



# Online Voting System

**Karpagavalli K<sup>1</sup>, Mahamanimaran V<sup>2</sup>, Naveen R<sup>3</sup>, Rahul RM<sup>4</sup>**

<sup>1</sup>Assistant Professor, Department of Computer Science and Engineering, Sri Ramakrishna Institute of Technology, Coimbatore, India

<sup>2,3,4</sup>UG Students, Department of Computer Science and Engineering, Sri Ramakrishna Institute of Technology, Coimbatore, India

**Abstract**— In today's digital era, the need for efficient and secure voting systems has become paramount. Traditional voting methods often face challenges such as long queues, logistical constraints, and potential security vulnerabilities. As a result, there is a growing interest in developing online voting systems that can offer convenience, accessibility, and robust security measures. This project proposes the design and implementation of an online voting system aimed at addressing these challenges. The system utilizes state-of-the-art encryption techniques to ensure the confidentiality and integrity of votes while maintaining voter anonymity. Furthermore, multi-factor authentication mechanisms are employed to verify the identity of voters and prevent unauthorized access. The system architecture is built upon a distributed network infrastructure to enhance scalability, reliability, and resilience against cyber-attacks. Additionally, user-friendly interfaces are developed to facilitate easy navigation and voting process for all stakeholders, including voters, election officials, and administrators. The project also emphasizes the importance of compliance with regulatory requirements and standards to ensure the legality and trustworthiness of the voting process. Extensive testing and evaluation procedures are conducted to validate the system's functionality, performance, and security aspects.

**Keywords**—HTML, CSS, Java Script, PHP,MYSQL, phpMyAdmin, XAMPP.

## I. INTRODUCTION

In an era characterized by rapid technological advancement and the ubiquitous presence of the internet, the traditional methods of conducting elections are being increasingly scrutinized for their limitations in terms of accessibility, efficiency, and security. As societies strive to uphold the principles of democracy and ensure the inclusivity of electoral processes, there arises a pressing need for innovative solutions that can modernize voting systems while maintaining the integrity and transparency of democratic institutions.

The advent of online voting systems represents a significant step towards achieving this goal. By harnessing the power of digital technology, online voting systems offer the promise of greater convenience, accessibility, and efficiency in the electoral process. However, the implementation of such systems also poses formidable challenges, particularly with regards to security, privacy, and trustworthiness.

This project seeks to address these challenges by proposing the design and implementation of a robust and secure Online Voting System (OVS). The primary objective of this system is to provide a reliable platform for conducting elections in a manner that is both technologically advanced and democratically sound.

Through the utilization of state-of-the-art encryption techniques, multi-factor authentication protocols, and stringent security measures, the proposed OVS aims to safeguard the integrity and confidentiality of the voting process. Furthermore, by incorporating features such as user-friendly interfaces, multi-language support, and compatibility with assistive technologies, the system strives to ensure the accessibility and inclusivity of the electoral process for all citizens.

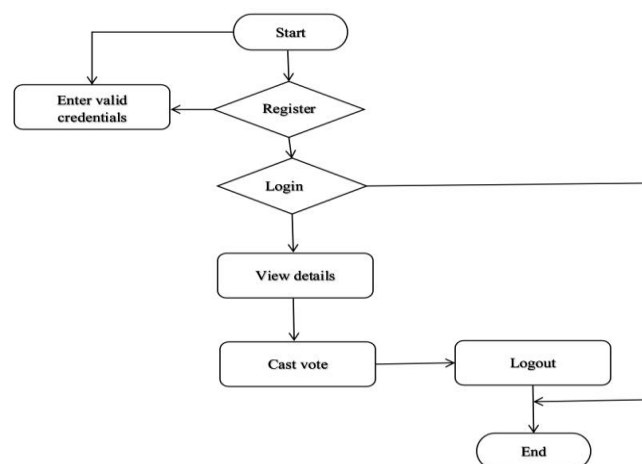
In this introduction, the key components and features of the proposed Online Voting System, as well as discuss the significance and potential impact of implementing such a system in modern democracies. By exploring the challenges and opportunities associated with online voting, we aim to underscore the importance of advancing technological solutions that can enhance the democratic experience while upholding the fundamental principles of transparency, security, and fairness in elections.

## II. LITERATURE SURVEY

[1] Bhushan M. Pawar et.al The aim of this project is to make the democratic process simple for the students at the college level. Presently in our college, vote casting is performed by utilizing paper and counting is done manually so it expends students as well as educators valuable time, also there can be a possibility of error while tallying the cast votes. All this makes the vote casting process very dreary so in our project, the vote capturing and tallying is done on the web. It saves processing time, avoids human errors and there won't be any invalid votes It has a basic user interface of application which attracts users. As this application is planned for students, so verification happens on the basis of unique ID code which is students registered ID, to cast their votes remotely from any place. This is a combo box application so it additionally comprises university question papers, syllabus, and college fundamental data or different activities of the college.

[2] Sridharan Srivatsan et.al This paper aims at creation of a voting system by providing a cost-effective solution to the government along with ensuring non-traceability and integrity of the votes cast while providing great convenience to voters. This system is developed robustly to ensure that all eligible voters having a Universal Identification Number of their country (For Example the Smart Card in USA) is allowed to cast their respective vote. The voters, who cast multiple votes during the process of voting is ensured to be prevented. Also, to ensure the maintenance of authenticity, any biometric identification of the voters could be used for accessing the terminal to cast their vote and restricting them to cast again. The process of online voting could be deployed with three phases - the voter registration online vote capturing and the instant online counting and result declaration. A Secret Voting Password provided to voter during registration acts as an authentication mechanism which enables the voters to securely cast their vote along with their captured biometric identification. A Simulation result of implementation of the same is described in this paper by describing the robustness of this system.

## III. BLOCK DIAGRAM



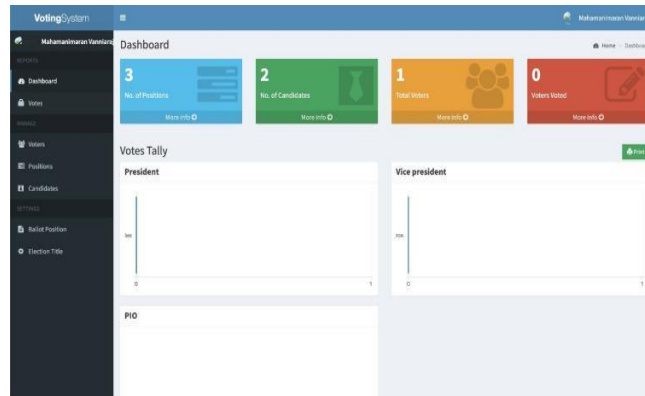
**Fig 3.1** Block diagram

## IV. IMPLEMENTATION

The online voting system website's dashboard offers a thorough summary of the election process, including important data like the number of seats up for grabs, the total number of candidates vying for each spot, the total number of eligible voters who have registered to vote, and the number of votes cast thus far.

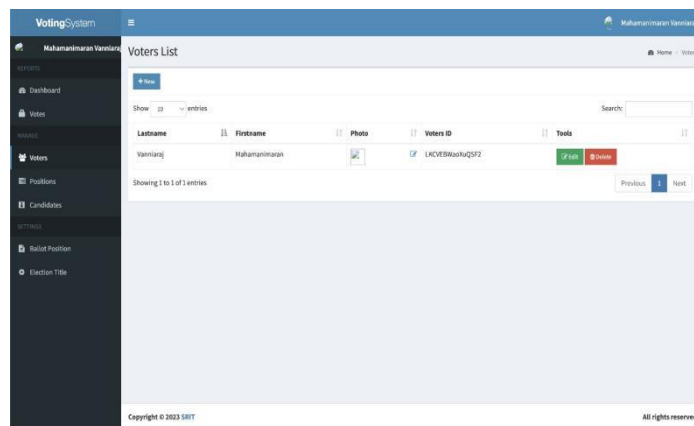
It also features a Votes Tally Bar Graph, which provides a visual depiction of the distribution of votes among the candidates and makes it easier to understand voting patterns and candidate performance.

This dashboard promotes openness and participation throughout the voting process by providing users and administrators with insightful data on the election's progress and turnout.



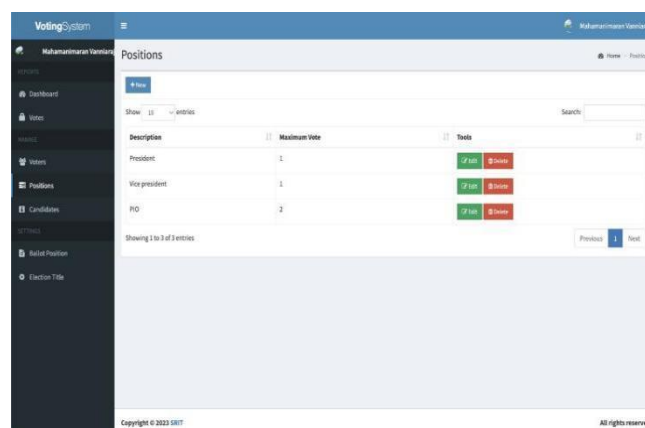
**Fig 4.1:** Dashboard listing of voters and votes.

The primary information about registered voters, such as their first and last names, voter ID, and photo, is shown on the voters list page of your online voting system website. This page functions as a thorough directory, making it simple for users to find and confirm the identities of voters who are eligible. The voters list website increases accountability and transparency in the voting process by making important data, like voter IDs and names, easily accessible along with visual representations in the form of images. Voters can ensure their involvement in the election process by navigating through the list to identify individual voters, facilitating a seamless and effective voting process.

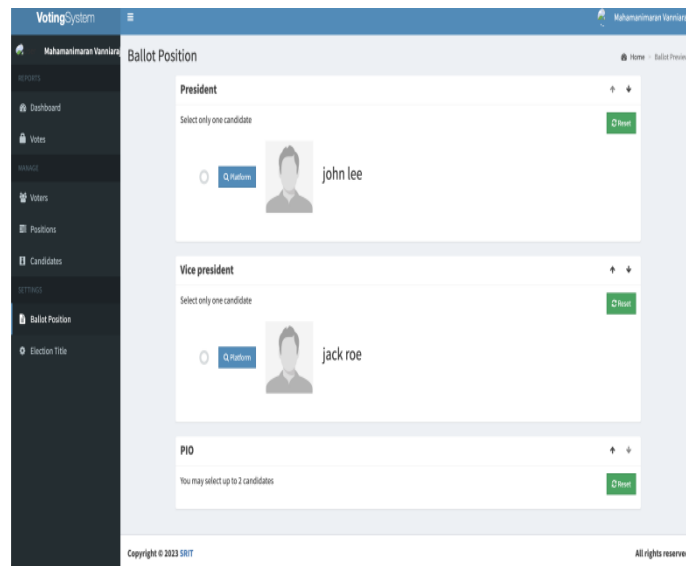


**Fig 4.2:** Updating the voter details

The online voting system's Position page acts as a primary point for organizing the open seats for the next election. Easily added or deleted positions like vice president, president, and PIO (public information officer) can be found here, allowing administrators to be flexible and adaptable to the changing needs of the election process. Administrators can streamline the setup and configuration for every election cycle by effectively organizing and customizing the list of positions using intuitive controls and user-friendly interfaces. This page is essential to the voting framework's organization, as it offers transparency and clarity about the many jobs that are up for election and facilitates the smooth administration of the electoral process.



**Fig 4.3:** Update the position of voter

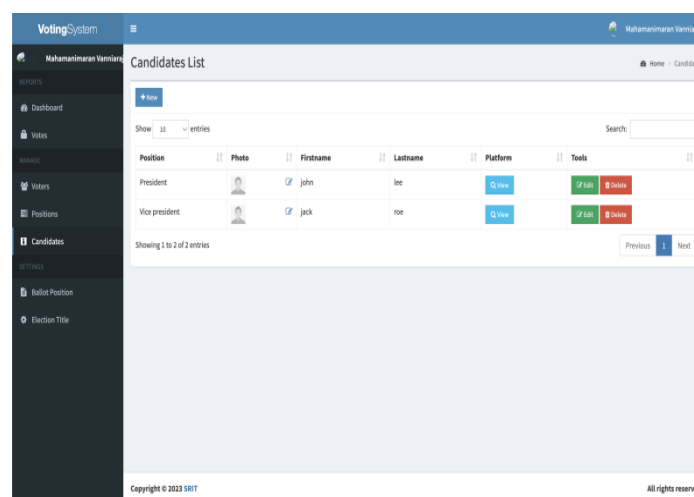


**Fig 4.4:** Option for voters

One essential tool for organizing the list of candidates running for office is the candidates list page on the website of the online voting system. Administrators can easily add or delete candidates here and associate them with certain roles they are running for, like vice president, president, or other positions. In order to guarantee integrity and transparency in the election process, this page offers administrators a simplified interface for organizing and customizing the list of candidates.

The system helps administrators to keep an accurate depiction of the candidates running in the election by making it easier to add and remove candidate entries in response to changing conditions. This feature enables

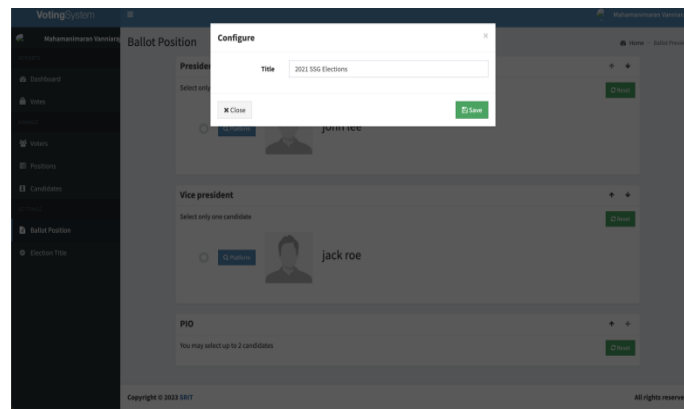
administrators to effectively supervise the process of choosing candidates and ensure accountability and openness throughout the election process.



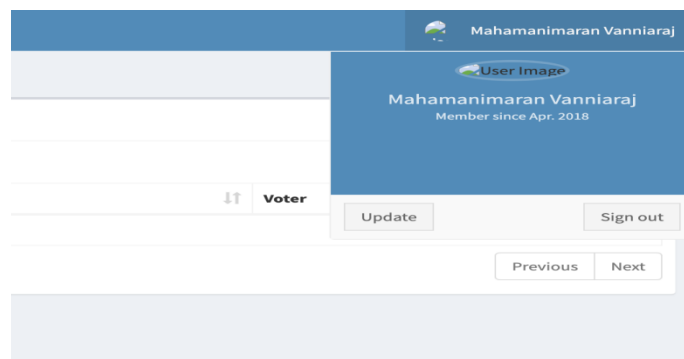
**Fig 4.5:** Candidate lists

Voters will find the candidates and positions easily arranged and presented thanks in large part to the Ballot Positioning page on your online voting system website. Administrators can organize candidates and positions on this page in the preferred order for the ballot, guaranteeing voting neutrality and fairness.

Administrators may quickly adjust the order of candidates and jobs by offering a user-friendly interface, which can accommodate any particular needs or preferences. Furthermore, by providing voters with an organized and transparent ballot layout, the Ballot Positioning page improves transparency and clarity and empowers voters to make informed selections throughout the voting process. The online voting system facilitates a smooth and dependable voting experience for all voters by effectively managing the placement of ballots.



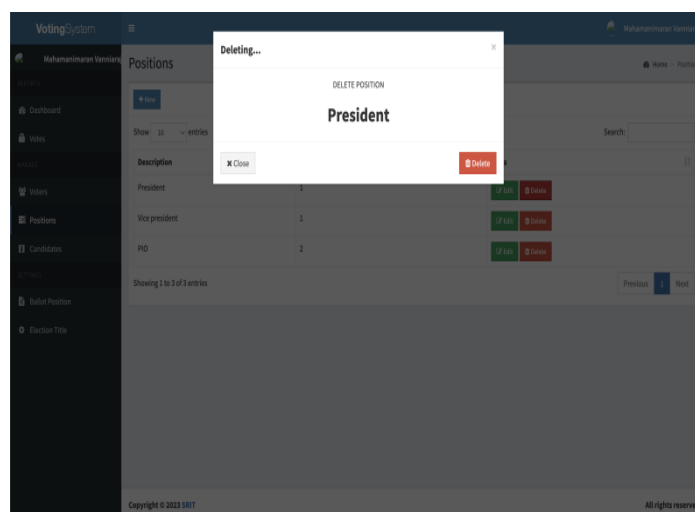
**Fig 4.6:** Updating election bio-details



**Fig 4.7:** User Interface

The procedure for removing a position from your online voting system is simple and effective when done through the Position page. Administrators can use the assigned administrative controls to quickly eliminate roles that are no longer needed or relevant. Administrators verify their selection of the position to be erased in order to guarantee that the activity is purposeful and meaningful.

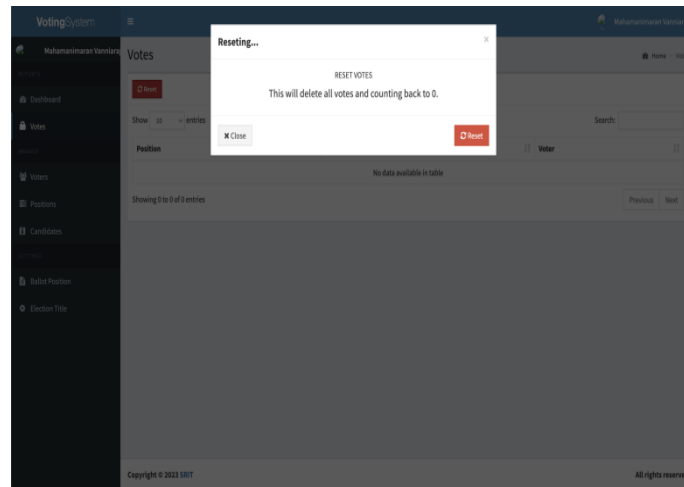
By swiftly eliminating positions that are out-of-date or unnecessary from the list, this streamlined procedure contributes to the integrity and accuracy of the voting system. Furthermore, the deletion function is flexible and adaptable, enabling administrators to modify the election's structure in response to evolving needs or conditions.



**Fig 4.8:** Deleting the position

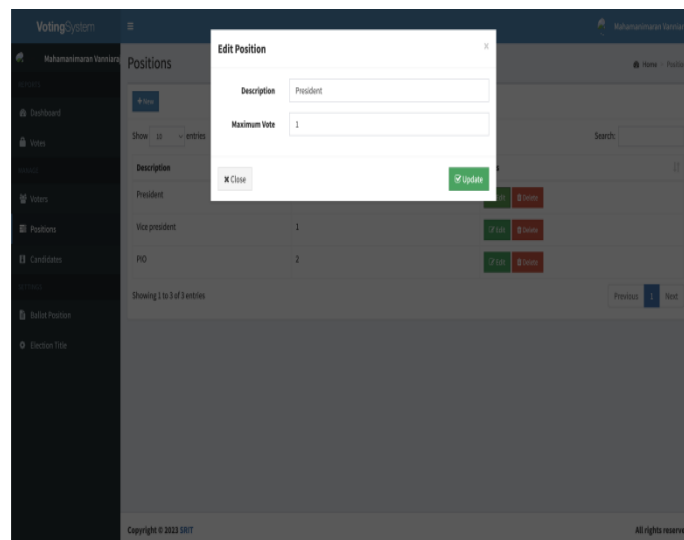
Resetting the votes on the Votes page of your online voting system website entails returning the vote totals to their initial values, so erasing any votes that have been cast. Administrators may take this step by using the specified administrative controls; usually, they do so to address any anomalies or disparities or to end an election cycle.

Administrators verify their choice to reset the votes after making it, making sure that it was made consciously and purposefully. By clearing all votes cast, this procedure essentially creates a blank canvas for upcoming elections or voting system modifications. Furthermore, by resetting the votes, administrators have the freedom to preserve the voting system's correctness and integrity, guaranteeing that it will continue to be dependable and transparent in the future.



**Fig 4.9:** Resting the vote

Editing a position on your online voting system website entails fine-tuning its details to appropriately represent the job's role in the election process. Administrators has the ability to provide voters a thorough explanation of the role, including its duties and importance. Moreover, administrators have the ability to define the upper limit of votes that can be cast for a given post, guaranteeing impartiality and uniformity throughout the voting procedure. Admins are able to easily alter the position data by gaining access to the assigned administrative controls, which guarantees voters' clarity and openness. By customizing the position information to the unique needs of the election, administrators can improve voter comprehension and involvement through this editing process.



**Fig 4.10:** Editing the position for candidate

## I. CONCLUSION

The design and implementation of an Online Voting System (OVS) represent a significant milestone in the evolution of electoral processes, offering a technologically advanced solution to address the challenges and limitations of traditional voting methods. Through this project, we have proposed a comprehensive system that prioritizes security, accessibility, and transparency, aiming to enhance the democratic experience for citizens around the world.

By leveraging state-of-the-art encryption techniques, multi-factor authentication protocols, and stringent security measures, the OVS provides a robust framework for safeguarding the integrity and confidentiality of the voting process. Moreover, the system's user-friendly interface, multi-language support, and compatibility with assistive technologies ensure that all citizens, regardless of background or ability, can participate in the electoral process with ease and confidence.

The implementation of an Online Voting System offers numerous benefits, including increased voter turnout, reduced logistical challenges, and enhanced efficiency in the administration of elections. Furthermore, by facilitating remote voting options, the OVS enables greater inclusivity and accessibility, particularly for individuals with mobility constraints or those residing in remote locations.

In conclusion, the Online Voting System presented in this project represents a significant step towards modernizing electoral processes and advancing democratic ideals in the digital age. By harnessing the power of technology to enhance accessibility, security, and transparency, we can pave the way for a more inclusive and participatory democracy, where every citizen's voice can be heard and counted.

## II. REFERENCES

1. Aakash Suryavanshi, "Online Voting System for Students", was published in the year 2020.
2. Idongesit Ecocide Eteng. "Online Voting System for Colleges and Universities", published in the year 2018.
3. Bhushan M. Pawar, Sachin H. Patode, Yamini R. Potbhare "An Efficient And Secure Students Online Voting Application" (year 2020).
4. R. Divakar Subram, V. Kowsika, K. Girinath, K. Karthick, "College Election using Online Voting", published in the year 2021.
5. K. P. Kaliyamurthie, R. Udayakumar, D. Parameswari, S. N. Mugunthan, "Highly Secure Online Voting System over Networks", published in the year 2020.
6. Aradhana Panikkar. Subhadra Panikkar, Sorys Narayan Gambira, Sandhya, Prince Komer Sabu "Online Voting System" (year 2011).
7. Godwin Emma and Clarian Makungu, "Advanced Technology using Online Voting System", published in the year 2019.
8. Sridharan Srivatsan, "Implementation of Authenticated and Secured Online Voting System" published in IEEE 2013.
9. H. Purandare, A. Saini and F. Pereira. "Applications for Online Voting System using Android Devices", published in IEEE 2018.
10. S. B. Khimar, P. S. Naidu and R. Kharat, "Secure Authentication for Online Voting System", published in IEEE 2016.