



## MyVote - An Effective Online Voting System that can be Trusted

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### ABSTRACT

In a country where leaders are elected by the people, election and process of electing plays a crucial role. Every citizen of a country has "right to vote". There are different ways of casting vote and electing an individual. With such a large population, country needs its own effective and secure voting system. The voting system has made drastic changes from traditional paper ballot voting to current electronic voting and now towards the online voting system. Advancements in the new system eliminate the drawbacks of the previous system. This paper proposes a new online voting system that provides every individual to cast vote securely and effectively irrespective of the location.

**Key words :** Booth Officer, EVM, EPIC

### 1. INTRODUCTION

The election or the voting should be simple, secure and robust so that any individual can easily enjoy freedom of voting. The system should be transparent and intelligible so that voters and candidates can accept the results of election. Manual intervention should be avoided which leads to manipulation of the system and electing a wrong leader. A secure voting system should have the following criteria:

- **Authenticity:** Our proposed system concentrates on authenticity of a voter by checking with EPIC number, name and phone number of an individual. If any one of this information is correct then the voter is identified as an authenticated person and is allowed to vote. Since voting is the secret process voters should be the highest priority to make the voting process fair.
- **Security:** Security is the primary factor in any online system. Security should prevent the duplication of votes. Un- authenticated person should be filtered in early stages itself. In the proposed system the booth officer is responsible for providing security by eliminating duplicate, fake voters.
- **Usability:** The election/voting should be simple, easy and understandable by every individual regardless of age, disability. Our system is usable and friendly since all the verification and validation are carried

out by the booth officer and voter can simply cast vote.

- **Time and cost:** The voting process should be simple and easy. It should not be tedious and cumbersome. The voter should enjoy the election. Our system is less time consuming, since all the information is already in the database and only verification is carried out at the time of voting it reduces time.

### 2. EXISTING SYSTEM

Voting is the right of every citizen. Vote confirms our right as citizens to elect the leaders of government. Voting is the most effective way to express the right of every individual. Voting system records the votes of the people and results should be accurate and unbiased.

#### 2.1 PAPER BALLOT VOTING SYSTEM

Paper ballot system is the initial and traditional system of voting. In this system the votes were cast by the means of the papers in which the voter used to vote by marking the ballot paper with a rubber stamp, the voter then folds the ballot paper and put it in the ballot box which is kept safe in the eye of allotted officers.

##### 2.1.1 Advantages of Paper Ballot Voting System

1. **Simplicity:** Paper Ballot is easy to understand since the procedure is easy. The voter just has to put the mark in the box next to the name of the candidate.
2. **Eliminates duplicate votes:** Since each voter is given only one chance to vote, this eliminates duplicate votes.
3. **Less costly:** The system is very much affordable than the electronic system as the major requirements are only paper and the ballot box.
4. **No fear of technological errors:** Paper ballot voting included no electronic device hence there is no fear of hacking, fraud, replacement of parts and errors in the election process.

##### 2.1.2 Disadvantages of Paper Ballot Voting System

1. **Time Consuming:** As only one person can vote at a time it is very time consuming and slow process.

**2. Results of voting are delayed:** The results of election cannot be declared immediately since all the ballot boxes should be collected at one specific location and then the counting should start.

**2.2 ELECTRONIC VOTING MACHINE (EVM)**

Instead of ballot boxes electronic voting machine was introduced. This machine has a control unit and a ballot unit. The ballot unit has 16 candidate buttons and if any of them is unused, they are covered with a plastic masking tab inside the unit. An EVM can record a maximum of 3840 votes. It is not possible to vote more than once by pressing the button again and again. As soon as a particular button is pressed, the vote is recorded for that particular candidate and the machine gets locked. As soon as the last voter has voted, the polling officer will press the close button. Thereafter EVM will not accept any votes.

**2.2.1 Disadvantages of Electronic Voting System**

- 1. EVMs Systems Lack Transparency:** A voter cannot observe the process inside the machine and must blindly trust that the votes are registered.
- 2. Vulnerability to Fraud:** If people have knowledge and access to machines, one can take out the memory card that stores the votes and can replace it with other card which can affect huge number of votes.
- 3. Power:** An electronic machine mainly works on battery power. In remote places where electricity is the major issue, EVM fails to operate and the entire process is disturbed.
- 4. Cost:** The cost of the system is a major concern. It consists of unit which are expensive and also if damaged the cost of repair is more and irrecoverable.

**3. PROPOSED ONLINE VOTING SYSTEM**

MyVote is an online voting system which is simple, understandable and secure way to cast vote. In the proposed system the voter simply has to cast vote by pressing a vote button. All the votes will be stored in a database. Before the election all the details of voter are available in a database. In order to vote the voter should be registered first. On the Election Day the booth officer will validate the voter either by the EPIC, name or phone number. If the voter has the EPIC, it gives us the details of the voter. If the voter provides any other id proof such as Adhar then the voter is verified by name and other details such as district, and constituency and so on. Once the details are entered we can retrieve the details of voter which can be verified against the id proof of the voter. The main objective of the proposed system is identifying properties that a secure and trusted online voting system must satisfy to eliminate duplication.

**3.1 Step 1: Voter Verification and Validation**

For the proposed system the voter has to first register as a voter either through online or by filling the application form. Once he is registered as a voter all the details will be stored in a database. At the time of election the booth officer will verify the id and crosscheck the voter’s details. The verification can be done by entering voters EPIC, name or phone number by the booth officer. The information retrieved after entering voters information will be validated by the booth officer. Only registered and valid voters are allowed to vote. There is no need of physical identity, provided the name of voter should be in a voters list.

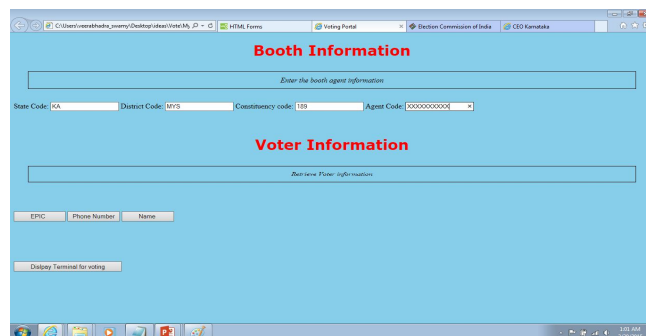


Figure 1: Home Page of MyVote

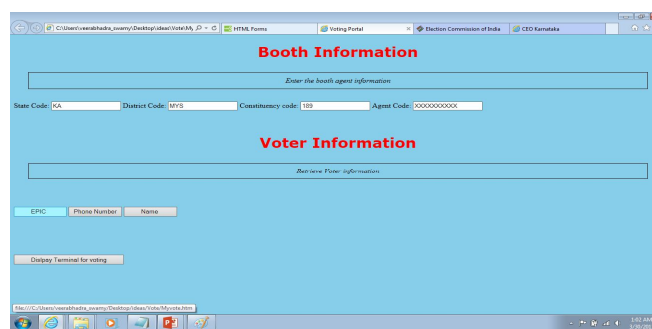


Figure 2: The voter is verified by EPIC

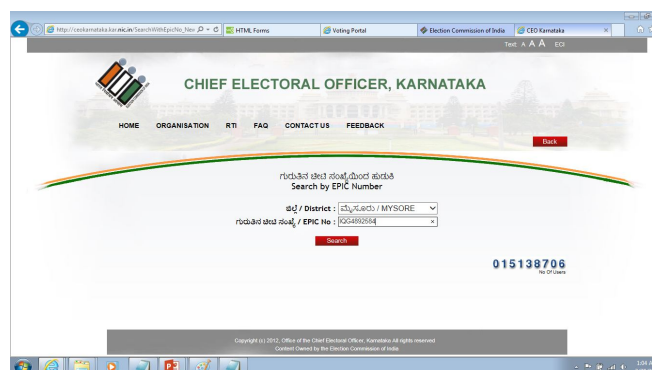


Figure 3: Display details of voter

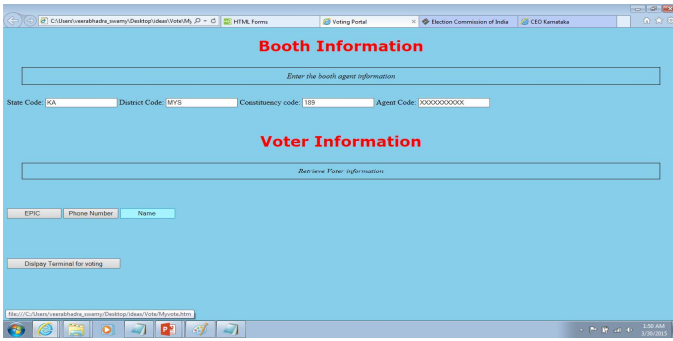


Figure 4: Voter verification by name

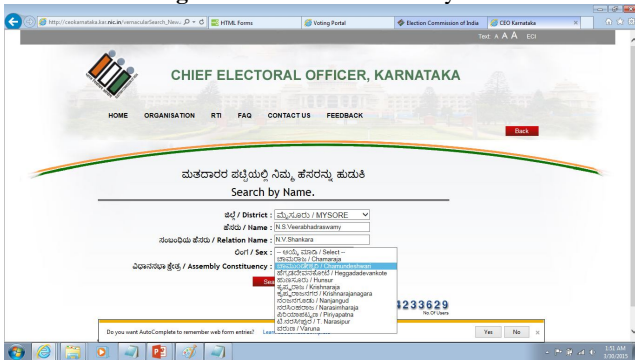


Figure 5: Enter details such as district, name and constituency

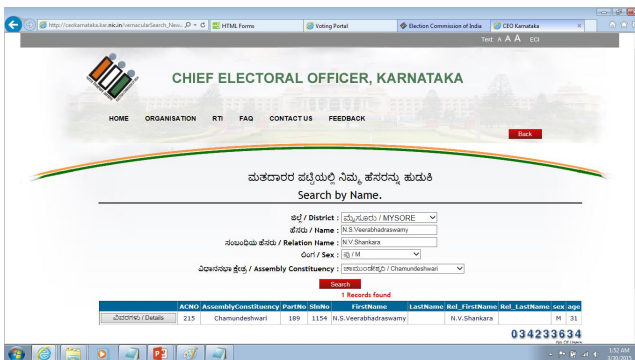


Figure 6: Displays voter details

### 3.2 Step 2: Retrieve Constituency of voter

After verification of the voter, the Booth officer can retrieve constituency of the voter by entering details such as state code, district code, constituency code and polling station code. From this the voter gets to know the information about the candidates in their constituency and voter can vote without any confusion.

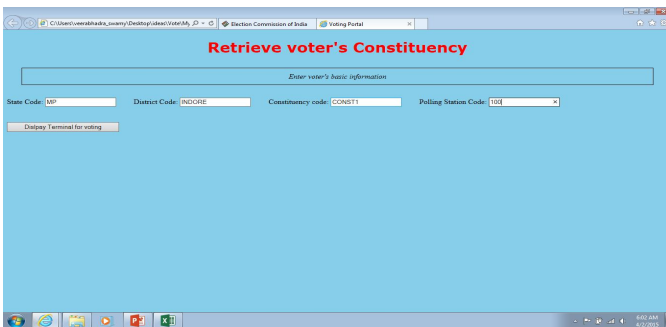


Figure 7: voter constituency is displayed

### 3.3 Step 3: Casting Vote

In this step, actual voting takes place where the voters cast their votes. Once the details are verified against the proof provided by the voter, the booth officer can submit the "display terminal for voting" button. Finally the voter is displayed with a terminal which consists of candidate names and the voter can now cast vote. The vote is successfully accepted and is saved in a vote database which is further used for counting and statistics.

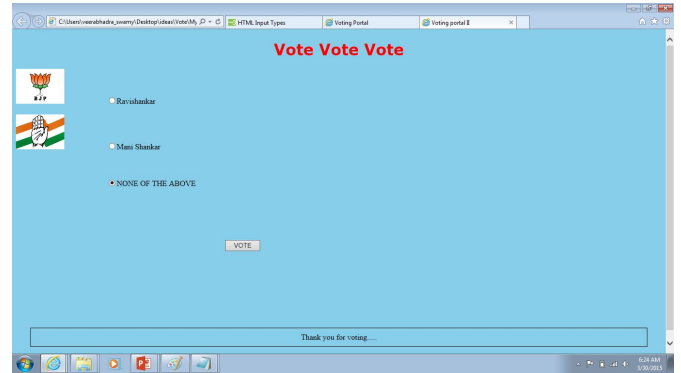


Figure 8: Voting terminal

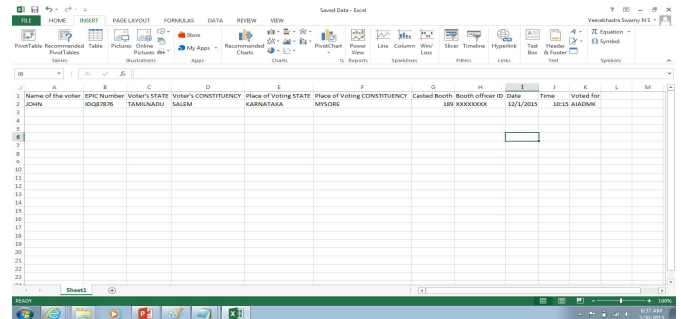


Figure 9: Database that store votes

### 3.4 Advantages of Proposed System

- 1. Availability and Feasibility:** If the voter has photo id and address proof, he can vote from anywhere in India and if kiosks are set up in overseas, even NRIs can cast their vote in embassy offices. Kiosks can be set up in DC offices which are governed by central government. For example: On the day of voting in MP, person from MP can walk into DC office in Mysore and cast vote.
  - 2. Cost:** Physical transportation of the voting machines from one place to another can be eliminated, which in turn eliminates the cost of transportation. Cost involved in training people every time before election process can also be reduced. Also cost spent on the EVMs can be nullified.
- 1. Results are not delayed:** As the data resides on central database, the results of voting can be announced without any delay.

#### **4.CONCLUSION**

In country where democracy is by the people, every individual vote is to be considered valuable. Due to various reasons in the manual and electronic voting system the valuable votes cannot be effectively discharged. This paper therefore introduces an online voting system, which enables the voter to cast his/her vote in a trusted environment. Also since validation and verification is done by the booth officer at the time of election, fake or proxy voting can be eliminated. The set up cost for setting up the central server for this system is considered to be huge, but later only involves the maintenance cost. Also voters need to be educated on the system before voting. The proposed system can be considered as replacement to EVMs, the major change involves replacement of EVMs with computers. Since EVMs are costlier one can reduce the cost spent on the machines.

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