International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 07 | July - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

ONLINE VOTING SYSTEM

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Abstract - This paper presents the main points and stages in the design and development of an electronic voting system and processing of its results in a higher education institution are presented. The main tasks and requirements of the designed system are described. The base model, information flows, relational scheme of the database, and the block diagram of the functional modules of the system are presented. The system automates the creation and processing of ballots in different variants, considering the specifics of elections in a higher education institution: election of governing bodies, election of student representatives, decision-making on the educational process, and management of the institution. The key functionalities of the system solve some problems encountered in existing e-voting systems. It provides accountability in voting and ensures anonymity in the voting process, protection from hacker attacks, reliability, and uptime in operation. It allows voter identity verification and voting by authorized persons. Includes simplified voting procedure and result processing. The processing of results is transparent and fair. It has an intuitive and easy-to-use program interface.

***Key Words*:** Custom Key, Encryption, Decryption, Security, Communication, Confidentiality.

1. INTRODUCTION

This is a digital platform designed to facilitate the casting and counting of votes through the internet.

It allows eligible voters to securely log in from any internet-enabled device to cast their votes remotely, eliminating the need for physical polling stations.

Online voting systems vary in complexity, but they typically incorporate features such as voter authentication, ballot creation, encryption for secure transmission of votes, and mechanisms for verifying and tallying results.

Proponents argue that online voting can enhance accessibility, convenience, and voter turnout, while critics raise concerns about security, privacy, and the potential for tampering or fraud.

Despite these challenges, online voting systems continue to evolve with advancements in technology, with some jurisdictions experimenting with pilot programs or limited use in elections.

2. LITERATURE REVIEW

i)The proposed system is much secure and efficient than the traditional voting system.

Manipulation of votes and delay of results can be avoided easily.

A unique AADHAAR identity is the centre point of our proposed model. It leads to the easier verification of both voters and candidates.

We use the student id instead of aadhar numbers and the project is done for minimum no of people as compared to the above project.

ii)Proposed project provide a students to cast his/her vote remotely from anywhere through internet.

As it need the unique ID so proxy vote or double voting is not possible, fast to access, saves the time, efficient, reliable, low cost and easy to maintain.

The project given above is a less secured website as it works in multi platform.

iii)The proposed method is to develop a secure internet voting system based on face recognition which tried to overcome all the drawback occurs in traditional or current voting system.

The proposed system has many strong features like correctness, verifiability, convenience etc.

The system above uses face recognition but we use Student id's for verification .

iv)Presented the proposed voting system based on IoT and blockchain that aims to solve the obstacles of traditional voting methods and improve electronic voting process by facilitating the process of accessing the system, adding protective methods that enable the

voter to vote comfortably and ensure that the voting data are correct and there is no tampering or fraud in votes.

Our proposed system contains a website connected with the governmental database of citizens records in order to verify citizens' data.

Here the system uses iot and the cost and the time required for developing will be high.In our system we don't use iot ,so it is cost and time efficient.

v)The integration of the SMESEC Framework into the electronic voting system, enables SMEs and public authorities using their voting system to be aware of their security by themselves and to add security measures in their election processes with a budget adapted to each case.

This system uses electronic system for casting vote.It requires more time and money to set up.It also requires more time in casting vote as only one person can vote at a time.But in our system all can caste vote at a time and it is cost and time efficient.

vi)The Online Voting Platform offers clever tickets, brilliant agenda highlights, vote counting, classification and revealing.

These capacities are programmed and don't should be doled out to faculty in-house. Furthermore, it enables heads to make .

It is less secured as it works on internet.The datas can be leaked if there is no proper security.Whereas the datas of the student voting system application is more secured.

vii)The online voting system is a multi-purpose platform independent system which can be used by any organization and government to conduct the elections.

The user just needs to have national identification number such as Aadhaar card number and any operating system smartphone which has a barcode scanning feature implanted in them.

As the system is an online based application, the user can vote from their current location.

As the system uses mutlti purpose platform the security is less.But our system is a single platform system,it is highly secured.

viii)The Fingerprint Voting System is to allow user to put their vote on their chosen candidate by using a fingerprint authentication.

The main objective as stated before is to enhance the security in order to prevent duplication and provide a system which reduce the burden for people on conducting a voting.

The use of fingerprint may use more time if the finger is wet,not only that ,it also requires more money and devices.Our system uses student id's and doesnot require any external devices,so it is cost efficient.

3. PROBLEM STATEMENT

CURRENT VOTING SYSTEMS ARE PRONE TO ERRORS,LEADING TO DOUBTS ABOUT THE ACCURACY AND FAIRNESS OF ELECTION RESULTS.

LONG LINES AND WAIT TIMES AT POLLING STATIONS,DISCOURAGING VOTER TURNOUTS.

DIFFICULTIES IN VERIFYING VOTER IDENTITIES AND PREVENTING MULTIPLE VOTING BY THE SAME INDIVIDUAL.

4. PROPOSED SYSTEM

1.Voter Registration and Authentication:

User Registration: Eligible voters register on the online voting platform by providing personal information such as name, address, and identification details.

Verification Process: The system verifies voter eligibility through various means, including government-issued IDs, biometric data, or authentication codes sent via mail or email.

Authentication Methods: Secure login credentials, such as usernames and passwords, may be augmented with additional authentication measures like two-factor authentication (2FA) or biometric verification (e.g., fingerprint or facial recognition) for enhanced security.

2.Security Measures:

End-to-End Encryption: All communication between the voter's device and the central server is encrypted to prevent interception and tampering.

Secure Transmission Protocols: The system employs secure protocols (e.g., HTTPS) to protect data transmission over the internet.

Secure Storage: Voter data, including personal information and voting records, is stored securely on servers with stringent access controls and encryption mechanisms.

Tamper Detection: The system incorporates mechanisms to detect and prevent tampering with votes or unauthorized access to voter data.

3.Accessibility Features:

User-Friendly Interface: The voting platform features an intuitive and accessible user interface that accommodates users with diverse abilities and technological proficiencies.

Assistive Technologies: Accessibility features such as

screen readers, voice command support, and text resizing options enhance usability for voters with disabilities.

Multi-language Support: The system offers multilingual support to cater to voters from linguistically diverse communities.

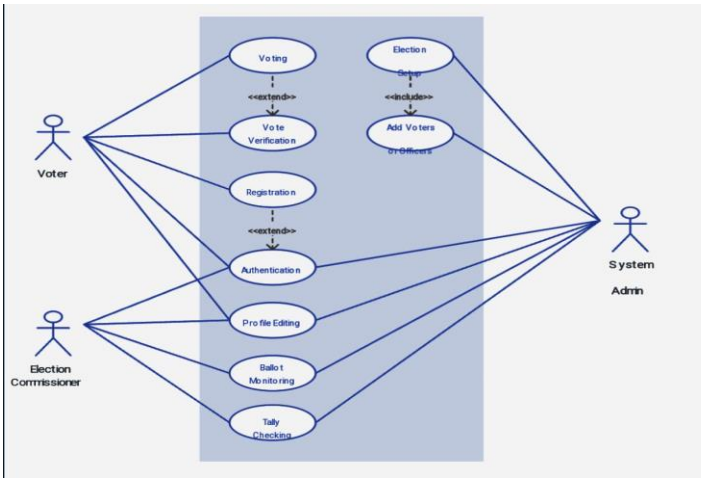
4.Audit Trail and Verification:

Transparent Recordkeeping: The system maintains a detailed audit trail of all voting activities, including timestamps, voter identities, and cryptographic signatures.

Verification Mechanisms: Independent auditors and election officials can verify the integrity of the voting process by examining the audit trail and cross-referencing it with voter records.

5.Public Awareness and Education:

Outreach Campaigns: The voting authority conducts public awareness campaigns to educate voters about the online voting process, security measures, and voting rights.



5. RESULTS AND DISCUSSION

The Online Voting System is to allow user to put their vote on their chosen candidate by using an id authentication. The main objective as stated before is to enhance the security in order to prevent duplication and provide a system which reduce the burden for people on conducting a voting. Thus, by implementing this system, user can put their vote with id instead of paper without doubting about their security.

Fig1:Home page

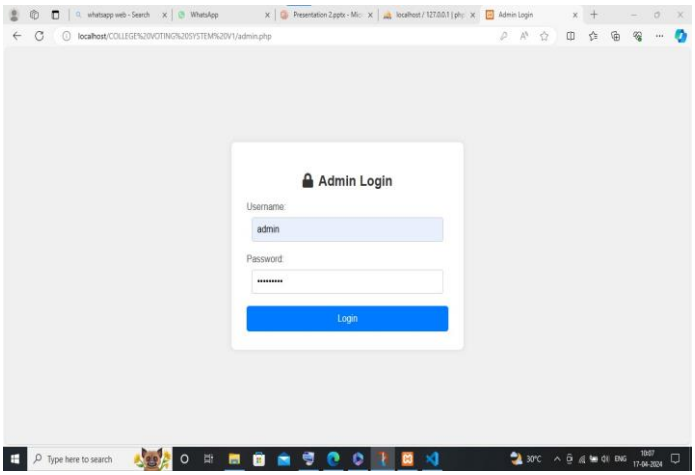
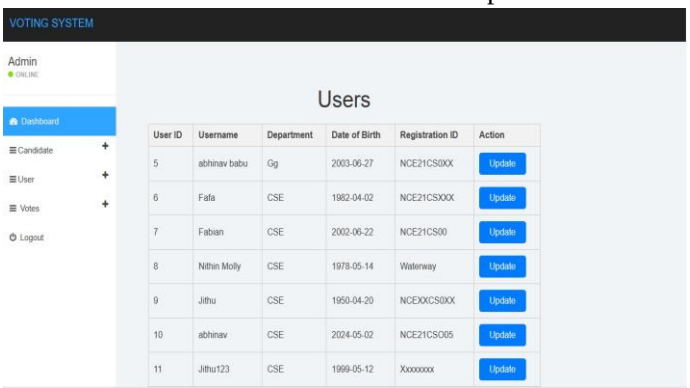
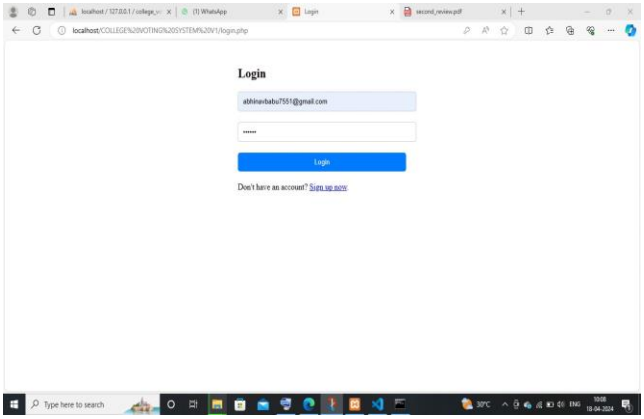


Fig2:Admin login

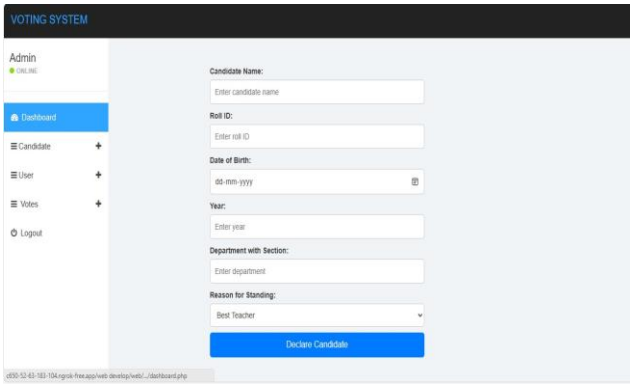
In this the admin can set a username and password.



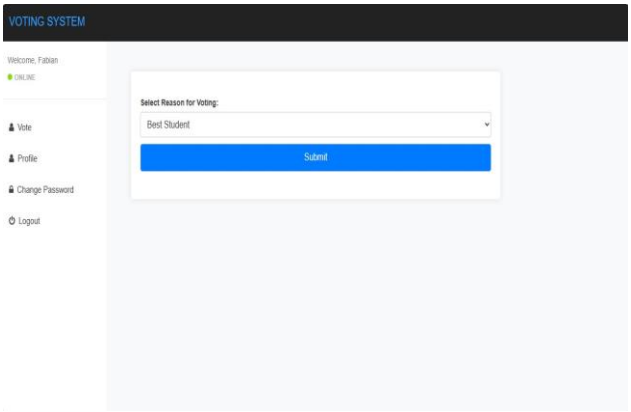
In this page the admin can see all the details of candidates and voters.The admin also have the option for changing the candidate and voters details.



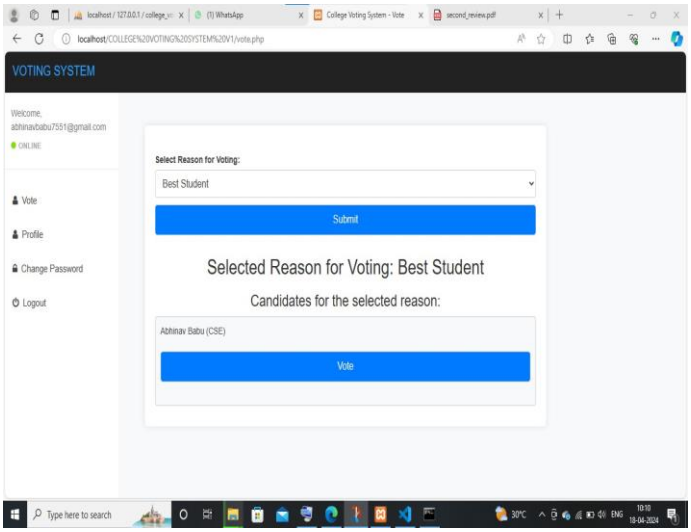
This is the student/voters login page where he/she can give username and password.



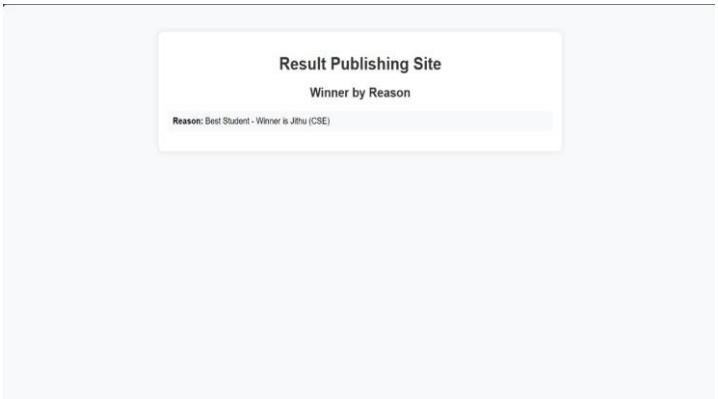
This is the page where the admin can register the candidates for the election.



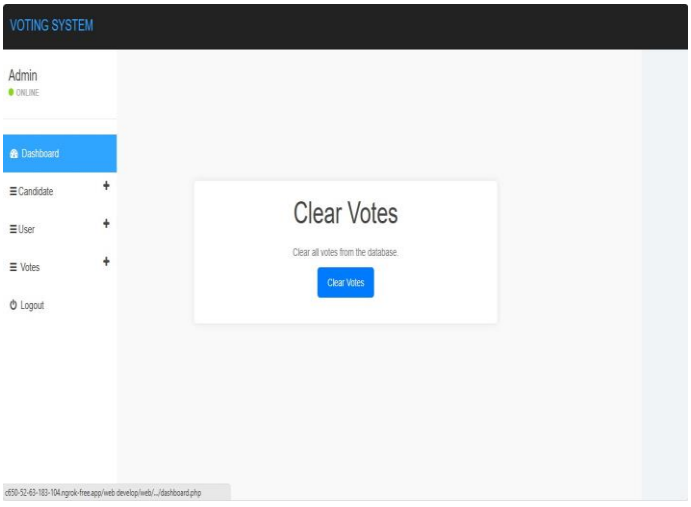
This is the voting page where the voters can select the category of voting.



This is the voting page where he/she can vote.



This is the result publishing page.The votes are counted at real time.



This is the page where the admin can clear all the votes.

6. CONCLUSION

While online voting holds the potential to enhance accessibility, convenience, and voter turnout, it also presents challenges and risks, including cybersecurity threats, privacy concerns, and the potential for manipulation or fraud. Therefore, any implementation of an online voting system must be approached with careful consideration, thorough testing, and ongoing evaluation to address these challenges and uphold the principles of democratic governance.

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