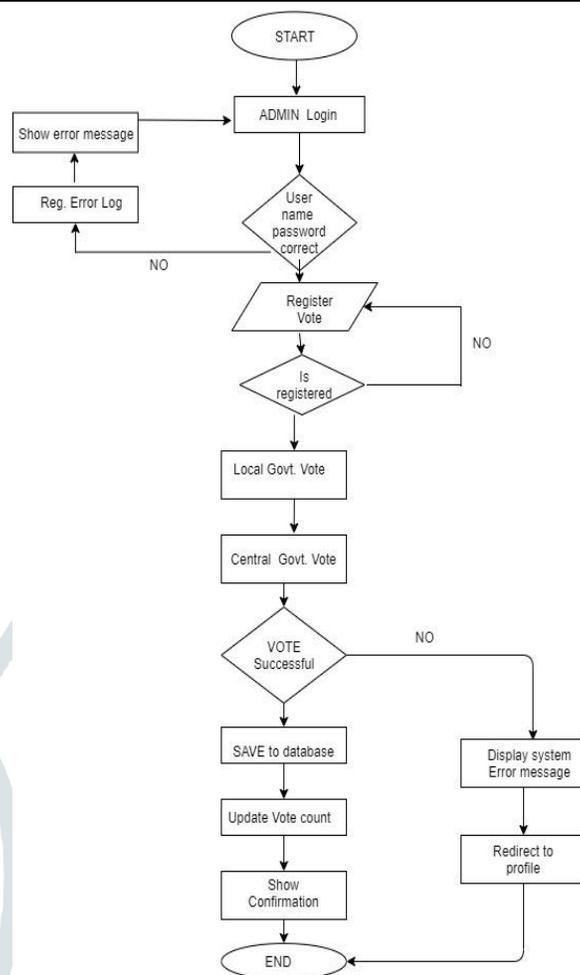


Fig.4. WorkFlow of Digital Voting System

10. Experimental Result

Digital Voting System website needs the verification of the user through the username and password which will be provided by the Election commission, Figure 3 shows the login page of the admin.

Once the admin login is successful then the voting procedure can be done by first using the Aadhar verification through search (figure.4)once the Aadhar number is matched with the database the result is shown as in figure.5

The party name with a symbol is shown in figure 6.

The home screen of the mobile application is shown in figure 5:-

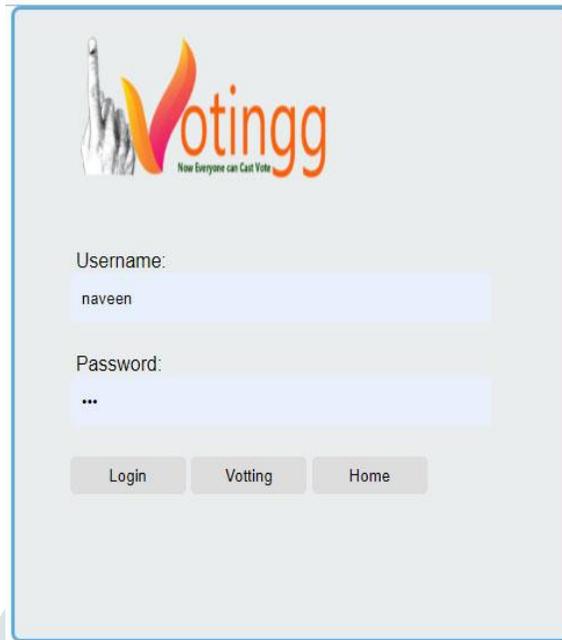


Figure.5 Admin login



Fig.6 Aadhar search

Result Against Aadhar Number "123456"

Sr. No.	Photo	Voter Name	Aadhar Number	Voter Email	Contact Number	Address	
1		XYZ	123456	xyz@mail.com	91121212	Street A INDIA 232323	VOTE

Fig.7.voter details

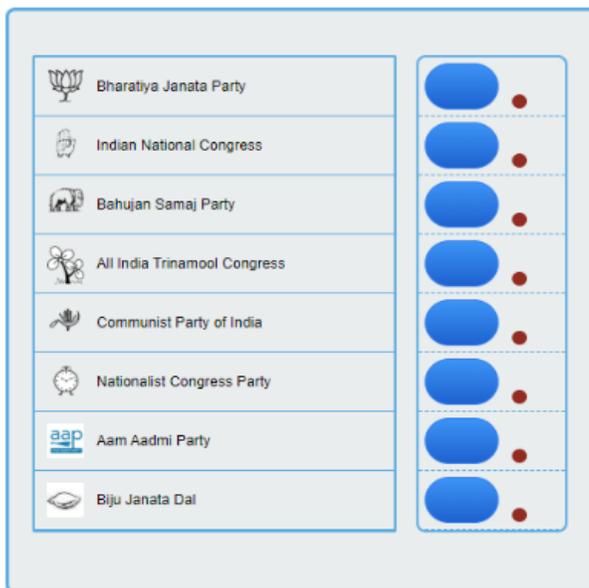


Fig.8. Party name with symbol and button



Figure.9. Mobile application homepage view

11. Conclusion

Once the system is developed the Mobile application and the voting website will be tasted in order to see the current validity of the system established. This is the method by using which we can check the functionality of components. Once the mobile application and the voting website will be tasted then a trial of the project will be run in order to eliminate the error if any exists in the system.

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