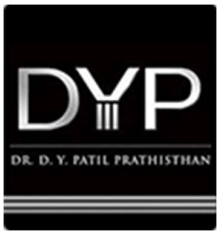

D Y PATIL COLLEGE OF ENGINEERING AKURDI, PUNE

Department of Artificial Intelligence and Data Science

PROJECT BASED LEARNING

Second Year Engineering Programme of SPPU, Semester 4

Group 1

Topic:

Online Voting System

Under the guidance of Prof. Mandar Mokashi

Group A 1

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CHAPTER 1
INTRODUCTION

1.1 ONLINE VOTING SYSTEM

"Online Voting System" is an online voting technique. In this system people who have citizenship of India and whose age is above 18 years of age and of any gender can give his\her vote online without going to any physical polling station. India has democratic government. As now all Indian citizen become a part of the growing digital India. They have a digital ID that is Aadhar card. Voting schemes have evolved from counting hands in early days to systems that include paper, punch card, electronic voting machine. An electronic voting system which is used nowadays provide some characteristic different from the traditional voting technique, and also it provides improved features of voting system over traditional voting system such as accuracy, convenience, flexibility, privacy, verifiability and mobility. But Electronic voting systems suffers from various drawbacks such as time consuming, consumes large volume of paper work, no direct role for the higher officials, damage of machines due to lack of attention, mass update doesn't allow users to update and edit many items simultaneously etc. These drawbacks can overcome by Online Voting System. This is a voting system by which any voter can use his/her voting rights from anywhere in the country. Voter can cast their votes from anywhere in the country without visiting to voting booths, in highly secured way. That makes voting a fearless of violence and that increases the percentage of voting.

1.2 PROBLEM STATEMENT

To create an online platform for online voting and avoid manual voting so that the voter can overcome the drawbacks of existing voting system. The project is mainly aimed at providing a secured and user-friendly Online Voting System. The problem of voting is still critical in terms of safety and security. This system deals with the design and development of a web-based voting system using fingerprint and Aadhaar card in order to provide a high performance with high security to the voting system. The proposed Online Voting System allows the voters to scan their fingerprint, which is then matched with an already saved image within a database that is retrieved from Aadhaar card database of the government. The voting system is managed in a simpler way as all the users must login by Aadhaar card number and click on his/her favourable candidates to cast the vote by using biometric fingerprint it provides enough security which reduces the dummy votes.

1.3 MOTIVATION

The word "vote" means to choose from a list, to elect or to determine. The main goal of voting (in a scenario involving the citizens of a given country) is to come up with leaders of the people's choice.

In many countries like India voting comes with many problems like ridging votes, insecure or inaccessible voting polling stations, inadequate polling materials and inexperienced personnel.

This online voting/polling system seeks to address the above issues. It should be noted that with this system in place, the users, citizens in this case shall be given ample time during the voting period. They shall also be trained on how to vote online before the election time.

Countries like Estonia which is a small country in Europe, has implemented online voting way back in 2005. Hence, online voting is nothing new. India has been using online technology for equally critical activities like banking, aviation, stock exchange, defences communication etc. Before 3years online payment was considered so risky but today in 2022 India has crossed 25.5million online transactions and became the country where most people prefer to play online. In America still people use cash or debit cards but we introduced UPI which is a faster and efficient way of payment, talking about the stock market, first there were physical certificates of share but later we shifted all online and now we have an online Demat account which stands for dematerialized certificates. So, we should just go with the flow and opt for the online voting system the same way. Hence, avoiding online voting due to security concerns is a lame excuse. India prides itself as a producer of the best IT talents in the world. It is time now for India to use the talent of its people to solve the problems.

1.4 OBJECTIVES

The objectives of the project include:

1. Reviewing the existing/current voting process or approach in India.
2. Coming up with an automated voting system.
3. Implementing online voting system.
4. Validating the system to ensure that only legible voters are allowed to vote.

1.5 SCOPE OF ONLINE VOTING SYSTEM

It is focused on studying the existing system of voting in Kenya and to make sure that the peoples vote is counts, for fairness in the elective positions. This is also will produce:

- Less effort and less labour intensive, as the primary cost and focus primary on creating, managing, and running a secure web voting portal.
- Increasing number of voters as individuals will find it easier and more convenient to vote, especially those abroad.

1.6 LIMITATIONS OF STUDY

Flaws in Online Voting System

1. Data Breaching and security

2. Fails in Confirming Voters Identity at real time

3. Everyone might not have mobiles or desktops for online voting

Solutions on these limitations can be as follows:

1. Data Breaching and security – This can be solved by the use of using blockchains and data encryption.

2. Fails in Confirming Voters Identity at real time – This can be solved by having a real time camera to identify the voter.

3. Everyone might not have mobiles or desktops for online voting – The 4. government can provide local cyber cafes and computer center for voting purpose for a given day.

1.7 EXPECTED OUTCOMES

As we are looking at the existing system, they are just providing online voting. As we knew that Government of India contain multiple elections. So, we are implementing our system such that voter can select election and submit their vote region/ward wise. After studying existing system, we observed that they are not providing state wise, region wise voting facility. So, it's difficult to vote because there is no restriction, so voter can also cast his/her vote to those candidates who is not belonging from his/her area. In proposed system we are implementing that voter can cast his/her vote only those candidates who's belonging from his/her region/ward. We will display only those candidates who are belonging from that particular voter's ward. So, it will also help to conduct small election such as Gram Panchayat Election or Nagar Sevak Election. We are making our voting system user friendly.

CHAPTER 2

LITERATURE REVIEW

India is the biggest democracy in the world and should have an efficient and secured voting system, typically starting from the ballot voting and then updating it to the electronic voting system, was really a revolution but in today's era we need a more secure, quick and remote voting system which will lead to 100 percent voting. Before understanding the online voting system, we will quickly check out the current and the voting systems used earlier.

Ballot Voting System

Initially starting with the ballot-paper voting system. It was the very first voting system in which there used to be a box called 'ballot', there were papers on which the symbols of different party candidates were there and people had to put a stamp against the candidate's party symbol to cast their vote. Again, there was a condition that the paper should be folded in a specific manner. Because after folding, obviously the stamp is wet at first, so there is a chance of getting on any other party symbol and this may cause ambiguity.

Fig. 1

Flaws in Ballot-paper voting

1. Too much paperwork which is time consuming

2. As the counting of votes is manual there is a chance of mistake

3. The ballot boxes may get wear out damaging the votes inside it

4. Loss of votes

5. Anyone can manipulate it for his/her personal interest.

6. It lacks transparency - That is When and Who accessed the ballot box is not known.

Electronic Voting System

After 1999 - 2001 the Electronic Voting System was discussed in the parliament of India. Around 2010 electronic voting system was fully implemented. Here there is an

electronic voting machine called the ballot unit which has buttons on it, each allotted for a specific candidate. When any button is pressed, the information is sent to another device called the control unit which saves the vote and increments it. Here all the data is saved in a hard disk which is later shipped for further processing to the head offices.

Fig. 2

Flaws in the Electronic voting system apparently the current voting system:

1. This is the electronic voting system but still the counts and votes are printed to cross-check after shipping the control units. So again, there is waste of time as well as money.

2. Here the control units which have the actual hard disk storing the vote counts are shipped to long distant offices for merging the vote counts from other voting booths. So again, there is transportation cost and time.

3. They can be easily accessed by any third person in between the sender and the receiver during the transportation.

4. Still the registration and validation are a huge process and sometimes people have to wait for hours to cast their votes.

5. People have to travel to the places where they have registered their voting card. They cannot go and vote at any nearest voting booth.

Last year many new channels, agencies and news websites covered this. The New18 covered this issue, it stated that in 2019, 90 percent people who did not vote was because of no remote option of voting. They had to move to the places where they had registered. Again, last year Bihar elections were in august month which became the month having the highest covid cases. So, if the government cannot make the online voting system as dominant and allow online voting, at least the government should make it available in situations like Covid-19 so that people won't risk their life and the mark of 100 percent votes could be reached. Many political leaders raised this issue last year Congress leader Shashi Tharoor also gave a statement that: “This area needs to be explored and it needs to be demonstrated that the technology is hack-proof. Registering a mobile number or email for each Voter ID and giving that person an encrypted code to cast their vote ought to be doable," This is the actual statement by the Lok Sabha member Shahi Tharoor. But many political leaders also opposed this idea questioning the security of this option.

In this EVS the elections are held on public booths at local levels and one cannot go and vote to any nearest booth as it is not allowed. Nowadays people are not living in their hometowns and they migrate to different states, cities for jobs, studies etc. but their registration for voting is still their hometown, so just for elections they have to travel along. Many of them skip elections just for this reason. This reason violates the basic rights of voting due to these hurdles, if there was an online voting system then this issue would have been resolved. Having all these issues in EVS still there is a delay in opting the online voting system, there are again various reasons for this, there might be some advantage in the current system as it is not transparent and the data is not safe. Again, some say there is a security concern in the online voting system and many other reasons. But opting for an online voting system will cause a big turnover for India and is the best choice for elections. Having online voting there is an assurance of 100 percent votes, with the online data servers the data will be transparent and all the actions will be visible. As the data will not be handled by humans it will be accurate.

Countries like Estonia which is a small country in Europe, has implemented online voting way back in 2005. Hence, online voting is nothing new. India has been using online technology for equally critical activities like banking, aviation, stock exchange, defence communication etc. Before 3years online payment was considered so risky but today in 2022 India has crossed 25.5million online transactions and became the country where most people prefer to play online. In America still people use cash or debit cards but we introduced UPI which is a faster and efficient way of payment, talking about the stock market, first there were physical certificates of share but later we shifted all online and now we have an online Demat account which stands for dematerialized certificates. So, we should just go with the flow and opt for the online voting system the same way. Hence, avoiding online voting due to security concerns is a lame excuse. India prides itself as a producer of the best IT talents in the world. It is time now for India to use the talent of its people to solve the problems.

Chapter 3

Proposed Work

Tech Stack Required:

1. Front-End Development:
   a. HTML
   b. CSS
   c. JavaScript
2. Back-End Development
   a. PHP
   b. MySQL
3. Server
   a. Xamp – by Apache Friends
   b.

Front-End Development

Everything you see on a website, like buttons, links, animations, and more, comes under front end web development.

Front-end web development, also known as client-side development is the practice of producing HTML, CSS and JavaScript for a website or Web Application so that a user can see and interact with them directly.

The objective of designing a site is to ensure that when the users open up the site, they see the information in a format that is easy to read and relevant.

It is the front-end developer's job to take the vision and design concept from the client and implement it through code.

Also Creating a front end experience isn't a one-person job. In fact, it takes a group of people to create a website that looks as good as it feels to use.

Most often, this group will be comprised of a front-end developer — whose job it is to actually write the code for the functions of the website — and a UX or UI developer, who will work on the visuals of the website.

The front-end experience usually goes through a few different stages of development, including the creation of wireframes (rough outlines of the user flow), prototypes (working examples of the site), and finally user testing.

Developer needs to ensure that their site comes up correctly in different browsers (cross-browser), different operating systems (cross-platform) and different devices (cross-device).

HTML

HTML stands for Hyper Text Markup Language. HTML is the markup language for encoding Web pages. It used to describe the structure of webpage. HTML markup

tags specify document elements such as headings, paragraphs, and tables. They mark up a document for display by a computer program known as a Web browser. The browser interprets the tags, displaying the headings, paragraphs, and tables in a layout that is adapted to the screen size and fonts available to it. We have used these basic elements for developing our web application.

CSS

CSS (Cascading Style Sheets) is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

CSS is used to style and layout web pages — for example, to alter the font, color, size, and spacing of your content, split it into multiple columns, or add animations and other decorative features.

This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics.

JavaScript

JavaScript is a text-based programming language used both on the client-side and server-side that allows you to make web pages interactive. Where HTML and CSS are languages that give structure and style to web pages, JavaScript gives web pages interactive elements that engage a user. Incorporating JavaScript improves the user experience of the web page by converting it from a static page into an interactive one.

- Show or hide more information with the click of a button
- Change the colour of a button when the mouse hovers over it
- Slide through a carousel of images on the homepage
- Zooming in or zooming out on an image

This all comes under JavaScript.

Backend Development

Back-end Development refers to the server-side development. It focuses on databases, scripting, and website architecture. It contains behind-the-scenes activities that occur when performing any action on a website. It can be an account login or making a purchase from an online store. Code written by back-end developers helps browsers to communicate with database information. Most common example of Backend programming is when you are reading an article on the blog. The fonts, colours, designs, etc. constitute the frontend of this page. While the content of the article is rendered from a server and fetched from a database. This is the backend part of the application.

Database Creation in MySQL

1. Database for storing the registration details

Here we use the insert query in SQL to insert the data to the table.

Query used to insert data in tables

INSERT INTO table name (column1, column2, column3, ...) VALUES (value1, value2, value3, ...);

Here the columns in the registration table are First name, Last name, email, password.

While registration the user enters the data in the form and submit it. When the submit button is clicked the 'INSERT' query is triggered due to the PHP code.

2. Accessing the details from the MySQL Database

SELECT column1, column2, ...

FROM table_name;

or

SELECT * FROM table_name;

This query is triggered for Login purposes. Whenever the user enters the credentials the actual data from the registration details are selected and compared.

Even in the voters dashboard the name of the voter and all his details are displayed with the help of the SELECT query itself.

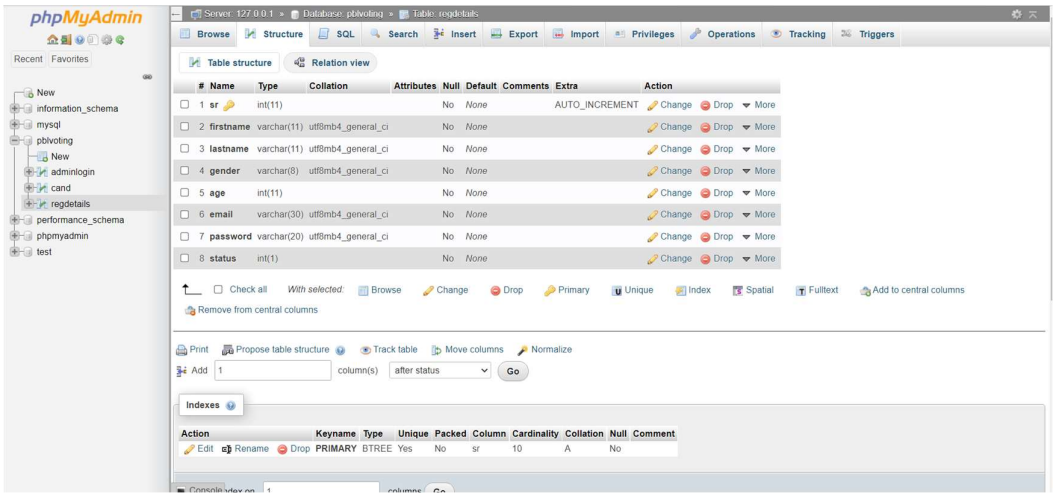


Fig. 4 Registration table in DBMS

3.1 ER Diagram

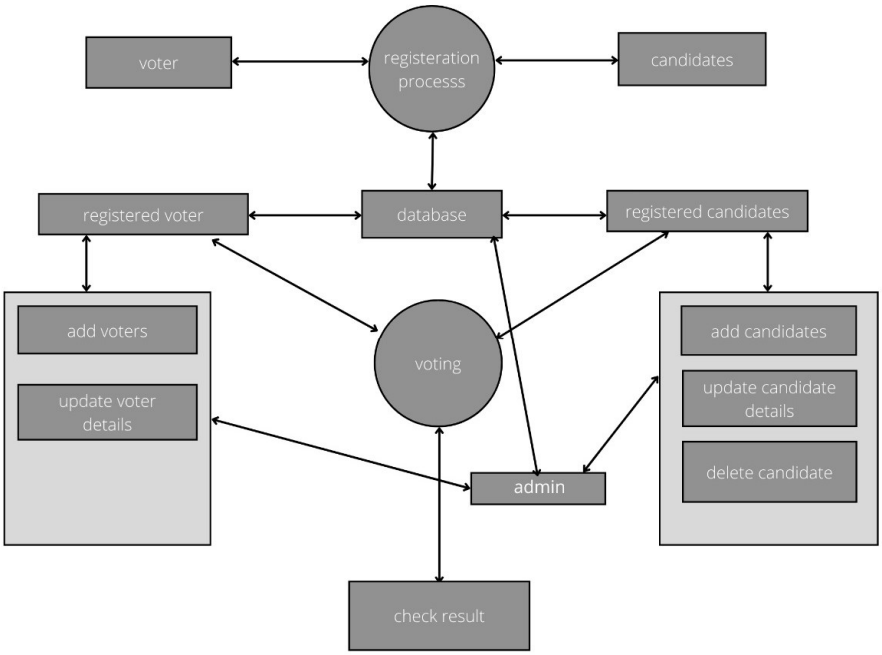


Fig. 3 ER Diagram

This is the Software architecture of our project.

Here the green arrow represents the page redirection and the blue represents the data flow along the database.

Initially starting from the Registration page. Here the user enters the details like name, age, email, voters' number. Here the user also creates a password. You can see the blue arrow from the registration page is connected to the database. This means all information is send to the data base directly.

After that the user is redirected to the login page where he/she can log in to the account. This action is represented with the green arrow. Here the user enters the email and password that was set by him. Now this password and email is sent to the database again not to store but to verify the credentials with the registration details, if the password matches then only the user is redirected to the Voters dashboard page.

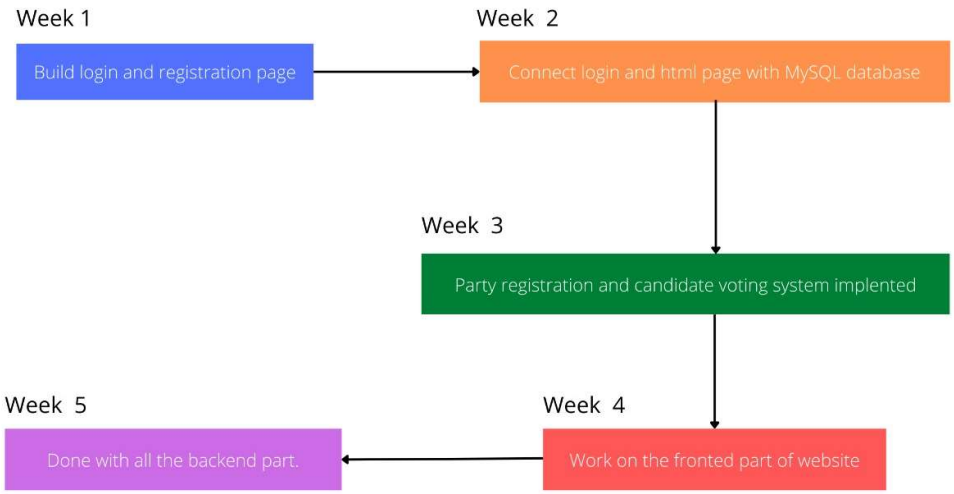
You can see there is a separate admin login page. This is for the login purpose of the administrator which have the functionality of adding the candidate for elections and also declaring the result of the election. There is no admin registration page for security reasons. Admin login works the same way as the voters' login. After the admin login the admin is redirected to the admin's dashboard.

This was all about the project architecture or the ER diagram.

Chapter 4

Development plan

4.1 Weekly Schedule



Week 1: Build login and registration page using HTML, CSS and JavaScript.

Week 2: Connect login and html page with MySQL database using the PHP language having appropriate tags.

Week 3: Party registration and candidate voting system implanted. Designing the voters login page i.e., the dashboard and the voters and the administrator.

Week 4: Work on the fronted part of website.

Week 5: Done with all the backend part. Displaying and calculating the votes and results on the administrator's portal.

Chapter 5

Conclusion

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 OF INDIA in which all the names of voter with complete information are stored. In this user who is above 18 year's register his/her information on the database and when he/she want to vote he/she has to login by his id and password and can vote to any party only single time. Voting detail store in database and the result is displayed by calculation. By online voting system percentage of voting is increases. It decreases the cost and time of voting process. It is very easy to use and It is vary less time consuming. It is very easy to debug.

Chapter 6

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