# ONLINE VOTING SYSTEM

Tanmay Kadam[#1]

[#]*Graduate student, master's in computer science, computer engineering department*
*California State University, Long Beach*

**Abstract — :** *The voters of California were finding it inconvenient to vote for the state elections using the traditional approach of visiting the polling station physically. Hence, this system will help them by providing timely, convenient and fast voting service. The system will generate more precise outcome.*

*The desired system will help the voters to cast their votes by getting a unique voter ID and they would also be able to look through the biodata of different candidates for their respective regions or county. On the other hand, the Election Commission can use this system to authorize the voters and the candidates along with some functionalities.*

**Keywords** — *user interface, database, voting, election official.*

## I. INTRODUCTION

It will increase the voter count as many of the voters could not be present at the voting site, especially those abroad. It will make the voting process more convenient and reduce the effort and labour work required at the voting site. The primary purpose would just be to manage and update the online voting site.

Objectives and fulfilment criteria: To make the system efficient we must make sure that the following functions should generate correct output:

- Election Commission should be able to Create/Delete/Update a new and existing voter(s)
- Election Commission should be able to Create/Delete/Update a new and existing candidate(s)
- Voter should be able to cast his/her vote for desired candidate
- System should be able to generate a unique voter ID for each verified user
- Only authorized users should be able to login using his/her voter ID
- System should be able to recognize the face of the voter with the stored image
- Election Commission should be able to Evaluate/Publish the result

## II. CURRENT SYSTEM

Currently, the system uses the following way of voting:

**Paper based voting**: The voter has to cast their vote on a blank paper using a pen or a marker. It is an error prone process as the counting is done manually and it also involves labour work.

**Punch card**: Here, the voter uses a metallic hole-punch for punching a hole on the blank ballot. The result may not be correct always as it involves voter perforation which could be incomplete.

**Lever voting machine**: It is a peculiar took where each lever is assigned for a particular candidate. Here, the voter pulls the lever and cast their vote. This would involve more cost in the instalment plus each voter has to be trained for handling the lever which is thus not very user friendly.

**Direct recording electronic voting machine (DRE)**: It integrates with touch screen, keyboards or buttons for the voter to cast their vote. The counting of votes is quick in this method however the accuracy of this system has always been in question.

**Optical voting machine**: The voter has to fill up the circle next to their candidate after which the system looks for the darkest mark on each ballot for the vote and then it computes the total result. However, it is prone to various errors specially when the voter does not fill the circle properly.

Problems with the current system are as follows

**Time consuming and Expensive**: It takes a lot of time for the voters and Election commission to cast their vote at the polling ballot and to evaluate the results respectively with the traditional approach.

**Errors**: Since most of the systems involve manual labour work, it is bounded to have human errors in counting the votes.

**Too much of paper work**: Many system involves casting of voting on a piece of paper ballot which could end up in piles of paper load.

**Loss of registration form**: Maintaining the registration form for each vote is a difficult task.

**Physical presence required**: Most of the voters cannot vote because of their inability to be present at the polling station during the election period.

### III.PROPOSED SYSTEM

- The information of each voter would be saved in the database of Election commission which could avoid the problem information loss with the traditional approach.
- Facial image of the voter would be verified with the existing database image, during the voting process which could act as a security measure by avoiding any malpractice of wrong voting.
- Election commission would have a separate login which could be used
- Election commission would also be able to perform task to create/update/delete a voter or a candidate
- Election commission can evaluate the voting result and also publish them.

### IV.FUNCTIONAL REQUIREMENTS

- **Voter** (1M max, 500K avg):
- ➢ Each voter can vote only once.

- ➢ Each voter should have a U.S address line and have at least a passport, SSN or a DMV.
- ➢ Each eligible person who wants to vote needs to fill up the registration form hosted by the site with following details.

  First Name:  15 char
  Middle Name: 15 char
  Last Name: 30 char
  Date of Birth: MM/DD/YYYY
  Age: (derived attribute from D.O.B)
  Telephone number: area code and 7-digit number (format: (562) - 350 - 3076); Phone: ([*3-digit  text-field*]) - [*3-digit  text-field*] - [*4-digit text-field*]
  Email (optional):  30 char
   Address:Street  Number,  Street  name (apartment  number  or  alternatively  PO Box): 30 char all in one text-field
  City:  20 char
  State:   2  char  (US  Postal  service abbreviation); combo box
  Zip Code: 5 + 4 numeric
  Passport number: 30 char
  DMV License number: 30 char
  SSN: 20 char

- **Election Commission** (20 max):
  User ID: 15 varchar
  Password: 15 varchar

- **Candidates** (250 max):
- ➢ Each candidate who represents his/her party should have the following details.

First Name:  15 char
Middle Name: 15 char
Last Name: 30 char
Date Of Birth: MM/DD/YYYY
Age: (derived attribute from D.O.B)
Telephone number: area code and 7 digit number (format: (562) - 350 - 3076); Phone: ([*3 digit text-field*]) - [*3 digit text-field*] - [*4 digit text-field*]
Email (optional):  30 char
 Address:
Street Number, Street name (apartment number or alternatively PO Box):  30 char all in one text-field
City:  20 char
State:   2  char  (US  Postal  service abbreviation); combo box
Zip Code: 5 + 4 numeric
Party Symbol: jpeg/gif/bmp Image format (Icon size)
Agenda: 500 char

- **Results**:
Candidate Name: 20 char
Total Number of votes: 10 numeric
City: 20 char

### Use Case models

| Use-case Name: | Capture Voter Information |
|---|---|
| Actors: | Voters |
| Pre-Conditions: | 1.  Voter is not registered. 2.  Database connection is established. 3.  Camera is working. 4.  Space available for Storage. |
| Flow of Control: | 1.  System displays information form to the voter. 2.  Voter will fill up the necessary information. 3.  System verifies if mandatory fields like SSN, Passport, DMV are entered. 4.  Voter submits the form. 5.  System saves the form. 6.  System redirects to next form which will capture user's face image. 7.  System opens live camera. 8.  Voter clicks capture. 9.  System saves Image into database. |

| Post-Conditions: | 1. New voter information stored in database. |
|---|---|
| Error-Conditions: | 1. Mandatory fields are not filled -system prompts user to complete input fields. 2. User already exists. 3. Invalid character-system prompts user to complete input fields. 4. Improper face positioning in the camera. |

| Use-case Name: | Election Evaluation |
|---|---|
| Actors: | Elections Official. |
| Pre-Conditions: | 1. Database connection is established. 2. Space available for Storage. |
| Flow of Control: | Election commission will add/delete/update candidate. System will add/delete/update candidate. Election commission will add/delete/update voter. System will add/delete/update voter. System will verify the voter. System generates voter ID and sends it to the respective voter. Election commission will evaluate result System will calculate the result for each candidate Election commission can publish the result. |
| Post-Conditions: | 1. Voter ID is stored and emailed. |
| Error-Conditions: | 1. Unable to perform above functions. 2. Unable to generate voter ID. |

| Use-case Name: | Voter Login |
|---|---|
| Actors: | Voters. |
| Pre-Conditions: | 1. Database connection is established. 2. Space available for Storage. 3. Voter must have a valid Voter ID. |
| Flow of Control: | Voter will enter his/her voter ID. System will check if it is valid and is a registered voter ID. Voter will enter his/her password. System will store password and redirect to the next page for voting. System will display the list of candidates depending on the region of the voter. Voter casts his/her vote. System stores the vote casted by voter. |
| Post-Conditions: | 1. Casted vote is stored in database. |
| Error-Conditions: | 1. Invalid voter ID. 2. Invalid password. 3. Password and confirm password field does not match. |

**Sequence Diagrams**
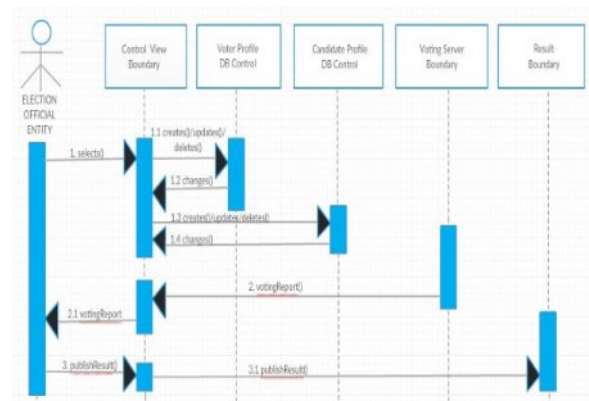


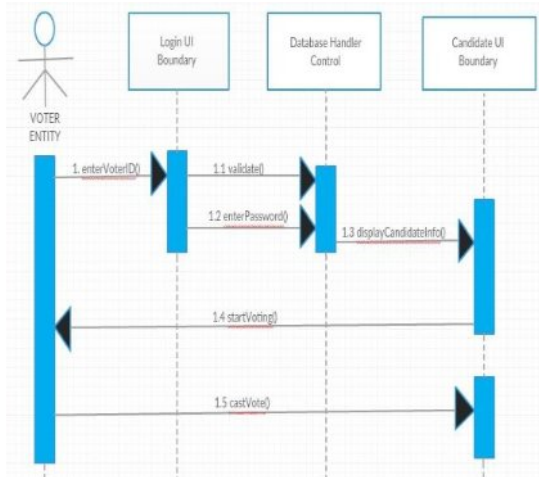**Fig 1: Election Official sequence diagram**

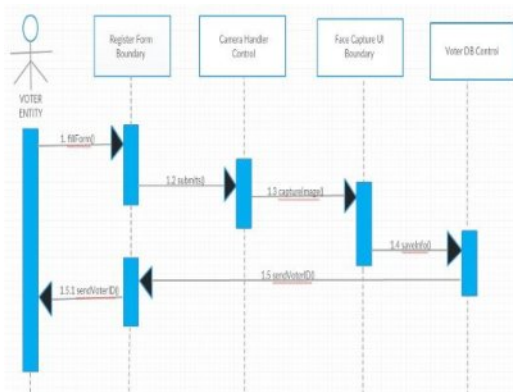**Fig 2: Voter Login sequence diagram**



**Fig 3: Voter registration sequence diagram**

## V. CONCLUSIONS

This Online Voting system will manage the Voter's information by which voter can login and use his voting rights. The system will incorporate all features of Voting system. It provides the tools for maintaining voter's vote to every party and it count total no. of votes of every party. There is a DATABASE which is maintained by the ELECTION COMMISION in which all the names of voter with complete information is stored.

### REFERENCES

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