Project Details

- **Project Name:** Online Voting System
- **Project Type:** Web-Based Mini Project
- **Domain:** Web Development & Cyber Security

1. Introduction

- Voting is a fundamental process in a democratic system. Traditional voting methods require voters to visit polling stations, wait in long queues, and depend heavily on manual processes. This can lead to problems such as time consumption, human errors, and lack of transparency.
- The **Online Voting System** is a web-based application designed to allow voters to cast their votes securely over the internet. The system enables user authentication, vote casting, and result calculation in an efficient and transparent manner. This project aims to simplify the voting process while maintaining security and data integrity.

Problem Statement

1. EVM-based voting requires physical presence at polling stations, causing inconvenience and long queues.
2. High cost and heavy dependence on hardware, transportation, and security increase operational complexity.
3. Limited transparency and lack of remote voting reduce accessibility and voter participation.

Objectives of the Online Voting System (OVS)

- To eliminate the need for physical presence at polling stations by enabling secure online voting
- To reduce operational costs related to EVM transportation, storage, and security
- To provide a transparent and reliable voting process with proper authentication
- To ensure one voter can cast only one vote securely
- To increase voter participation by allowing remote and convenient voting
- To minimize hardware dependency and human intervention in elections

Scope of the Project

1. Voter registration and login
2. Admin panel to manage elections
3. Candidate management
4. Secure vote casting
5. Automatic result generation

6. System Modules

6.1 Admin Module

- Admin login
- Add, update, or remove candidates
- View election results
- Manage voters

6.2 Voter Module

- Voter registration
- Secure login
- Vote casting
- Confirmation of vote submission

6.3 Authentication Module

- Username and password verification
- OTP-based validation (optional)
- Prevents unauthorized access

6.4 Vote Management Module

- Stores votes securely
- Prevents multiple voting
- Automatically updates vote count

6.5 Result Module

- Displays real-time results
- Shows total votes per candidate
- Generates final election outcome

7. Technology Stack Used

Frontend

- HTML
- CSS
- JavaScript
- Bootstrap

Backend

- PHP

Database

- MySQL

Server

- Apache (XAMPP)

Technology Stack Used

Frontend

- **HTML** – Structure of web pages
- **CSS** – Styling and layout
- **JavaScript** – Client-side validation and interactivity

Backend

- **PHP** – Server-side logic, authentication, and vote processing

Database

- **MySQL** – Secure storage of voter, candidate, and voting data

Security Technologies

- **Password Hashing** – Secure storage of user credentials
- **OTP Authentication** – Additional verification for voters
- One Voter – One Vote Flag

Server & Tools

- **XAMPP** – Local development environment

9. Database Design

The database consists of the following tables:

- **Voters Table (Voter ID, Name, Email, Password, Status)**
- **Candidates Table (Candidate ID, Name, Party)**
- **Votes Table (Voter ID, Candidate ID, Timestamp)**

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10. Advantages of Online Voting System

- **Saves time and operational cost**
- **Faster vote counting**
- **Easy accessibility**
- **Reduced human error**
- **Secure and transparent**
- **Environment friendly (paperless)**

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11. Applications

- **College and university elections**
- **Organization or company voting**
- **Student council elections**
- **Internal surveys and polls**

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12. Limitations

- **Requires stable internet connection**
- **Security depends on proper implementation**
- **Not suitable for large-scale national elections without advanced security**

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13. Future Enhancements

- **Aadhaar-based voter verification**
- **Blockchain-based vote storage**
- **Biometric authentication**
- **Mobile application version**
- **Cloud deployment**

- # 14. Conclusion
- The Online Voting System is a secure and efficient solution to the traditional voting process. By using authentication, encryption, OTP verification, and secure database handling, the system ensures fairness and transparency in elections. This project demonstrates the practical application of web technologies and security concepts in solving real-world problems. With future enhancements, the system can be scaled to handle larger and more complex elections.