Polling Booth's with Advanced and Smart Voting Mechanisms for Indian Constituency

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Abstract- **Election is one of the most important activity that is carried in governance of any country. It decides in which hands the governance of the nation will fall onto. The election activity should be therefore carried out having to consider that no illegal measures should be undertaken that would affect the outcome of the election. However fraud voting, tender voting are some of the biggest problems the Election Commission of India is facing. Also the percent voting numbers are also less than expected. This results in unexpected outcome of the election and might lead to giving control of the government in the hands of undeserving candidates that may lead to fall of the system. The proposed system introduces the validation of voter using fingerprint authentication with all his/her details linked with AADHAR card. This will help in reducing in number of fraud voting. Also, it proposes a system of token generation that will enable to validate the outcome of election process if the result is challenged. It also allows the voters to vote for their native constituencies from their current residence which will help in increase in the voting numbers, thus introducing the concept of dynamic candidate list .**

Keywords— Election, Fingerprint Authentication, Token Generation, Dynamic Candidate List

I. INTRODUCTION

The Internet of Things (IoT) is network of physical devices, vehicles, and other commodities embedded with electronics, software, sensors, actuators, and network connectivity which enables these objects to collect and exchange data between each other. Each thing can be uniquely identified through its embedded computing system but is able to interoperate within the existing Internet infrastructure. Experts estimate that the IoT will consist of about 30 billion objects by 2020.

The people of India elect their representatives and these representatives form a government. So, election in a democratic country like India is of utmost importance. In democratic India, the general elections of the nation takes place every 5 years, All those who are and above eighteen years of age have a right to vote. The candidate that receives the majority number of votes from the voters is declared as the winner of the election in that particular ward, area or constituency. The candidate thus elected from this process takes up the task of providing governance and representing the people is such a way that it leads to benefit of the people he/she is representing. But the sad truth is, most of the

candidates when get elected just think about profiting themselves as they are now at such a high post in the governance itself. To start this, they try to mess with the beginning itself, that is, the election process.

Fraud voting is the major concern whenever any election activity is held in the country. Such unfair measures being used in the system of voting may lead to entirely different outcome. Consequently the governance may fall into the hands of people that are under-deserving and people don't want to see that person as their representative. Also, the electronic voting machines are sometimes rigged in such a way that whichever party the voter cats the vote for, the vote will be counted for a specific candidate, ensuring his/her victory in the election.

II. EXISTING METHODOLOGY

The current election are held in three phases:

- The Planning Phase
- The Execution Phase
- The Documentation Phase

The Planning Phase:

The planning for the General Elections involves a very elaborate, detailed and complex preparation process. A wide range of consultation are held with all the stakeholders, viz., political parties, Central Ministries (including Home Affairs, Defense, Telecommunications and Railways) the election management machinery (Chief Electoral Officers and other officers of all States and Union Territories). State Government and the Administration of the Union Territories.

For a free and fair election process, accurate and error-free electoral rolls are the most important prerequisite. Some of the electoral malpractices, such as bogus voting and impersonation, can be attributed largely to defective or incomplete electoral rolls. For ensuring the maximum participation of electors in the electoral process and reducing electoral malpractices, it is essential to follow rigorous registration processes to enhance the fidelity of the electoral rolls. The poor quality of electoral rolls is certain to undermine free and fair elections. Therefore, much emphasis is laid on the preparation and revision of these rolls, besides the involvement of the voters in electoral process.

The Execution Phase:

At this stage, the actual voting at the polling booths is done. The election is held for around 1.2 billion population among which 834,082,814 are eligible for voter(numbers in accordance to 2011 census). The voting is done at 9,27,553 polling stations all over India consisting 4,120 constituencies at present. It is mandatory for a person to have their name in the electoral roll, and should have an EPIC i.e. the Electoral Photo Id Card. Each of the polling booths have their own action of control. Each polling station has a Booth Investigation Officer. Each booth can csarry out voting.

The booth consists of EVM(Electronic Voting Machine). Each voter who enters the booth has to verify his identity with the help of EPIC. After verification, the voter is marked on his/her finger as a sign of "This person has casted their vote for the particular general election. This practice is done to avoid the bogus and tender voting.

The Documentation Phase:

This is the last phase for a particular general election. This phase is conducted after the results are declared, it includes a detailed report of all the actions and practices performed by the ECI. This helps the ECI to overcome their issues and consequences during next general elections.

III. PROPOSED SYSTEM

In our proposed system, techniques have been introduced that ensure decrease in the number of fraud voting and increase the authenticity of the generated results after the election process is completed. Use of voters fingerprint for authentication is used. Also, if the voter is currently residing away from his home constituency, he will be able to cast his/her vote, which will gradually help in increasing the voting numbers. Also, after casting the vote, a token and a certificate confirming the voters participation in the election will be generated
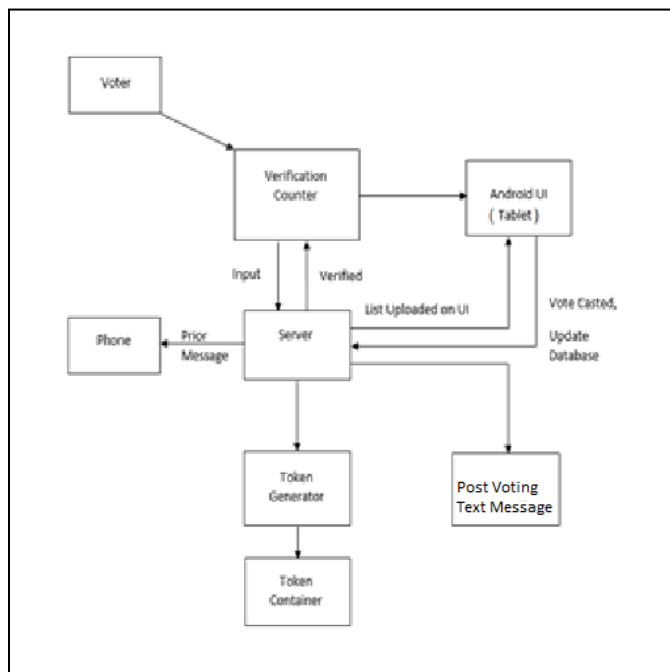

Fig 3.1: Proposed System Architecture.

1. Initial SMS Alert

In the proposed system, prior to the day or couple of days before the election, a SMS alert will be sent to the valid voters which will contain the information of the candidates that are competing in the election in their constituency. The information will include their name, qualifications and any prior experience in governance. Also, it will contain the information about the location of their election booth, booth number, etc. This idea is proposed because during the days of election, people from the political parties visit the voters distributing the information, which in real scenario, they use to turn the voters onto their sides, and predicting their favoritism in the election. This all will be eliminated if the information is provided by the central system itself.

2. Voter Authentication

For verifying the identity of the voter, fingerprint is used. It is made compulsory in our system to have a AADHAR card. AADHAR card contains all the personal information that is required, ranging from the image of the voter, voters name and birthdate. Using fingerprint, we can access all the information present on the AADHAR card as fingerprints are also stored in the AADHAR database. For this, Safron Morpho MSO 1300 E2 will be used. The voter ID's are linked up with the AADHAR database, which will contain the information of the constituency the voters belonged to. Using fingerprint and AADHAR details for verification will eliminate the concept of tender voting, as the complete information will be presented in front of the election authority instead of someone else conforming their identity.

3. Dynamic Candidate Lists

One of the reason for less voting counts is because it is inconvenient for the voter travel to their home constituency if they reside in some other area because of their professional requirements. So in this system, a dynamic candidate list is proposed. During authentication, if the voter is declared valid for proceeding for voting, based on the constituency mentioned, the voting machine will load the list of candidates of their respective constituencies. This concept can be applied when election will be held in different states as well. However, this service will be available only if home constituency of the voter is considerably far away from where they are currently residing. This will ensure in increase of the voting numbers.

4. Voting Interface

A tablet is used as the device that will display the interface containing the list of the candidates. Voter will be able to cast his/her vote using the touch interface of the tablet.

5. Token Generation

Token Generation is the main aspect of our proposed system. Sometimes during the election, it is found that the Electronic Voting Machines were rigged. This resulted in completely unexpected results of the election, opposing parties putting blame on the ECI for wrong results. For this reason, after the voter has casted his/her vote, a token containing the information of the candidate and the political party will be printed and displayed to the voter. The displaying window

will avoid any physical contact by voter or any other personnel with the token. The generated token will be displayed to voter for a specified time to confirm his vote. Then the token will be dropped into the ballot box. Just in case if the election results are later challenged by any political party, the generated tokens can be used to for re-verification of the results.

6. Post Voting Text Message

Election Day is declared as a government holiday by the Indian Government. This is done in hope of ensuring maximum partition of people in the election. But instead, people spend this day at their home or elsewhere. So, the concept of post voting text message is introduced. Companies and organizations can make it compulsory for their employees to present the message received from the Election Commission of India to register the Election Day holiday as a payday. Making above concept mandatory will help in increasing the voting numbers as it will make it mandatory for the people to cast their vote. This will come in as a factor for increase in the voting numbers. Increase in the voting numbers can come up as a factor of a completely different outcome of the election.

IV. RESULT AND DISCUSSION

Five JSP's ,first regarding voters registration, second regarding candidate registration, third is for voter's successful login, fourth is for preceeding officer login and the last is for admin login are added.Fig 1 shows the link to redirect to the required JSP.

Fig. 1 Initial JSP

The above image depicts the webpage containing 5 fields which are,

1. Register voter

In this field all the basic data of the voter is registered along with fingerprints.

2. Register Election Candidate

In this field all the basic data of the candidate is registered along with fingerprints.

3. Login

This field is used to verify successful linking of AADHAAR and fingerprint.

4. Preceeding officer login

This login is used by the booth head (Preceeding officer) to verify the total count of votes in that day.

5. Admin login

This login is used by the admin to calculate the results of election.

In Voters registration form all the required data is fetched. Fig 2 depicts all the fields regarding information that the voter is required to provide. This data is re-verified with government data. User's data is classified according to the city, district. To stop fraud and tender voting user's fingerprint impression is verified according to AADHAAR data. Due to this two factor authentication, it eases to eliminate the fraud voters and to achieve unbiased voting process.

Fig. 2 Voter Registration Form

In Candidates registration form all the required data is fetched. Fig.3 depicts all the fields regarding information that the candidate is required to provide. While registering the candidate it is essential for him to provide all the government authorized documents to verify his/her eligibility for his/her candidature. All the basic data is collected along with the biometric scan of fingers.

Fig. 3 Candidate Registration Form

The below fig 4 and 5 shows the candidates list in district 'A' and 'B'. User need to select the desired candidate from the list of his constituency and vote accordingly.
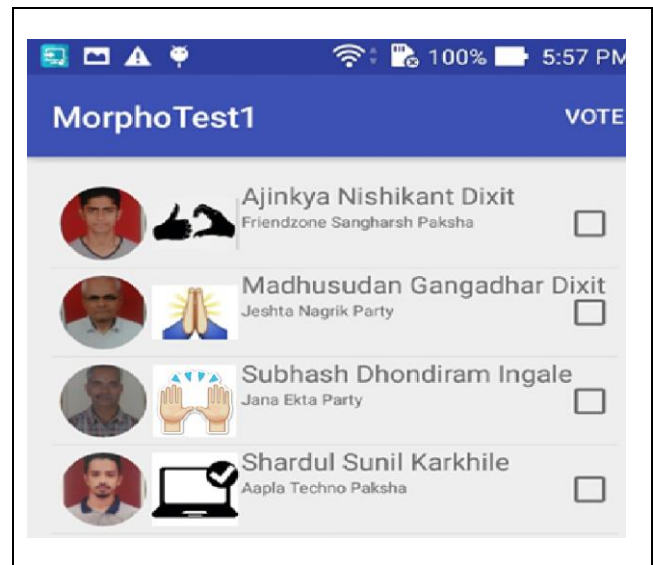

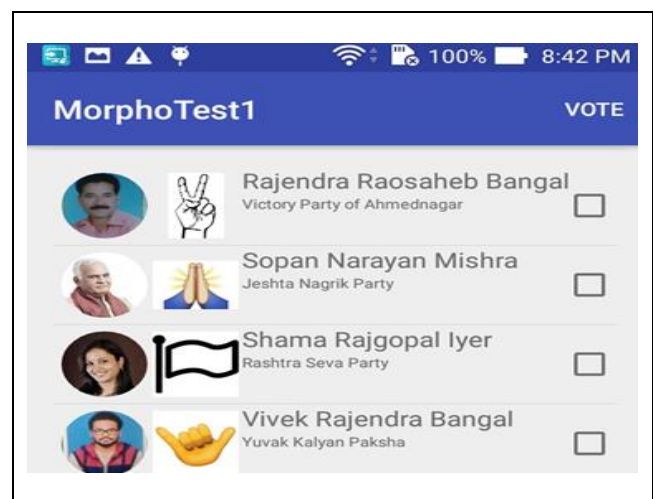Fig. 4 Candidates List from 'A' district

Fig. 5 Candidates List from 'B' district

After successfully casting the votes user needs to logout the system followed by text message received on his/her registered mobile number to verify that his/her vote is successfully casted or not.
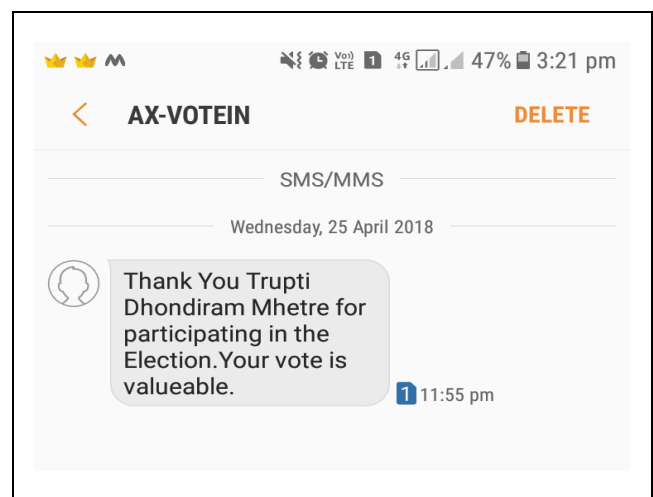

Fig. 6 Post Voting confirmation message

V. FUTURE WORK

Fingerprint scanning is one of the secure way for authenticating a person. The same is used in this system however for adding another level of security retinal scanning can be used.

In case of token generation for voters from different constituency this system sends the signal to his/her constituency's booth centre to generate the token for which he/she casted the vote.

VI. CONCLUSION

Elections at regular interval are an important feature of democracy. Elections ensure that the will of people is reflected in the formulation of public policies and decisions. It gives a chance to people to elect government of their choice and the elected government gets right to govern those who elected it. It provides an opportunity to the people to express their faith in the government from time to time and change it peacefully whenever there is any need. Being the biggest democracy in the world, many factors pose a challenge to the election system in India. Fraud voting is one of the factors which affect the elections. Some People come up with different malpractices to elect the under deserving candidate. However, the voting percentage of elections is observed below average. People ignore and don't cast their valuable vote on the Election holiday. Some people migrate to different city for some personal reasons and are not able to cast their vote at their native place. This eventually reduces the vote count. This system successfully overcomes the fraud and tender voting practices. Once the voter has voted for the particular election, he will not be allowed to vote till the next tenure. This system allows the voters to vote for their native constituency from a different location. This system tries to increase the voting percentage. It manages to combine the current and the traditional voting system. A generation of token will serve as an extra parameter for confirmation.

VII. ACKNOWLEDGMENT

VIII. REFERENCES

[1] Anandaraj S, Devakumar P.V, Anish R, "Secured Electronic Voting Machine using Biometric", IEEE Sponsored 2nd International Conference on Innovations in Information, Embedded and Communication systems (ICIIECS)2015.

[2] Himanshu Agarwal, G. N. Pandey, "Online Voting System for India Based on AADHAAR ID",Eleventh International Conference on ICT and Knowledge Engineering, IEEE, 2013.

[3] Devendra Vijay Naik, "Smart Wireless Authenticationg Voting Machine", IEEE ICCSP 2015 Conference.

[4] Ashwini Walke, Pallavi Chavan, "Efficient Voting System with (2,2) Secret Sharing Based Authentication", International Journal of Computer Science and Information Technologies, Vol. 6(1), 2015, Pg. 410-412.

[5] S.M. Jambhulkar, Jagdish Chakole, Praful Pardhi, "A Secure Approach for Web Based Internet Voting System using Multiple Encryption", 2014 International Conference on Electronic Systems, Signal Processing and Computing Technologies.

[6] Vikram Kumar, "Delhi hit by massive poll scam: Election commission unearths 13 lakh bogus voters and over 80,000 valid voter cards for dead people", dailymail.co.uk, August 2013.

[7] Systematic Voters Education & Electoral Participation, India National Document(2009-2014)

[8] Systematic Voters Education & Electoral Participation, Maharashtra State Document(2009-2014)

[9] India Votes- The General Elections 2014, Election Commision of India, https://eci.nic.in/eci_main/Library&Publications/India%20Votes.pdf