

Matdaan: A Web based Democratic Framework

¹Keerthi K.N., ²Kumud Sharma, ³Kusuma D, ⁴Shalini Tiwari

^{1, 2, 3, 4}C & IT, REVA University, Bangalore, India

¹keerthikn2017@gmail.com, ²kumudsharma9816@gmail.com, ³kusumahema17@gmail.com

⁴shalinitiwari@reva.edu.in

Article Info

Volume 83

Page Number: 4610-4614

Publication Issue:

May-June 2020

Article History

Article Received: 19 November 2019

Revised: 27 January 2020

Accepted: 24 February 2020

Publication: 12 May 2020

Abstract

Voting is one of the fundamental right of all the citizens of a country. The percentage of people coming forward to vote is decreasing day by day in a large scale. The reason behind it is people who are away from home need to travel a large distance to cast their vote, disability, lack of interest, bad weather conditions and many more. The existing voting system does not provide any special facilities for the disabled to cast their vote. It is also expensive, unskilled personnel, limited polling materials and so on. The proposed online voting system seeks to address the above issues. The specified system increases the speed of counting ballots, reduce the cost of paying the staff, improved accessibility for disabled voters and no miscounting of votes .

Keywords: Aadhaar ID, Voter ID, One-Time Password.

1. Introduction

“Matdaan” is an online voting technique. It enables the voter with citizenship of a particular country and of age over 18 years to cast his/her vote online without heading off to the physical polling station. A successful voting system can only be accomplished when a large number of population involves in the voting process. To make this a reality the voting system should be accessible to the voters without making them to stand in a long queue outside the voting booth. The main concern to this system is to protect it from external threats that may be harmful to the voting order to guarantee a promptly, easy and secure vote operation.

Nowadays, duplication of users are a very common thing and also the fear of hackers, so the proposed system consists of a 2-step verification process which enables the system to be more secure than the existing system.

The essential feature which is the multi-purpose platform independent system is conveyed in [1]. [2] elucidates the protection given to the public to cast their vote which is another important feature to be concerned. [3] depicts an stegano graphic authentication which describes the act of concealing a piece of information. The main objective in [4] is to employ android as a GUI and uses OTP to provide

additional level of security. As per [5] the system utilizes Aadhaar Attestation as a technique to validate voters identity online.

In this paper section II introduces literature survey, section III of this paper has the details about the existing technique for voting system. Section IV illustrates the proposed technique of integrating the Aadhar ID and voter ID with the existing model of voting system. Section V outlines the overview of the proposed system and section VI discusses the results. Finally, the further research and conclusion are presented in section VI and VII.

2. Literature Survey

Z.A.Usmani kaif and Patanwala Mukesh [1] discusses a voting system which can be accessed online, it can be used by any government or organisation to carry on the elections.

Abdullah Meraoumia and Yahia Dris [2] have proposed a system which will secure the voters' data by using a e-voting system which will operate as a remotely identified system provided with a cryptographic technique.

Smitha B. Khairnar and P. Sanyasi Naidu [3] has used PIN, biometric image and steganography for authentication, as biometrics are not able to transfer to others thus, makes authentication secure and

tampering of steganography are checked by using hash codes.

Himanshu Vinod Purandare and Freddy Donald Pereire [4] discussed a system which helps everybody to cast their vote anywhere without any hassle by using the technique of facial recognition and OTP which will provide the system with the greater level of security.

Madhuri B [5] has developed a app-based system which makes use of biometric authentication which is free from illegal access because it ensures that vote cannot be casted by any unauthorised persons.

3. Existing Voting Systems

Electronic Voting Machine

India has an antiquated way of conducting elections by making use of Electronics Voting Machines which is subjected to fraud and it is difficult to handle the voting machines. EVMs which are used in India do not have any contraption by which voter can confirm their identity previously to vote, due to which many fake voters can cast fake votes. EVMs can be interfered during manufacturing, in such instance it can manipulate the actual voting. Using EVMs to conduct voting in large democratic country like India makes the government to spent lots of money on the machine and on the staff to operate the machines. In several countries like Italy, Netherlands, France, Germany have banned the use of EVMs.

Paper Ballot System

In Paper Ballot System, voters mark their choice on the pre-made ballot papers and drop the voted ballot papers in the ballot box. Reverting to Paper Ballot System will be a contradictory step to encourage cashless transaction. In Paper Ballot method of voting, if the stamp is not put properly it will be counted as an invalid vote. Paper Ballots are susceptible to violence and booth capturing. The physically disabled people find it difficult to cast their vote in this system, they need someone to cast their vote on their behalf. In such instances, the privacy while casting the vote is breached. It is a critical procedure and needs more man power in the counting part of the election process.

4. Proposed System

The initiated framework is a web-based online voting system which determines whether or not a particular person is eligible for casting vote by authenticating his/her finger print. The proposed system also includes several different steps. Voters details are taken up from the database which already contains the details during the registration phase and are verified. Later, when the voter wishes to cast his vote he/she needs to provide his/her voter id number which is provided by the administrator during the registration process.

Table 1: Advantages and disadvantages of proposed system and referred papers

Referred papers:	Advantages of proposed system:	Disadvantages of referred papers:
Towards a secure online e-voting protocol based on palmprint features	The implementation cost of the proposed system is less and it is invasive.	The implementation cost of the system is high and it is non-invasive.
Secure authentication for online voting system	The system makes use of flexible and simpler method according to embedding domain.	Steganography technology is still being developed for certain reasons.
Secured smart voting system using Aadhaar	In the proposed system, there is both Aadhaar number and Voter ID is been used.	Only Aadhaar number can't be used as a proof of citizenship as Clause 9 Chapter 3 of Aadhar Act 2016.

5. System Overview

The significant stages of web based democratic framework are depicted in the following sections.

Update voters information

In the proposed system, the voters details are accepted during the registration phase and is stored in the main database. The voter needs to provide his Aadhaar number during the registration phase. As the Aadhaar number is unique for every citizen of India. The voter id number of every person provided by the election commission is unique this also can be used as an identification tool of the voter and also provides a 2 step authentication process. The registration process is complete only after the submission of all the documents by the voter and verified successfully. Once the registration is successful, the voter gets a verification mail to the specified e-mail address that contains all the details for the voter which was specified by him/her during the registration and along with his/her Voter ID number. Once the details are stored in the database, the voter can now login to his account by providing his/her Voter ID number and the password prescribed by the voter during registration.

Update candidates information

The candidate who wishes to contest in elections need to upload all this details including his Aadhaar number to the administrator and only after verification his details are stored to the database. Once the candidate is registered, the administrator provides the

candidate with a unique identification number (candidate's ID). The candidate should also provide his party symbol which represents his party.

Symbol	Flag	Name	Acronym
		Bahujan Samaj Party	BSP
		Bhartiya Janta Party	BJP
		Communist Party of India	CPI
		Communist Party of India (Marxist)	CPI (M)
		Indian National Congress	INC
		Nationalist Congress Party	NCP
		Rashtriya Janta Dal	RJD

Figure 1: A sample e-Ballot paper

Date and time of election

The election commission decides the time at which the election has to be held. The voters who are outdoor their constituency region can vote in keeping with Indian time region on the election day.

Election day

On the election day, the administrator opens the election portal so that the registered voters can cast their vote to their desired candidates. He/she keeps the website open for a limited period of time so that all the registered voters can cast their vote comfortably from their current location without any hassle.

Submission of votes

To cast the vote, the voter should first provide all his credentials such as the Voter Id number and the password to login to their specified account. After the account is verified successfully, the voter is now eligible to vote and later moves to the voting link. This page contains all the details about the candidate who are participating in elections that includes candidate name, profile photo, party symbol, party name etc. It also contains the option to cast vote. Once the voter votes to his desired candidate, the vote is considered and later stored in the database for developing the results.

Acceptance of votes by server

Once the candidate is selected by the voter, the server first verifies his voter id number provided by the election commission and the Aadhaar number. If the

voter has already casted his vote than the voter will not be able to vote again. This eliminates the duplication of votes and provides a more secure way of voting. Once the voter id of the particular voter is matched with the one stored in the database, then the vote is accepted and stored for counting.

Verification of votes

Once the voting time is crossed, the voters will further not be able to cast the votes. Then the votes are verified by checking the database. The votes are then submitted for counting process.

Declaration of results

In this proposed system, the results are announced immediately after the verification of votes by the administrator. This reduces the human power and the time required for counting the votes.

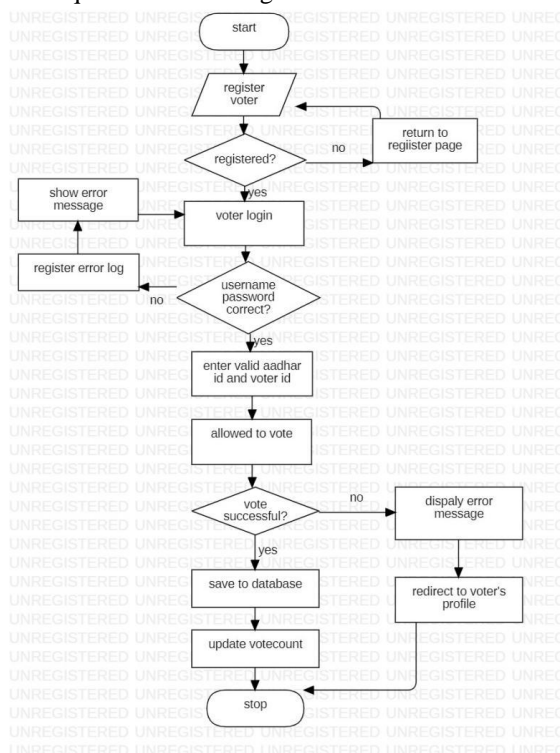


Figure 2: The data flow diagram of the system

6. Result

This web based democratic framework 'Matadaan' consolidates all the features of the voting system, administrates the voter's information by which voter can login and make use of his/her voting rights. All the data regarding the voter and his/her votes are stored in the database and is managed by an admin of the website. The proposed system generates a one-time password dynamically when one attempts to login and is sent to the user's registered mobile number. The integration of the OTP with the system makes the user authentication more secure.

In paper[1] the developer simply transfers a desktop application's user interface verbatim, users

will find the delay unacceptable. The proposed system provides a Browser based User interface so the application ensures that anybody with a system running on browser can interact with it.

In paper[2] the implemented system's cost is very high and also it is non-invasive. The proposed system's implementation cost is very less and it is invasive.

In paper[3] the steganographic technique is used, but it is still being developed for certain reasons. The proposed system uses flexible and simpler method according to the embedding domain.

In paper[4] the system is prone to man-in the middle attack. In the propose system the website will be kept always updated, in this way the attackers will not be able to exploit the website.

In paper[5] only Aadhar number can't be taken as a proof of citizenship as Clause 9 Chapter 3 of Aadhar Act 2016. The proposed system makes use of both Aadhar number and voter ID.

Fig. 3 represents the login page of the admin. The admin is the one who has special privilege to access the database of the system. He maintains the information in the database of the voters, the candidates and the details about the election.

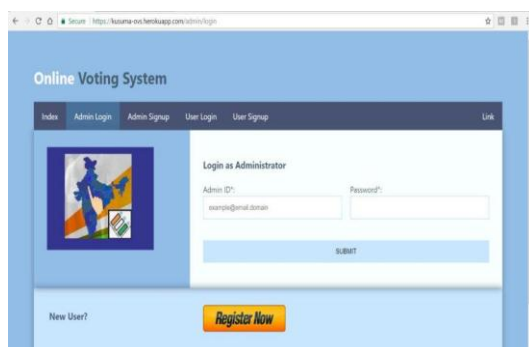


Figure 3: Snapshot of the admin login page

Fig. 4 represents the login page of the user. The user has to either register or sign-in to become the legitimate user of the system.

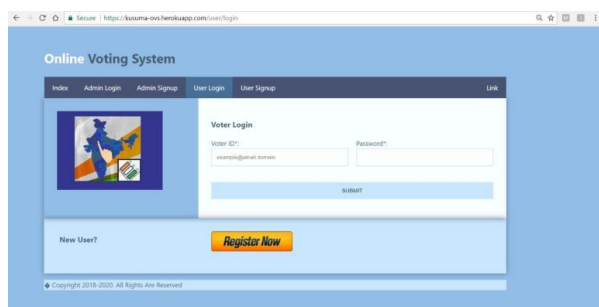


Figure 4: Snapshot of the user login page

Fig. 5 represents the user's registration form page. Here he/she has to provide their credentials to complete the registration process and a verification code will be sent to their registered e-mail ID. After

the successful registration he/she will be able to cast the vote.

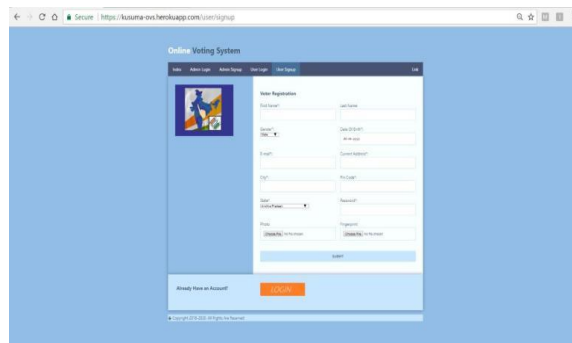


Figure 5: Snapshot of the user registration form

7. Future Work

We are initiating a website, which gives Aadhaar based smart democratic framework. This framework can be tried considering a little gathering at first.

To improve the execution of the framework ongoing server might be utilized, one of such platform is AWS -Amazon Web Service. AWS has better user alliance and speed. As future work we can reflect to utilize biometric characteristics such as iris scanner, facial recognition, fingerprint scanner and/or voice recognition considering it will provide us with the high level of security.

8. Conclusion

As the election process tries to involve more and more people, then the system must be made easier and faster for the people to make use of the system efficiently. We have attempted to develop an online democratic framework which is safe so that it is not able to manipulate the votes. This particular framework helps everybody to carry out their voting process remotely without any difficulty. Therefore this will escalate the tendency of voters towards voting and will give us better results.

The voter just needs to have a national identification number like Aadhaar card number, Voter ID and any operating system. As the framework is online based, the voter can vote from their present area. There is no need for the voter to go to the polling booth to cast their vote, thus persuading more number of people to take part in voting.

The suggested computing framework is aiming defence officials, migrants working in abroad, physically challenged and officers on duty. Conclusively, the above analysed voting system is good, but there is always scope for further reinforcement.

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