Online Voting System for KSK College of Engineering and Technology - Report

# Introduction

The Online Voting System for KSK College of Engineering and Technology is an innovative project aimed at streamlining and digitizing the voting process for student elections. This system has been designed to facilitate fair, secure, and transparent elections within the college, providing an accessible platform for students to participate in the democratic process. The positions contested include the President, Secretary, and Treasurer, with eligibility defined for students across different academic years. Specifically, the President’s position is open to final-year students, the Secretary’s role is designated for third-year students, and the Treasurer’s position is contested by second-year students.

### Purpose and Significance

The primary goal of developing the Online Voting System is to create an efficient, reliable, and user-friendly platform that overcomes the limitations of traditional paper-based voting methods. Traditional voting often involves significant logistical challenges, including the physical setup of polling stations, manual counting of votes, and maintaining voter confidentiality. By transitioning to a digital system, these challenges are mitigated, and the overall process becomes faster and more secure.

This project leverages modern web technologies, such as HTML and CSS for designing the interface and React for implementing dynamic functionalities, ensuring a seamless user experience. HTML and CSS are used to structure and style the webpage, creating an intuitive and visually appealing design. React, a popular JavaScript library, enhances the interactivity and responsiveness of the platform, allowing real-time updates and a smoother voting process.

# 2. Literature Survey

1.”ONLINE VOTING SYSTEM “,Ketan,Shanu Kare-2022 International conference

This analysis has shown that candidate selection often involves politics, and that whenever voters vote for their elections, they end up with a typical exploitation and manual approach. Manually selecting it can usually lead to incorrect behavior. Therefore, it is necessary to introduce an online voting system. Often used to extend technology from physical voting systems to digital voting systems. This particular analysis envisions implementing an online voting system with options such as: B. A system implemented by each party and supported by options that tend to participate in voting. The main reason to switch from a traditional voting system to an online voting system is to save time and allow you to vote online from anywhere. Completed by using PHP as the backend language, half of the frontend using web technologies (HTML, CSS, JS, Bootstrap) and Microsoft SQL Server as information storage.

1. “ONLINE VOTING SYSTEM “,Rajesh M. Ghadi1, Priyanka S. Shelar2 -2017

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 favorable candidates to cast the vote By using

biometric fingerprint it provides enough security which

reduces the dummy votes.

3.”ONLINE VOTING SYSTEM “,Ms. Kavya Ramesh Naidu\*1, Mr. Ankush Dinesh Ingale\*-2023

With rapid growth in technologies the old voting methods can change to advanced voting methods. Online

voting software is a modern solution that can efficiently and securely facilitate the voting process for various

groups and organizations. The use of such software eliminates the need for physical polling stations, as voters

can cast their ballots from anywhere with an internet connection. The benefits of using online voting software

are many; it increases accessibility, saves time and resources, ensures accuracy and transparency, and supports

a more democratic decision-making process. Eligibility verification and accurate voter information are essential

components of a successful online voting platform. While several countries have already implemented online

voting software, this approach still faces challenges and limitations that must be addressed before universal

adoption. In the following sections, we will delve further into the various types of electronic voting methods

and examine successful global examples of online voting. We will also discuss current trends and future

developments in online voting software provide a comparison between online and traditional voting methods.

# 4.” Smart Online Voting System”,S.Ganesh Prabhu,

A.Nizzarahamed-2021 International conference

Our country, India is the largest democratic country in the world. So it is essential to make sure that the governing body is elected through a fair election. India has only offline voting system which is not effective and upto the mark as it requires large man force and it also requires more time to process and publish the results. Therefore, to be made effective, the system needs a change, which overcomes these disadvantages. The new method does not force the person's physical appearance to vote, which makes the things easier. This paper focusses on a system where the user can vote remotely from anywhere using his/her computer or mobile phone and doesn't require the voter to got to the polling station through two step authentication of face recognition and OTP system. This project also allows the user to vote offline as well if he/she feels that is comfortable. The face scanning system is used to record the voters face prior to the election and is useful at the time of voting. The offline voting system is improvised with the help of RFID tags instead of voter id. This system also enables the user the citizens to see the results anytime which can avoid situations that pave way to vote tampering.

# 5.” Blockchain-Based Online E-voting System”,Youssef Abdelrahman Fekry Ali,Omar Tarek Mohamed Ahmed-2023

Recently, blockchain technology has become popular. Through a highly secure, decentralised system enabled by this technology, anyone can interact securely without the need for a middleman. Machine learning can help with many of the constraints that blockchain-based systems have in addition to its own strengths. Blockchain technology and machine learning together have the potential to produce very effective and beneficial outcomes. Hence, when blockchain and ML converge, they surely would benefit from each other. Blockchain can enhance the security of ML platforms, and ML can provide automation and optimization to blockchain solutions. In this work, we advocate the importance of enhancing blockchain with ML algorithms, as a proof of principle we address the issue of secure and intelligent e-voting. The use of blockchain technology has brought tremendous different application domains, e-voting is one of them. Most existing e-Voting systems require central authority during the process of authentication and verification of the voter. In this paper, we propose a safe online voting approach based on blockchain and ML to provide a solution to this issue. We use blockchain to ensure integrity and transparency of the votes, and ML for automating the verification process of eligible voters based on AI- for face authentication. The proposed solution offers automation, security, and mobility to the voting system.

3. System Analysis

Hardware Requirements:  
- Minimum System Configuration: Dual-core processor, 4GB RAM, stable internet connection.  
- Web Browser: Latest versions of Google Chrome, Mozilla Firefox, or Microsoft Edge.  
  
Software Requirements:  
- Operating System: Windows.  
- Front-end Development: HTML, CSS, React.  
- Code Editor: Visual Studio Code.

# 4. System Design

The system design focuses on the overall architecture of the online voting system, ensuring it meets both functional and non-functional requirements. The system is designed to handle a high volume of users and elections. The architecture involves various components like user authentication, election management, vote casting, and results display, which are seamlessly integrated to work together.

Architectural Design:

UML and case diagrams will be included here, showcasing the system's structure and user interactions.

# 5. Software Description

In this section, we describe the software tools used to build the Online Voting System:  
- \*\*HTML\*\*: Used for creating the structure and layout of the web pages.  
- \*\*CSS\*\*: Employed for styling and creating a visually appealing design.  
- \*\*React\*\*: A JavaScript library used for building user interfaces and enabling dynamic interaction with the web pages.

# 6. Project Description

The Online Voting System consists of several modules and screens, each serving a specific purpose in the voting process. The following screens are included in the project:  
1. \*\*Splash and Onboarding Screen\*\*: Introduction and brief tutorial for new users.  
2. \*\*Sign Up and Login Screen\*\*: For creating new accounts and logging into the system.  
3. \*\*Home or Dashboard Screen\*\*: Main page showing election details, user profile, and quick navigation.  
4. \*\*Election Details Screen\*\*: Displays information about current elections, including the positions and candidates.  
5. \*\*Candidate Profile Screen\*\*: Shows detailed profiles for each candidate.  
6. \*\*Voting Screen\*\*: Where users cast their votes for the elections.  
7. \*\*Result Screen\*\*: Displays the results of the election after voting ends.  
8. \*\*Profile Screen\*\*: Shows user information and allows users to update their details.  
9. \*\*Notification Screen\*\*: Displays important notifications related to elections and reminders.  
10. \*\*Settings Screen\*\*: Allows users to customize their preferences for notifications, privacy, and other settings.  
11. \*\*Help and Support Screen\*\*: Provides assistance with any issues users may face.  
12. \*\*Logout and Account Details Screen\*\*: Provides options to log out or delete an account.

# 7. Testing

Testing for the Online Voting System was conducted in multiple phases:  
- \*\*Unit Testing\*\*: Testing individual components like forms, buttons, and data validation.  
- \*\*Integration Testing\*\*: Ensuring that different modules such as login, voting, and results screens work together seamlessly.  
- \*\*User Acceptance Testing (UAT)\*\*: Involving real users to test the usability and functionality of the system.

# 8. Features

Key features of the Online Voting System include:  
- \*\*Secure Voting\*\*: Ensuring that the votes remain private and cannot be tampered with.  
- \*\*Responsive Design\*\*: The system adapts to different devices and screen sizes.  
- \*\*Real-time Results\*\*: Displaying results immediately after the voting period ends.