Online Smart Voting System Using Image Processing

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ABSTRACT
In this paper, an online voting system is proposed, aiming to accommodate users, candidates, and administrators. Emphasizing security and user-friendliness, the system incorporates unique ID generation to enhance authentication beyond standard login credentials. Administrators are assigned a crucial role in verifying user information and determining eligibility for voting privileges. Furthermore, the system effectively oversees voting events and election details, ensuring transparency and smooth operation. A user-friendly interface is implemented to facilitate seamless navigation, while the integration of a chat bot provides valuable voter support throughout the process. The overarching goal of the system is to inspire confidence in the integrity of online voting procedures.

Keywords: Online Website voting, Face Capturing, Face recognition using Haar cascade.

1. INTRODUCTION
Elections are the foundation of any democracy and the true spirit of democracy lies in people choosing their own government. But the way elections are conducted right now in our country has defects and loopholes. The current system has a lot of loopholes like the possibility of duplicate votes, rigging EVMs, faking the count, all of which tampers the true meaning of democracy. Through the Smart voting system that uses facial and fingerprint recognition, people who do not live in the same place or the old or someone, who cannot wait in long queues for a long time will be benefitted. The voter can comfortably vote from anywhere and the possibility of duplication of the vote is also reduced through the same. This Online Voting System uses Image processing to detect voter's faces by using haar Cascade Algorithm. Face and fingerprint image features are exacted and compared with the database. Importantly, the system developed is entirely web-based which is very inexpensive compared to the present systems. In this system people who are authorized by the admin can cast his/her vote online without going to any physical polling station. There are many voting procedures which are being used for Voting purpose, such as ballot paper, EVM machine but all these procedures require more time and more man power so to eliminate all these drawbacks we provide an online voting system which provides features such as accuracy, convenience, flexibility, privacy and verifiability.

1.1 Problem Background:
In the recent times there are many literatures on online voting has been developed. While online voting has been an area of research in the recent years, there are efforts made to make online voting system more secure. The use of insecure Internet, and the resulting security Breaches have been reported recently. So, the main issue now to resolve these security breaches such as denial of service attack.

1.2 Research Objective:

The main objective of this study is to make a step forward in the direction of online voting platform by providing all the essential security levels. The objective of this study is to make the voting process easy, less time taking, and secure. Online voting system eliminate the bogus voting which can occur in tradition voting schemes.

1.3 Scope of Study

As we all know that there are many organizations that conduct elections for the positions like “Group leader, Project leader, Employee of the month, and for some minor changes in working environment etc. In that case, online voting can very helpful to conduct vote. People can cast their vote from anywhere. As colleges conduct elections for positions like president, vice president etc. for many college societies like CSI, Trinity etc, and other management posts for students and online voting system can be used on any cases like these efficiently it can be customized according to client needon any type of elections.

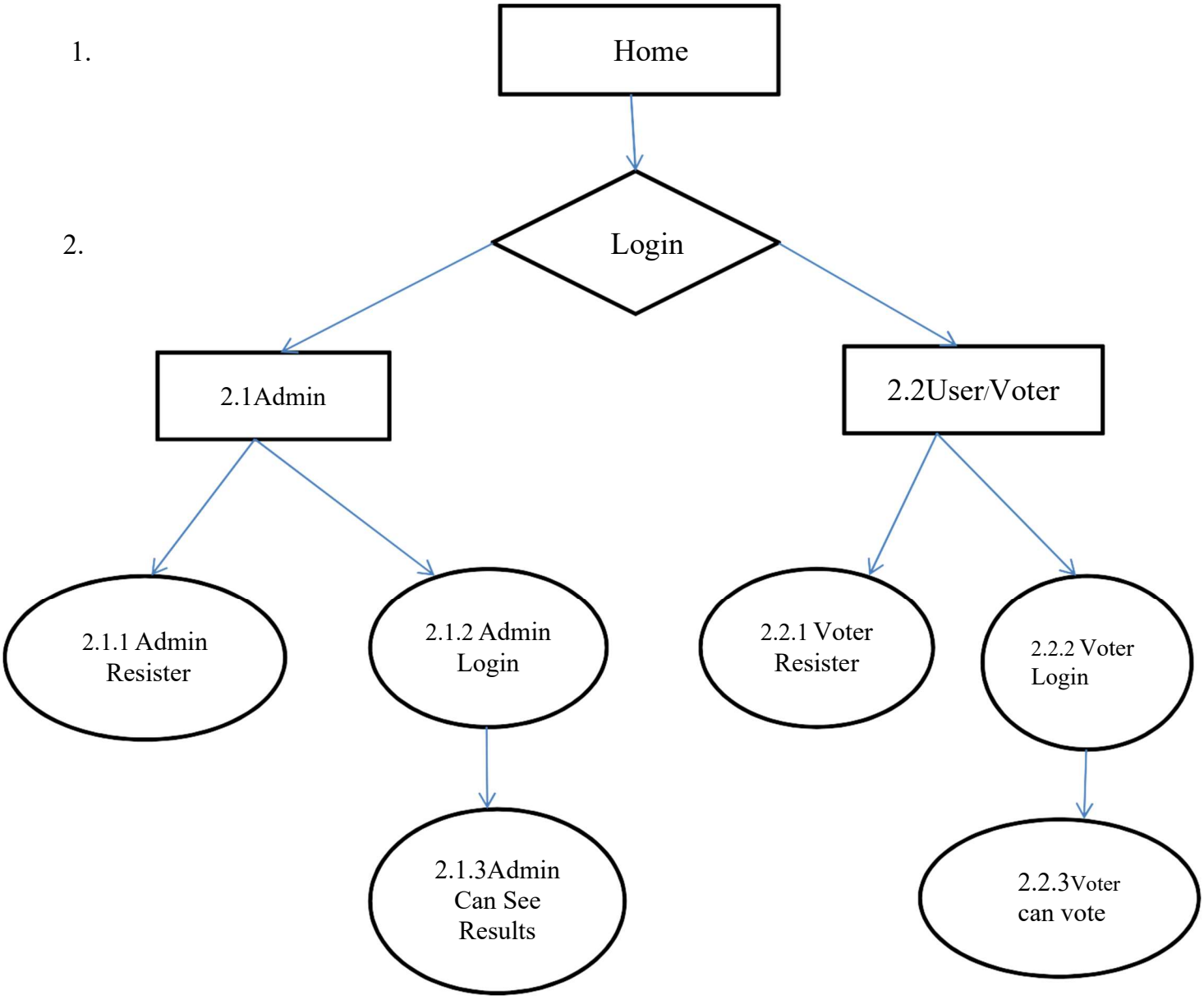
1.3.1 LITERATURE REVIEW

1.Firas I. Hazzaa, Seifedine Kadry, Oussama Kassem Zein,The paper"Web-Based Voting System Using Fingerprint: Design and Implementation" While online voting has been an area of research in the recent years, there are efforts made to make online voting system more secure. The use of insecure Internet, and the resulting security Breaches have been reported recently. So, the main issue now to resolve these security breaches such as denial of service attack.

2.Alaguvel.R, Gnanavel.G, Jagadhambal.K,The paper "Biometrics Using Electronic Voting System with Embedded Security" presents a novel approach to electronic voting by integrating biometric authentication with embedded security measures. While this system offers numerous advantages, including enhanced security and authentication accuracy, it also faces several potential disadvantages. These include high implementation costs associated with biometric technology, concerns regarding the accuracy and reliability of biometric scans in adverse conditions, privacy issues related to the collection and storage of sensitive biometric data, accessibility challenges for individuals with disabilities, technical complexities in system integration, and vulnerabilities to hacking or manipulation. Despite these drawbacks, the paper likely emphasizes the importance of addressing these concerns to ensure the integrity, accessibility, and security of the voting process in modern democracies.

3. Malwade Nikita, Patil Chetan, Chavan Suruchi,The paper "Secure Online Voting System Proposed By Biometrics And Steganography" likely offers innovative solutions to enhance the security of online voting through biometric authentication and steganography. While these methods can bolster security, potential disadvantages may include increased system complexity, higher costs associated with implementing advanced security features, challenges in user acceptance due to privacy concerns, technical hurdles related to accuracy and interoperability, accessibility issues for certain groups, and security risks such as biometric data breaches or steganographic message detection. Successfully addressing these drawbacks is crucial for developing a reliable and trusted online voting system that ensures the integrity, privacy, and accessibility of the electoral process.

3. MODULES OF SYSTEM



1.HOME:This would be the landing page of the online voting system, where users can navigate to different sections like login, registration, information about the voting process, etc.

2.LOGIN :This is where users, who are already registered, can log in to access their accounts. There seem to be two main types of logins:

2.1 Admin Login: Reserved for administrators or those with administrative privileges. This section likely includes functionalities for managing the voting process, overseeing registrations, monitoring voting activities, etc.

2.1.1. Registration to Admin: This is where individuals can sign up to become administrators. They would likely provide necessary information and credentials to prove their eligibility for administrative roles.

2.1.2. Admin Login: Once registered, administrators can log in to access the backend system for managing the voting process.

2.2 Voter Login: For general voters who are eligible to participate in the voting process. This section allows them to access their accounts and cast their votes securely. This structure outlines the different access points

and functionalities within an online voting system, distinguishing between administrative tasks and voter-related activities.

2.2.1. Voter Registration: Here, eligible voters can register themselves by providing necessary information such as name, address, identification details, etc. This process ensures that only authorized individuals can participate in the voting process.

2.2.2. Voter Login: After registration, voters can log in to their accounts using their credentials to cast their votes during the specified voting period.

4 RESULT:

Online voting is a portal through which a voter can cast his vote by registering themselves on the online voting platform. All the information about users is entered in database by which admin can verify the user. There are different tables in database for users, candidates, result, admin. Each voter has to enter his all basic information like name, gender, state, email-id. This is the first page of the website known as the welcome page. It has all the page options like Home, Polling Dates, Register, Login, about us, Contact us, FAQs.

3.1 Home:

It is the first page of our portal, having all the feature options of the portal. It has a link of other pages such as registration page, login page, admin section. This page also gives brief description of our system about how it works, hence this page gives user the overview of whole system.

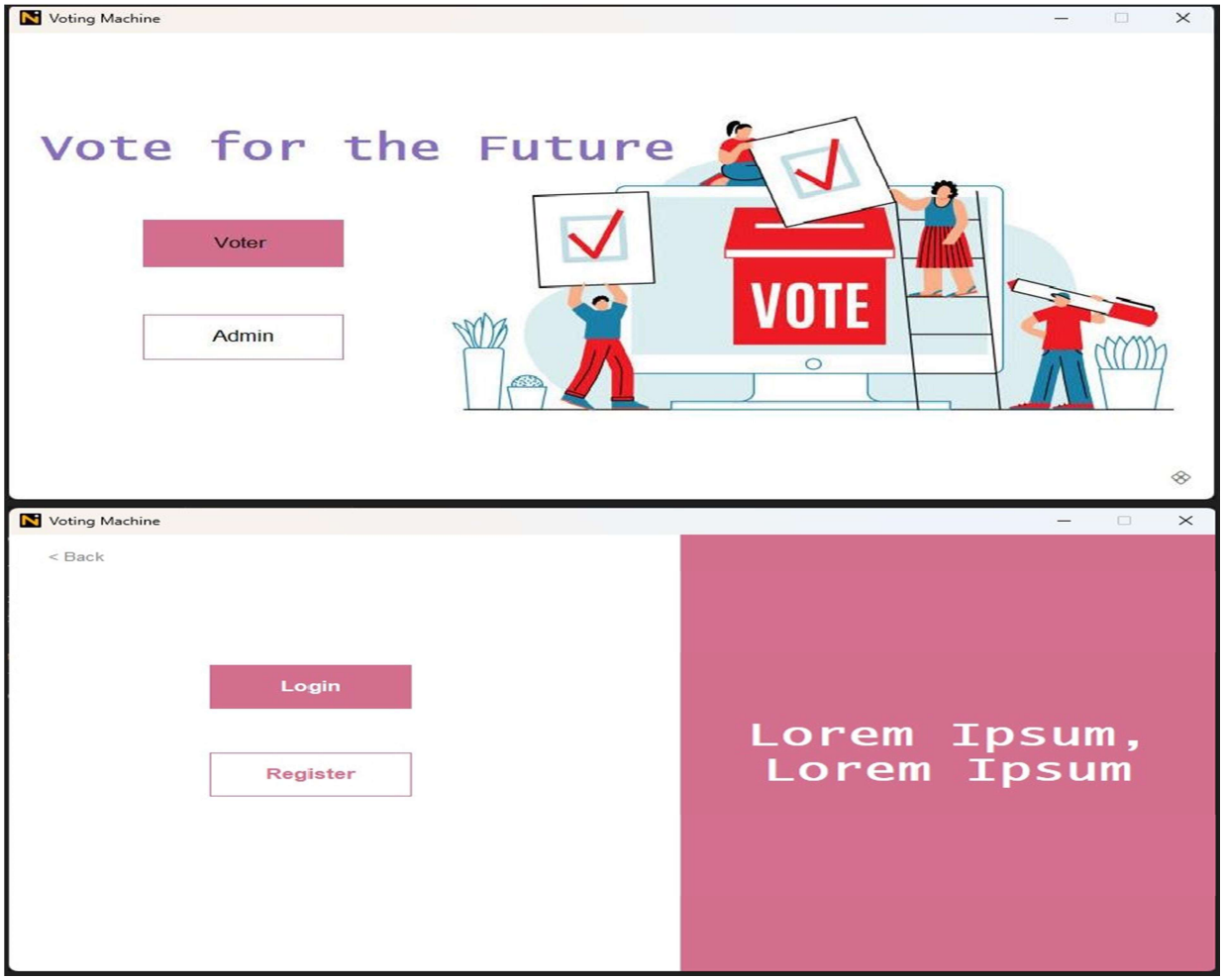


Fig 1: Home

3.2Registration:

This is the registration page, where the voter can register themselves. The users have to enter their details which are required by admin through registration page. All the details registered on the portal are saved in the respective database. The Admin has authority to accept eligible user, otherwise he has right to reject their registration by providing reason of rejection.

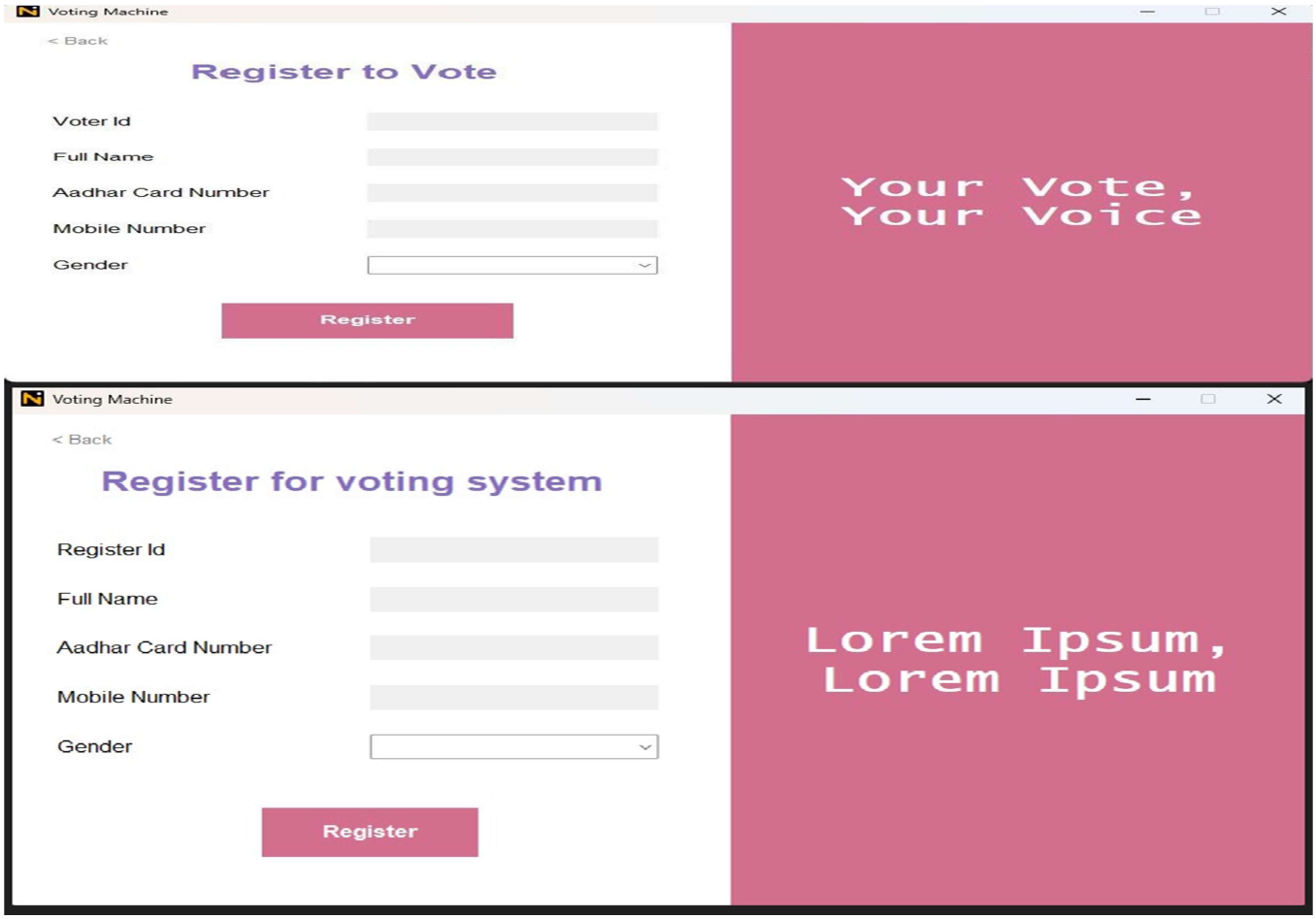


Fig 2: Registration

3.3 User Login:

After registering into the portal, their details are saved to the database and sent to the admin. The user can Login to the portal with his unique USERNAME and PASSWORD generated through registration. There is option for FORGOT PASSWORD, in case user forget his password then user can go with option of forgot password.

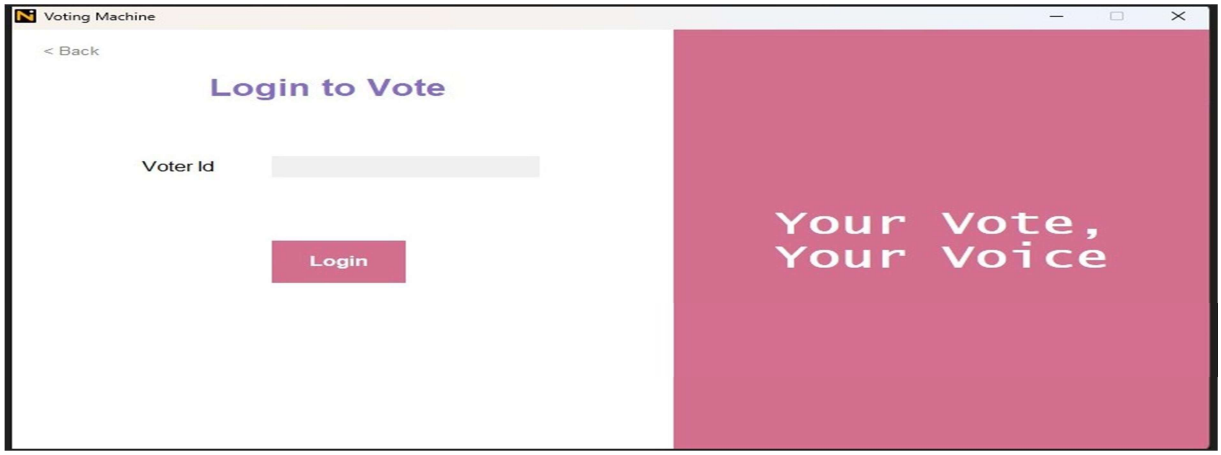


Fig 3: Login

3.4 Admin Panel:

From here admin can login to his account and can manage whole voting process by adding new election, generating id for user, verifying the users, generating result and many more. He has the right to generate id for user by verifying the users.

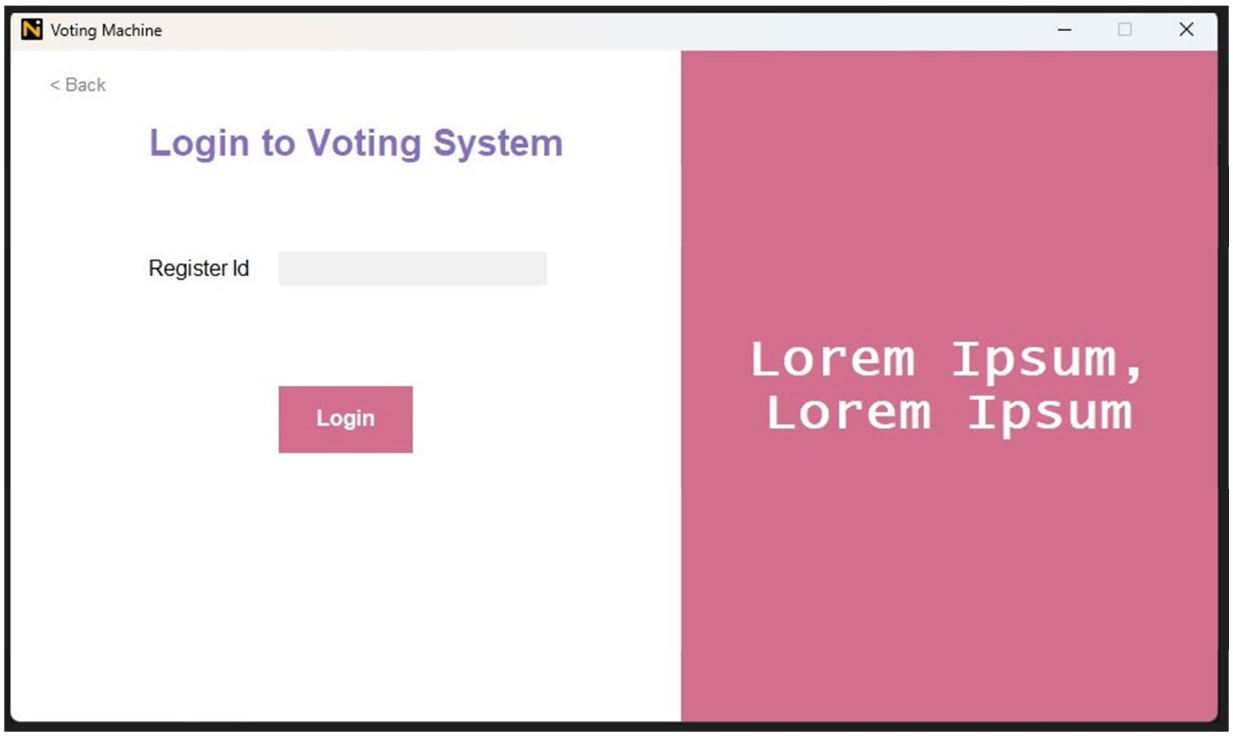


Fig 4: Admin Panel

3.5Election:

This a module which gives a list of all ongoing election, this module is accessible only to those users who have been verified by admin. By this module user can cast their vote by selecting a candidate of a particular election.

Fig 5: Election panel

3.1 Result Panel:

This module provides the results of all the completed elections; user has the right to see the result of elections. All the results are being generated by admin after the successful completion of the election.

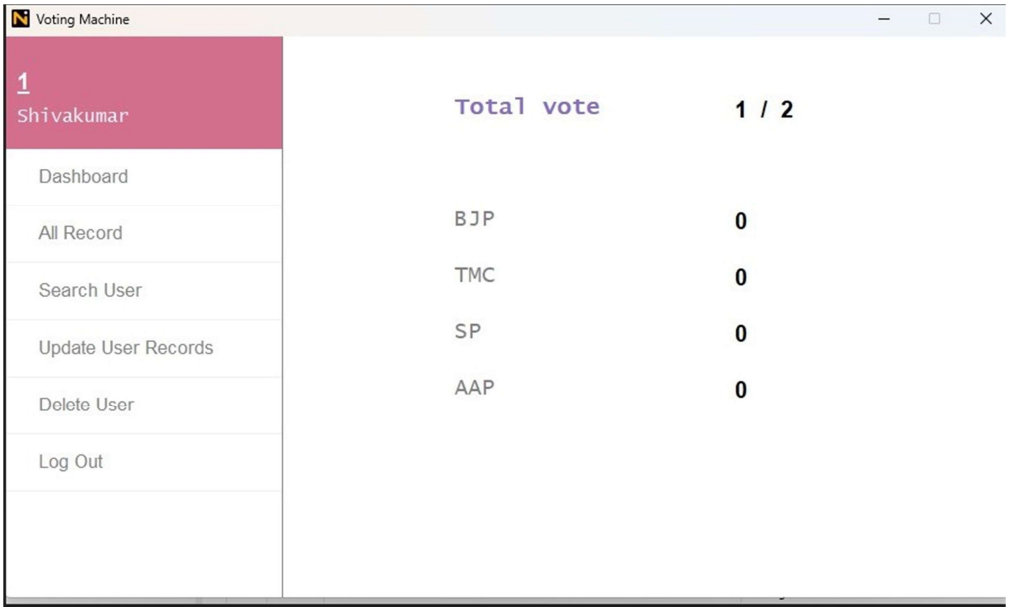


Fig 6: Result Panel

6. CONCLUSION

The online portal offers voters the opportunity to cast their votes via the internet, eliminating the need to visit a voting booth. The system promises fast access, enhanced security measures, increased flexibility, and efficiency. It aims to eradicate instances of fraudulent voting by fake individuals and bogus votes. Additionally, it reduces the reliance on manpower and minimizes human errors. The system ensures swift and accurate election results, emphasizing a reduction in both time and paperwork. Overall, the online voting system accelerates the entire voting process while safeguarding the integrity of the votes.

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