

SECURED SMART VOTING SYSTEM USING AADHAR

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Abstract - The purpose of the System is to provide Authenticated & 100% tampering free votes. As we all know the amount of vote manipulation done during **election**. So as to avoid this, the proposed system will make use of **Biometric authenticity** which will be linked with your Aadhar card which makes you & your vote authenticated. In addition to this, the system also focuses on getting votes from the migrants so as to **increase the voting percentage in our country**. The voting system for the migrants will be App based voting wherein once again the authenticity will be verified through their respective Aadhar card. No Voter ID card is required for this proposed system but you definitely need to have an **Aadhar** card to take part in the Voting process of the election

1. INTRODUCTION

In India or in any country election is a basic process of Democracy which specifically shows people's choice & their right to elect the government. But during the past few years it has been observed that the percentage of Voting is decreasing day by day & also a lot many questions are been raised on the total number of true Votes generated. Basically our current voting system fails to provide Authenticated votes. In order to avoid this, the proposed system will mainly focus on two sectors, firstly to receive authenticated/true votes & secondly to get votes from the migrants too in order to increase the voting percentage of our country. The system will be purely working on your Aadhaar card details so anyhow there is no need of Voter ID card but the requirement of Aadhaar card is a must. As far now biometric authentication method is known to be the best & a true method for proving someone's authenticity, so going ahead with this, the proposed system will also work on your fingerprint which will be linked to your Aadhaar card so as to prove your Authenticity. This will also make only the legitimate users to cast their vote resulting into tamper free votes. Secondly to receive votes of the migrants the system will consist of an app wherein again Aadhaar card is the medium of authentication providing an OTP on the Mobile number which is being linked with your Aadhaar card only after entering your 10 digit Aadhaar Number. So the proposed system mainly focuses on overcoming the flaws of the current Voting System & also takes a step towards Digital India.

2. SCOPE

The proposed system aims to fulfil two major goals firstly, to achieve 100% tamper free votes and secondly to receive votes from the migrants which majorly focuses on increasing the overall voting percentage. In order to achieve the listed goals above the following constraints need to be overcome i.e. requirement of Technical experts for maintenance of the website and application. Also maintaining the security of the data and credentials of the voters is the major concern for this proposed system. It is focused on studying existing system of the voting and to make sure the people voting is count for the fairness in the elective positions. This will also produce, less effort and less labor intensive, as the primary cost and focus primary on creating, managing, and running a secure web voting portal and increasing number of voters as individuals will find it easier and more convenient to vote, especially those abroad.

3. OBJECTIVE

- To have a secured & authenticated voting system.
- To avoid tampering & manipulation of the votes.
- To receive votes of the migrants & increase our voting percentage in a right way.
- A step towards Digital India.

4. EXISTING SYSTEM

The current voting system faces a lot of issues & one of the most controversial issue is EVM Scam i.e. Manipulation of Votes. This issue has created lot of aggression & anger between political parties [1]. Also because of such manipulation we fail to elect the right government for our Country. Another major issue of EVM is a candidate may know that how many people from a polling station voted for him. If the number of votes is against the candidate then the winning candidate may

hold a grudge or show favoritism on those specific areas. Following are the two major issues which is being faced by the Current Voting System in India.

4.1 Not receiving votes of the Migrants

There is no facility in the current Voting system through which even our migrants or the military people can cast their Vote. The biggest loop hole of the current Voting system is in order to cast a vote it is mandatory to be present in the booth of your particular area and because of this reason we do not receive votes of people who are living far away from their home in order to pursue job or studies, leading to a huge fall in the Voting Percentage of our country [1]. And unfortunately the falling percentage of Vote mostly comprises of educated age group and the youths of our Country whose Votes matter a lot in choosing the right government.

4.2 Illegal/ False Voting

The very common problem faced by the current Indian Voting System is illegal casting of votes. Since there is no proper authentication medium one person cast multiple votes on behalf of other Voters which increase the amount of fake Votes.

5. LITERATURE REVIEW

The Voting system is used for casting a vote & makes it count. But now our country is stepping towards digital India & has built an electronic voting system (EVM). But recently there's a lot of tampering regarding EVM based Voting. So here our digital country is working on Aadhar based voting where a machine will be used for casting a vote & for Authentication of voters. The Authentication medium will be Voter's fingerprint along with the Aadhar database where instead of voter id Aadhar card will be used for Authentication [2]. SQL, GUI, E2E technology, Cloud Storage, Android, & Android are the technology which is being used. This system focuses on reducing votes tampering & will also authenticate the voters [5]. But there is no way through which we can receive votes from the migrants. So here our proposed system will be focusing on that area too.

6. PROPOSED SYSTEM

Implementation of voting System which will use the information of Aadhar Card of each individual instead of voter ID in order to cast a Vote wherein we will use Fingerprint details of a person. Nowadays Biometric implemented systems are in greater demand as it provides greater level of security and also authentication of legitimate users. By doing this we can make sure that only the authenticate Voter is casting its Vote and it will also Reduce the amount of Fake Votes. Till date there has been no such process through which we can even get votes of Indian Migrants like Military & many more. So our aim is to develop an application through which the people who are unable to go to the Voting booth can also cast their Vote using the Mobile app. Our mobile app will work on OTP instead of fingerprint or barcode. Because India is still a developing country & not everyone uses Mobile with such high facilities. Barcode based app is also an option but using barcode anyone can cast a vote on behalf of any person if they have that other person's Aadhar Card. So the safer & secured option is use of OTP wherein the voter will be asked to put his Aadhar number & then the OTP will be sent to the mobile number which is registered in their Aadhar card.

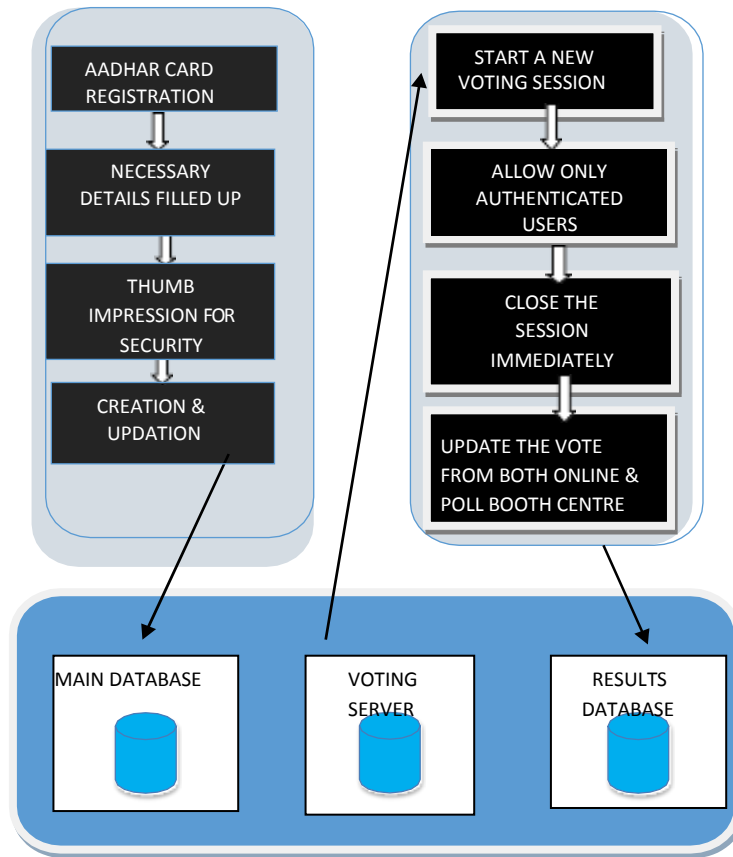


Fig -1: Proposed Voting System

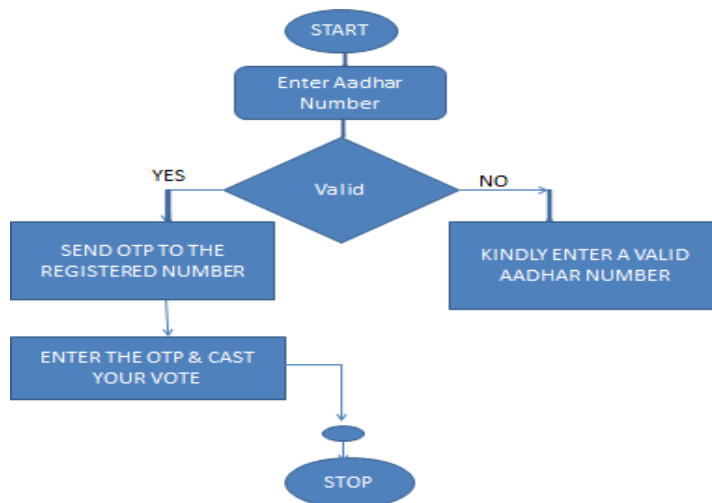


Fig -2: Flowchart for proposed Voting App for Migrants

```
COM7 (Arduino/Gemini User)
Adafruit fingerprint sensor enrollment
Found fingerprint sensor!
Ready to enroll a fingerprint!
Please type in the ID # (from 1 to 127) you want to save this finger as...
Enrolling ID #1
Waiting for valid finger to enroll as #1
.
.
.
.
.
.
.
.
Image taken
Image converted
Remove finger
ID 1
Place same finger again
.....Image taken
Image converted
Creating model for #1
Prints matched! Stored to the cloud
ID 1
Stored!
Ready to enroll a fingerprint!
Please type in the ID # (from 1 to 127) you want to save this finger as...
```

7. TECHNOLOGY STACK

7.1 Software Requirements:

1. Xampp, Android Studio, Brackets, Firebase.
2. Technologies used: HTML, PHP, Java.
3. Arduino IDE

7.2 Hardware Requirements:

1. R307 Fingerprint sensor.
2. Arduino UNO
3. 4x4 keypad
4. LCD display.

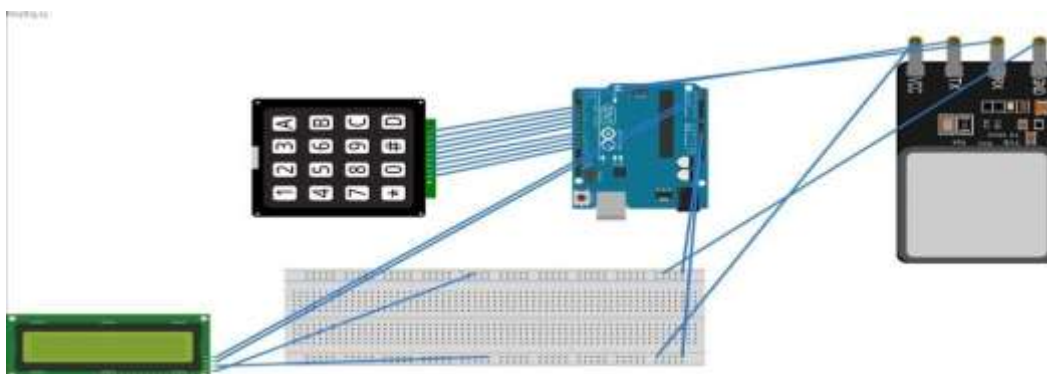


Fig -3: Connections for hardware

8. MARKET REVIEW

As per the analysis on the current voting system in India i.e. EVM, we got the result that it cost Rs.17, 000 for per EVM Machine [6]. Also we need to invest in the Physical infrastructure which is a separate additional cost for it. EVM machine faces the mobility issue & is not that scalable. Whereas the Proposed System is more cost effective & also mobility and scalability is not an issue for it. In Addition to this, in case of online voting through app using Aadhar as the medium of Authentication will reduce the overall cost of physical infrastructure. Also a single EVM machine stores only 2000 votes which clearly state that higher percentage of voting will require more number of EVM machines increasing the overall cost [7]. As per the analysis we came to a conclusion that Aadhar based Voting is more cost effective providing better features & security.

9. APPLICATIONS AND ADVANTAGES

Aadhar based voting system has many advantages compared to the existing voting system. The advantages are less human error, less cost, quick publication of result and so on. The electronic voting system must provide high security. In future we focus on building a system which is much more secure and provides privacy for the voters and can include large databases. In this paper, we are provided with the advantages of having our system over the traditional voting system. Illegal voting is one of the critical problems faced by the existing system; with our designed system illegal voting can be removed entirely. Our system also prevents multiple votes by the same person and checks the eligibility of the voter. A person can vote from anywhere provided they should be above age 18

- Highly secured than current voting system.
- We can get votes of Migrants too.
- No tampering of votes.
- Also, a Step & an initiative towards Digital India.

10. CONCLUSION

This system gives us the best solutions to problems related to our country's 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 critical and confidential biometric data may be hacked by the hacker. For the successful implementation of this system, it is very difficult; because it involves various aspects like political issues, financial issues, and regional issue

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