A

Project Report

on

ONLINE POLLING SYSTEM

Project report submitted in partial fulfillment of the requirement for the award of the Degree of

BACHELOR OF TECHNOLOGY

In

COMPUTER SCIENCE & ENGINEERING

Submitted by

M. LALITHA– R180115

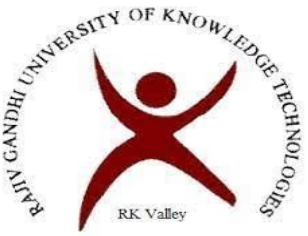
E. SIRISHA – R180621

S. SAMEERA - R180427

Under the guidance of

M. MUNI BABU

M.Tech, (Ph.D), Assistant Professor



Rajiv Gandhi University of Knowledge Technologies(AP IIIT)

RK Valley, Kadapa (Dist), Andhra Pradesh, 516330

Department of Computer Science and Engineering

2018-2024.

Rajiv Gandhi University of Knowledge Technologies

RK Valley, Kadapa (Dist), Andhra Pradesh, 516330

Department of Computer Science and Engineering

CERTIFICATE

This is to certify that the project work titled **"ONLINE POLLING SYSTEM"** is a bonafied project work submitted by **M. LALITHA – R180115**, **E. SIRISHA - R180621, S. SAMEERA - R180427** in the department of **COMPUTER SCIENCE AND ENGINEERING** in partial fulfillment of requirements for the award of degree of Bachelor of Technology in **Computer Science and Engineering** for the year 2023- 2024 carried out the work under the supervision.

Signature of Project Guide

GUIDE
M. MUNI BABU
M. Tech, (Ph.D.)
Assistant Professor
Dept of CSE

Signature of HOD

HEAD OF THE DEPARTMENT
Dr. P. RAVI KUMAR
M.E. (IISc, Bangalore)
Ph.D. (University of AIZU, Japan)

Signature of External Guide

DECLARATION

We hereby declare that the project report entitled **"ONLINE POLLING SYSTEM" submitted** to the **Department** of **COMPUTER SCIENCE AND ENGINEERING** in partial fulfilment of requirements for the award of the degree of **BACHELOR OF TECHNOLOGY.** This project is the result of our own effort and that it has not been submitted to any other University or Institution for the award of any degree or diploma other than specified above.

WITH SINCERE REGARDS

M. LALITHA (R180115)
E. SIRISHA (R180621)
S. SAMEERA (R180427)

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and whose constant guidance and encouragement crown all the efforts success.

I am extremely grateful to our respected Director, **Prof. A V S S KUMARA SWAMI GUPTA** for fostering an excellent academic climate in our institution.

I also express my sincere gratitude to our respected Head of the Department **Dr. P . RAVI KUMAR** for his encouragement, overall guidance in viewing this project a good asset and effort in bringing out this project.

I would like to convey thanks to our guide at college **Mr. M. MUNI BABU** for his guidance, encouragement, co-operation and kindness during the entire duration of the course and academics.

My sincere thanks to all the members who helped me directly and indirectly in the completion of project work. I express my profound gratitude to all our friends and family members for their encouragement.

Table of Contents

ABSTRACT

The "Online Polling System Using Java Swing and MySQL" project aims to develop a user-friendly software solution for handling elections. Here we used Java Swing for how it looks(Frontend) and MySQL to store information. This system helps with things like signing up candidates and voters, making ballots, voting, counting votes, and showing results. With secure authentication, It keeps everything safe and private, lets different people have different levels of access, and updates things quickly. The goal is to contributing the transparent and fair elections.

Online Polling System simplifies the entire electoral process by digitizing and automating tasks. Administrators start by registering candidates, entering their details and photos, and then proceed to register eligible voters by recording their personal information. Once registered, voters can log in on election day to cast their votes electronically, selecting their preferred candidates from the ballot. After the voting period ends, the system automatically tabulates the votes and generates election results, showcasing the winners for each position.

List of Figures

I . INTRODUCTION

An Online Polling System developed using Java Swing and MySQL provides a straightforward and efficient way to conduct elections digitally. Java Swing is used to create the graphical user interface, making it user-friendly and accessible on various operating systems like Windows, Mac, and Linux. MySQL, a reliable and widely-used database, manages all the data securely, storing details such as voter information, candidate profiles, and voting results. This system simplifies the voting process by allowing users to vote online from any location securely, ensures that only eligible voters can access the system, and enables quick tallying of votes to announce results promptly. Such a system is designed to be secure, scalable, and easy to use, aiming to enhance the efficiency and integrity of the voting process.

Problem Statement:

Now a days handling elections is kind of a mess. It involves a lot of paperwork, which can lead to mistakes and take up a ton of time. Plus, counting votes by hand can be really slow and sometimes not very accurate. Also, keeping track of all the candidate and voter information is tricky because it's not all in one place. So, we need a better way to manage elections that's faster, more accurate, and easier for everyone involved.

Key Features:

1. Easy Sign-Up: Quick and simple registration process for both candidates and voters.

2. Clear Ballots: Clear and easy-to-understand digital ballots for voting.

3. Secure Access: Only authorized users can log in, ensuring safety.

4. Automatic Counting: Votes are counted automatically, avoiding errors and saving time.

5. Instant Results: Results are generated instantly after the voting period ends.

6. User-Friendly Interface: Easy-to-use system, even for people not familiar with technology.

7. Transparency: Provides transparency throughout the entire electoral process, ensuring fairness.

Proposed System:

A proposed system for an online polling system is designed to streamline and secure the process of conducting elections.

Voter Registration and Management: The system allows eligible voters to register securely and maintain their information up-to-date. It ensures that all registered voters are legitimate and that their information is accurate to prevent any kind of electoral fraud.

Candidate Registration: Candidates who wish to run in the election can register through the system, providing necessary documentation and details about their campaign. This process ensures that only qualified candidates are allowed to participate.

Vote Counting: After the voting concludes, the system automatically counts votes. This process reduces human error and speeds up the result announcement. The system can handle different voting methods like first-past-the-post, proportional representation, etc.

Results Declaration: The system compiles the final counts and declares the results officially. This phase includes checks and verifications to ensure that the results are accurate and free from manipulation.

Purpose:

The purpose of the Online Polling System in Java is to modernize and streamline process, making it more accessible, efficient, and secure. Traditional voting methods often face challenges such as long queues, geographical constraints, and concerns about the security of the voting process. This project aims to overcome these challenges by leveraging Java programming to create a user-friendly online platform.

The system provides real-time result updates, and detailed reporting for administrators, ensuring that the voting process is transparent and accountable. This transparency not only builds confidence among voters but also contributes to a more open and democratic electoral system.

Motivation:

The motivation for an Online Polling System is to make voting easier, safer, and cheaper. By using technology, this system allows people to vote online from anywhere, helps prevent fraud, reduces the cost of running elections, and quickly delivers accurate results. The goal is to encourage more people to vote by making the process more convenient and trustworthy. "Online Polling System" project is to make elections easier and better for everyone involved. Currently, managing elections involves lots of paperwork and counting votes by hand, which can be slow and prone to mistakes. By developing a digital system, we can save time, reduce errors, and make the entire process smoother. Additionally, the system aims to increase transparency, accessibility, and security in elections. Overall, the goal is to modernize and improve the electoral process, making it more efficient, accurate, and inclusive for everyone.

Contribution :

1. Better Technology: Develop easy-to-use voting machines that are safe and keep votes secure.

2. Protect Against Hacks: Make sure the technology used in elections is protected against hackers and regularly check for any security risks.

3. Online Registration: Create simple online systems so people can easily register to vote or update their information from home.

4. Help All Voters: Make sure everyone can vote, including people, by having accessible voting places and equipment.

5. Include Everyone: Offer ways for people to vote that don’t require going to a voting booth, especially for those who live far away or can't leave their homes.

These contributions help make sure that elections are fair, safe, and open to everyone.

II LITERATURE REVIEW

Table 2.1: Literature Review

YEAR	AUTHOR	METHOD	OUTCOME	DRAWBACKS
2018	Smith et al.	Survey of existing election systems	Identified common features and challenges	Limited to existing systems, may not cover newer technologies
2019	Johnson & Patel	Comparative analysis	Evaluated performance of different systems	Limited sample size, may not account for all scenarios
2020	Garcia & Lee	Case study	Examined implementation of an election system	Limited generalizability, findings may only apply to a specific context
2021	Wang & Singh	Experimental research	Tested the usability of a new voting interface	Limited to a specific aspect of elections, may not address broader issues
2022	Brown & Kim	Literature review	Summarized key findings from previous studies	May not include the most recent developments in elections management systems
2023	Martinez et al.	Field study	Investigated voter engagement with electronic ballots	Limited scope, findings may not be applicable to all demographics
2024	Chen & Gupta	Simulation	Modeled the impact of different voting systems	Simplified assumptions, may not accurately reflect real-world scenarios

Table 2.1: From the above table, it shows the authors and the methods which they used to propose their systems. Most of the models drawback is limited performance, limited scope, limited sample size.

Existing System:

The existing online polling system primarily uses a mix of manual and some electronic methods. Voters typically register through paper forms and vote at designated polling stations using either paper ballots or electronic voting machines. Votes are then counted manually or by machines, depending on the technology available. This process, staffed by officials and volunteers, is secured through physical and some cybersecurity measures, but results can take time to compile and announce. While functional, this system is often slow, labor-intensive, and can be inconvenient for voters, particularly those with limited access to polling stations.

SYSTEM REQUIREMENTS

➢ SOFTWARE COMPONENTS

• Windows / Ubuntu
• Java NetBeans
• Technologies : Java,HTML,CSS
• Java Servlets,Java DataBaseConnection,PHP

➢ HARDWARE COMPONENTS

• Processor – Core i5
• Hard Disk – 512 GB
• RAM – 8 GB
• Internet Connections

TOOLS AND TECHNOLOGIES USED

1. Java :

Java is a versatile, object-oriented programming language known for its platform independence and readability, enabling developers to write code that can run on different systems. With a focus on portability and robustness, Java is widely used for developing a diverse range of applications, from web and mobile to enterprise solutions.

2. Java NetBeans :

-> Java NetBeans is an integrated development environment (IDE) that provides a user-friendly interface for Java programming, offering tools for code editing, debugging, and project management.

-> It simplifies Java application development by offering a comprehensive set of features and a modular, extensible architecture.

3. Java Servlets:

-> Java servlets are server-side components that extend the capabilities of a web server, enabling the creation of dynamic, Java-based web applications.

-> They handle HTTP requests and responses, facilitating the development of scalable and interactive web solutions in Java.

4. Java Swing:

--> Java Swing is a toolkit in Java that allows developers to create graphical user interfaces (GUIs) for their applications. It provides a range of pre-built elements like buttons, text boxes, labels, and menus, which can be assembled to build interactive interfaces. One of the key features of Swing is that it allows for customization of the look and feel, meaning you can change the design of your interface to either blend in with the native system or maintain a consistent appearance across all platforms. Being part of Java, Swing is platform-independent, operating the same way whether on Windows, macOS, or Linux.

--> It supports sophisticated graphics and complex layouts, making it a powerful option for creating user-friendly and visually appealing applications. Swing is especially popular for its rich set of features that can accommodate nearly any GUI requirement.

III. MODULES

1. Login

2. Election parties

3. Candidates registration

4. Voters register

5. Results

6. Voting

Module-1: Login Page

Admin Login:

The admin login page is a secure entry point for administrators to access their management dashboard. It features a straightforward interface with two fields: one for the administrator's name and another for their ID. Admins enter their credentials into these fields to authenticate their identities. Once the credentials are verified, they gain access to the backend of the system where they can perform administrative tasks. The page also includes measures to handle incorrect login attempts and ensure the security of the login process.

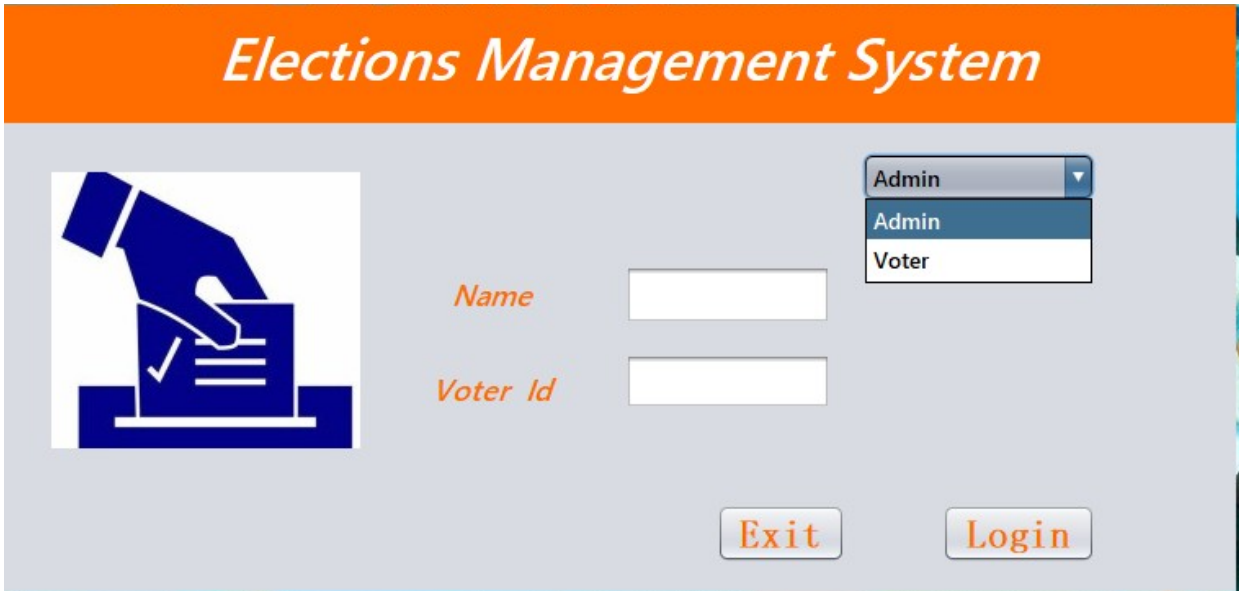


Figure 3.1.1: As shown in the above figure admin can login through the credentials such as name, Id.

Voter Login:

The voter login page is a secure gateway designed for voters to access the electronic voting system. It features a simple user interface with fields for entering voter-specific information, such as voter ID and a password or PIN. Once voters input their credentials, the system verifies their eligibility and grants access to the voting platform. Here, voters can cast their votes confidentially and securely. The page includes security measures to protect voter information and ensure the integrity of the voting process. Additionally, the system provides feedback on successful or unsuccessful login attempts, helping to guide voters through the login process smoothly.

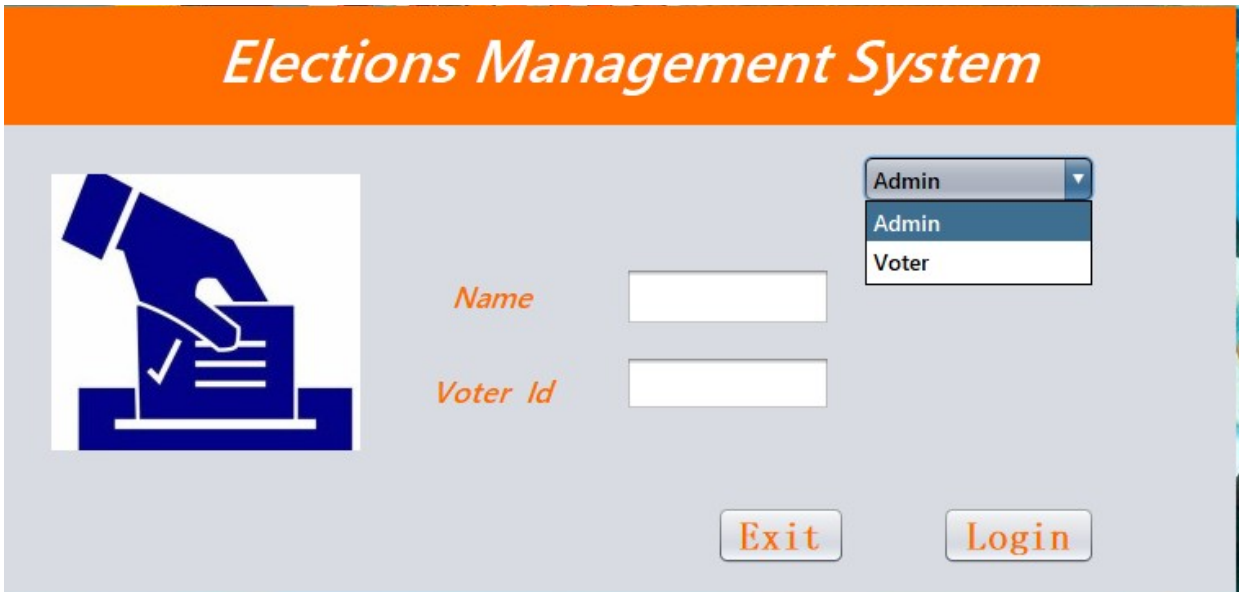


Figure 3.1.2: As shown in the above figure voter can login through the credentials such as name, voterId.

Module-2: Election parties

The election party page is a specialized interface designed for registering or updating political parties in an electoral system. It features a straightforward form where party representatives can enter their party's unique ID and the official party name. Upon submission, the system checks these details for accuracy and either registers the new party or updates existing party information. This page ensures that all political parties are properly documented and recognized in the system, facilitating organized and fair elections. Security measures are in place to prevent unauthorized changes, ensuring that only authorized representatives can make updates. This contributes to maintaining the integrity and accuracy of party information within the electoral system.

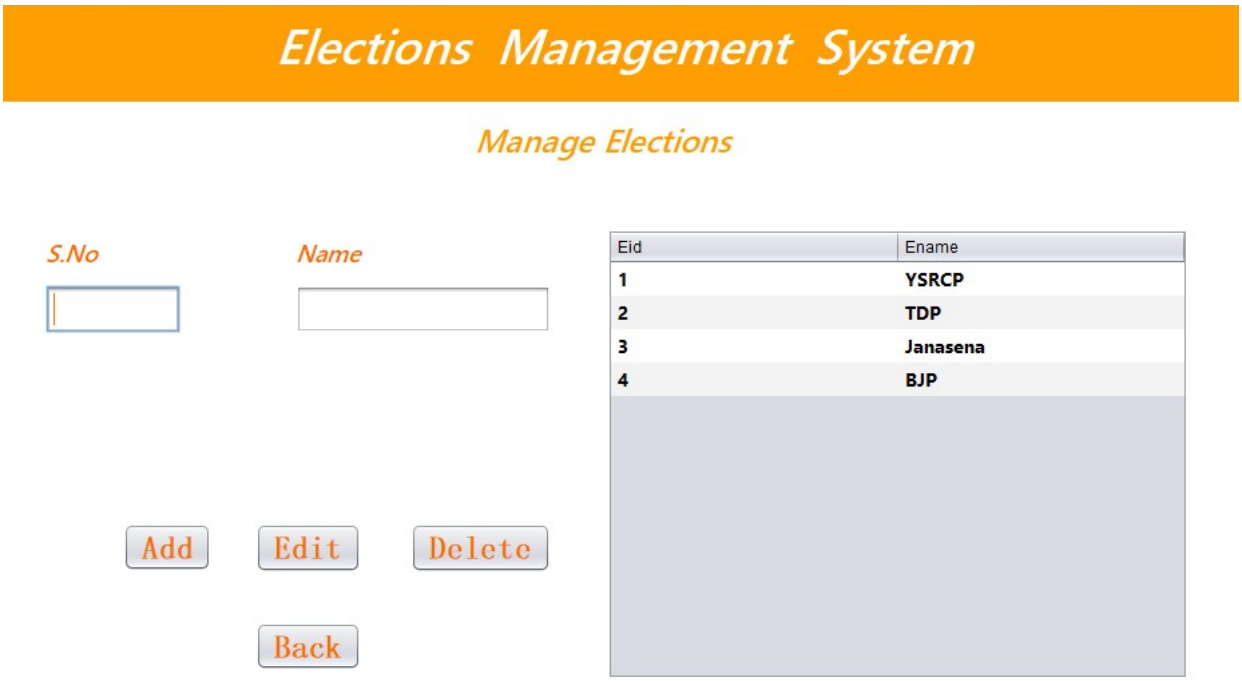


Figure 3.2: As shown in the above figure election parties can be added by the admin. Only admin can modify the given details.

Module-3: Candidates Registration

The candidate registration page is a straightforward online form designed specifically for use by administrators to manage individuals who want to run in an election. This form requires candidate's details such as name, age, gender, a specific election ID, and a recent photograph. The purpose of this page is to allow administrators to verify each candidate's eligibility and identity before they can officially become part of the election.

Only administrators have the rights to add, delete, or edit candidate information through this form. This control mechanism ensures that all candidate data is managed securely and accurately. This structured approach ensures that the election process remains fair and transparent, with all modifications handled exclusively by authorized personnel to maintain the integrity of the electoral process.

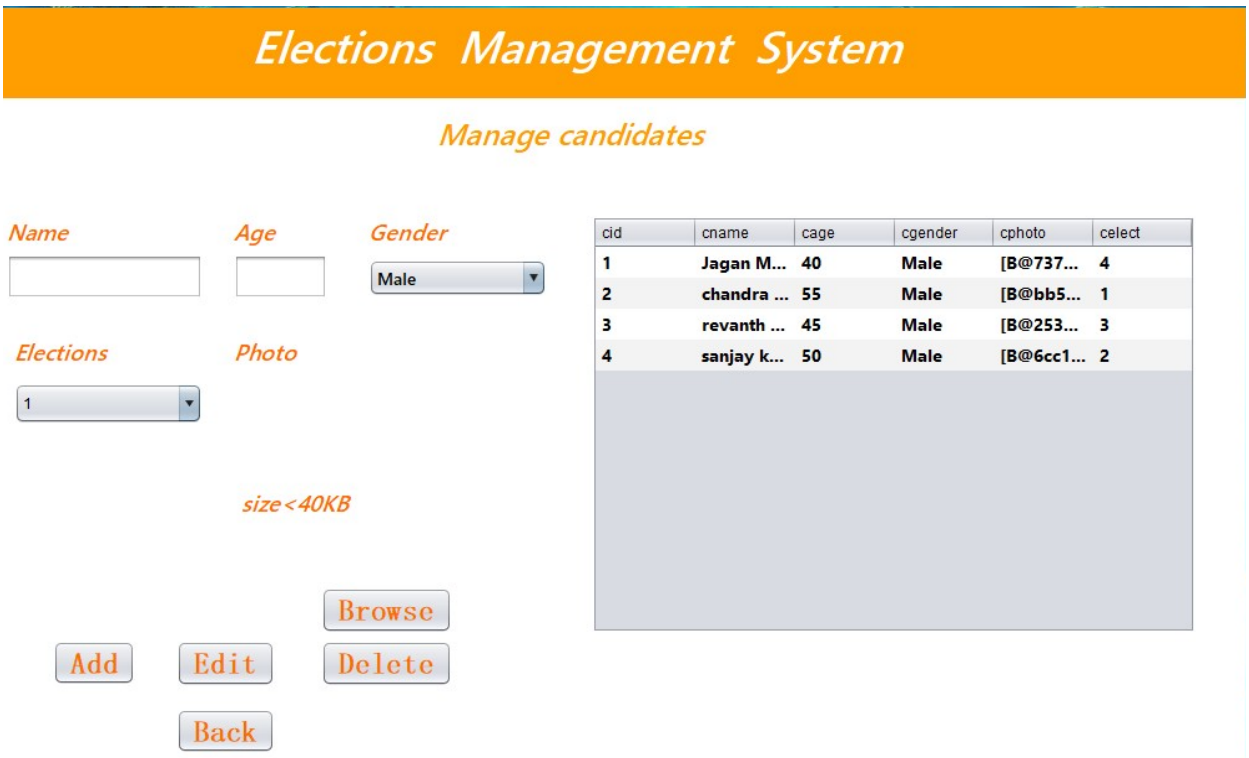


Figure 3.3: As shown in the above figure, admin can register the details of the candidates and he can only modify those details.

Module-4: Voters Registration

The voters' registration page is a secure online form used by administrators to register voters for upcoming elections. This form collects essential information such as voter ID, voter name, gender, and age. This data is crucial for verifying the eligibility of individuals to vote, ensuring they meet the legal age requirement, and helping to maintain accurate and up-to-date voter lists.

Access to this registration page is restricted to administrators only, who have the authority to add, delete, or edit voter information. This level of control helps safeguard the integrity of the electoral roll and prevents unauthorized modifications. Once a voter is successfully registered system, and the voter's details are securely stored in the electoral database.

This process ensures that all voter registrations are handled efficiently and securely, maintaining a transparent and fair system. Only authorised voters can vote.

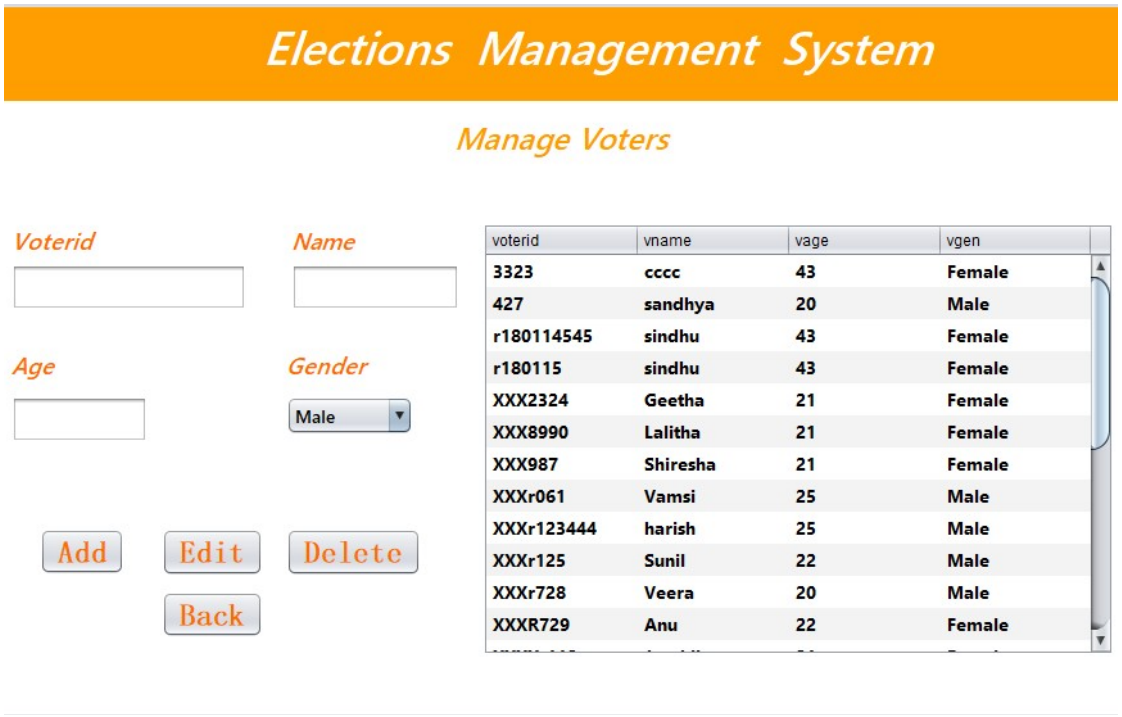


Figure 3.4: As shown in the above figure, admin can modify the voters details such as adding, deleting and editing those details.

Module-5: Voting Ballot

The voting ballot platform is an online system where voters can log in using specific credentials, which typically include their voter name and voter ID. This secure login process ensures that only registered and eligible voters can access their ballot to participate in the election.

Once logged in, voters are presented with a digital ballot that includes detailed information for each candidate. This information not only lists the names of the candidates but also displays their photographs, election IDs, and the names of the political parties they represent. This comprehensive format helps voters easily identify the candidates and make informed decisions.

The design of the platform prioritizes user-friendliness and security. Voters can review their choices, make changes if necessary, and finally submit their votes securely. The system is built to ensure that all voter information and vote submissions are protected through encryption, preventing unauthorized access and ensuring the privacy and integrity of the voting process. This methodical approach facilitates a smooth voting experience while maintaining high standards of election security and voter confidentiality.

Figure 3.5: As shown in the above figure, voting ballot is provided to the voter, where registered voters can poll their vote.

Module-6: Results

The results module is a secure system exclusively managed by administrators, designed to ensure the accuracy and integrity of election outcomes. This module not only tallies and updates the number of votes each candidate receives but also displays additional information such as the candidate's photo and their specific election ID. This comprehensive view helps administrators monitor the election results more effectively by visually confirming the candidate's identity alongside their vote count. It facilitates an accurate, real-time update of the results, allowing only administrators to manage, correct discrepancies, and finalize the data. The inclusion of photos and election IDs helps prevent errors and ensures that the results are transparent and reliable, maintaining the overall fairness and security of the electoral process.

Figure 3.6: As shown in the above figure, results are displayed according to the candidate.

IV. RESULTS AND DISCUSSION

Results:

The results of implementing an online polling system, particularly one that integrates online and digital technologies, typically include:

1.Increased Voter Turnout: The convenience of voting online can lead to more people participating in elections.

2. Faster Results: Digital systems can tally votes quickly, significantly reducing the time it takes to announce election results.

3. Reduced Costs: By minimizing the need for physical polling stations, staff, and paper materials, the overall cost of conducting elections can be lower.

4. Improved Accuracy: Automated systems reduce the risk of human error in counting votes, leading to more accurate election results.

5. Enhanced Security: Advanced security protocols help protect against fraud and ensure that only eligible votes are counted, enhancing the integrity of the elections.

6.Environmental Benefits: Using less paper and physical infrastructure helps reduce the environmental impact of elections.

Overall, a modernized online polling system can lead to more efficient, secure, and inclusive elections, with benefits extending to both the administrative bodies conducting the elections and the voters participating in them.

Discussion:

When discussing the implementation and use of an online polling system, especially one that's online, several key points usually come up:

1.Security Concerns: There's a big focus on how to protect the system from hacking and fraud. Ensuring the security of votes and voter information is a top priority.

2. Voter Accessibility: How the system can help more people vote easily is often discussed. This includes making sure that everyone, regardless of where they live or their physical abilities, can access the voting process.

3. Technical Challenges: The technical requirements for setting up and maintaining an advanced election system are significant. There's discussion about the need for reliable technology and technical support.

4. Public Trust: There's always a conversation about how to build or maintain voter trust in the new system, ensuring people feel their votes are counted accurately and securely.

5. Effectiveness and Efficiency: How effective the system is in improving the election process and making it more efficient is also discussed, along with any potential improvements or adjustments needed based on initial outcomes.

V. CONCLUSION AND FUTURE ENHANCEMENTS

Conclusion:

An online polling system, especially one enhanced with digital technologies, typically leads to several positive outcomes. These include increased voter turnout, as the system makes it easier for more people to vote, particularly those with accessibility challenges or those living far from polling stations. The process of counting votes becomes faster and more accurate, reducing human errors and speeding up the announcement of results. Costs are often reduced since fewer physical materials and less manpower are needed. Additionally, the environmental impact of elections is minimized by using less paper and fewer physical resources. Overall, a modern election management system can make elections more efficient, secure, and inclusive.

Future Enhancements:

There are several future enhancements that could further improve an online polling system:

1. Advanced Security Features: Implementing more sophisticated cybersecurity measures, like blockchain technology, could make voting records even more secure and tamper-proof.

2. Greater Accessibility: Technologies like mobile apps or voice-activated systems could make it easier for everyone to vote, especially those with disabilities or limited access to traditional voting methods.

3. Real-Time Data Analysis: Using artificial intelligence to analyze voting data in real time could help identify and resolve issues faster, enhancing the transparency and reliability of elections.

4. Improved User Experience: Streamlining the user interface on digital platforms could make online voting even simpler and more intuitive for all voters.

5. Wider Integration: Expanding online and digital voting options to more areas and types of elections, from local to national, could make the voting process more uniform and accessible.

6. Environmental Sustainability: Continuously improving the system to minimize environmental impact, like reducing energy consumption and further cutting down on paper use. These enhancements would aim to make the election management system more secure, user-friendly, and accessible, ultimately leading to higher voter engagement and trust in the electoral process.

REFERENCES

[1] Thessalia Merivaki, Daniel A. Smith, The Future of Election Administration, 2020 ISBN : 978-3-030-14946-8

[2] Ferrara, E., Chang, H. ,Johnson, & Patel, J. (2020), Characterizing social media manipulation in the 2020 U.S. presidential election, *First Monday*, *25*(11), https://doi.org/10.5210/fm.v25i11.11431.

[3] Zhu, Y.-Q., Azizah, A. H., & Hsiao, B. ,Garsia (2021), Examining multi-dimensional trust of technology in citizens' adoption of e-voting in developing countries, Information Development, 37(2), 193-208. https://doi.org/10.1177/0266666920902819.

[4] F. Liu, W. Zeng, W. Zhang, L. Wang, J. Cheng and Z. Lai, "Multi-Layered Minutiae Extraction Based on Fusion-Attention for OCT Fingerprints," in IEEE Transactions on Biometrics, Behavior, and Identity Science, vol. 5, no. 2, pp. 221-232, April 2023, doi: 10.1109/TBIOM.2022.3218215.

[5] Laurison, D., Brown, H., & Rastogi, A. (2022), Voting Intersections: Race, Class, Participation in Presidential Elections in the United States 2008–2016, Sociological Perspectives, 65(4), 768-789. https://doi.org/10.1177/07311214211059136.

[6] Tanwar, S., Gupta, N., Kumar, P. *et al.* Implementation of blockchain-based e-voting system. *Multimed Tools Appl* 83, 1449–1480 (2024). https://doi.org/10.1007/s11042-023-15401-1