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Code Generation E-Voting System

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ABSTRACT

The Online Electoral System is an internet-based platform that uses a centralized database to store voter, candidate, and election result data. This system is built on e-voting, providing a time-efficient and secure voting method that reduces manual labor and ensures immediate access to election information. The Election Commission is responsible for overseeing this platform's operation, ensuring it offers a fast, secure, and efficient voting process. Voting, in this context, refers to selecting a candidate or option from a list to express a choice. The primary goal of voting, particularly in national elections, is to elect representatives who reflect the people's desires. However, many nations, including India, face challenges such as vote manipulation, inaccessible polling stations, lack of resources, and undertrained personnel.

1. INTRODUCTION

Considerable research has been conducted on electronic voting systems that allow voters to cast their ballots using smartphones, computers, or other devices at their convenience. These systems, such as those based on blockchain technology, are noted for their key attributes like permanence, decentralization, security, transparency, and trustlessness.

Blockchain, combined with smart contracts, has emerged as a viable option for creating a more secure and transparent e-voting system. Its implications for future internet-based systems span various industries, including finance, healthcare, and public services. However, several challenges remain, such as dealing with weak links and ensuring the integrity of transactions.

Blockchain technology provides a solution to improve security and accountability in digital systems, such as e-voting. Given the various everyday operations that rely on technology, e-voting platforms must integrate enhanced security features. Many governments are exploring IT solutions, especially as the cost of elections continues to rise and voter apathy increases, particularly among younger, tech-savvy generations.

1.1 Objectives

This project aims to ensure secure and efficient election processes, free from manipulation. It seeks to decentralize the system to eliminate bottlenecks, reduce election time and costs, increase voter participation, and facilitate elections in remote areas. Traditional voting systems have become outdated and struggle with issues like vote tampering, fake identities, long waiting times, and low participation from voters living abroad or in different regions. E-voting is designed to allow voters to cast their votes from anywhere in the world. Voters will be required to register by providing their name and phone number. Once approved by the admin, the voter will receive a private key, granting them the ability to vote only once, as the smart contracts prevent duplicate voting.

1.2 Scope of Project

The project aims to conduct secure and safe elections using PHP technology, eliminating voting issues and minimizing system bottlenecks. It also aims to reduce election time and costs while increasing voter participation, all while maintaining the integrity and security of the voting process.

2. LITERATURE SURVEY

Various techniques and approaches have been explored in the literature related to the development of e-voting systems.

- One author discusses the importance of voting, the benefits of electronic voting, and methods for implementing e-voting using PHP. The author also examines issues that contribute to mistrust in voting systems worldwide.
- Another article explores the consequences of such mistrust, including:

  - Political instability
  - Compromised government legitimacy
  - Mistrust in electoral processes
  - Governance issues
  - Economic instability
- The author also explains the algorithms used in e-voting system development, with a focus on hashing and PHP technologies.
- Other discussions include proofs like Proof of Work, Proof of Stake, and Proof of Burn.
- A paper titled "Secured Voting Using PHP" examines calculations and simulations in the context of smart e-voting.
- The study concludes with graphs comparing the baseline scheme and proposed solutions, highlighting the importance of threat detection in device usage.

Problem Statement

Traditional electronic voting systems often suffer from vulnerabilities due to centralized data storage. A significant portion of the Indian population faces challenges in voting due to being away from their registered constituencies. This results in a loss of democracy and time, with problems such as vote tampering, identity fraud, and more. PHP technology can help overcome these issues by securing the e-voting process. The trend toward e-voting is growing, offering potential savings in election budgets, especially in reducing the need for physical elections. Additionally, using online voting prevents multiple voting instances by generating unique access tokens, ensuring one vote per person.

Proposed Method

- **Privacy**: PHP provides a unique identity for each voter, protecting against fraud while maintaining voter anonymity.
- **Eligibility**: Voters must register using government-issued ID and mobile number to ensure eligibility. Biometric authentication, such as facial recognition, helps prevent duplicate votes.
- **Receipt-free Voting**: The system requires voters to cast their vote without receipt verification, creating blocks on the blockchain.
- **Vulnerability**: Voters gain access through private keys granted by the admin, which also ensures no external interference or pressure during voting.
- **Modeling**: System modeling helps to visualize and understand the process, identifying potential flaws before implementation.

Algorithm

1. Start
2. Connect to PHP via browser.
3. Admin initiates the election via the admin panel.
4. Voters register with private keys provided.
5. Admin adds candidates and assigns keys.
6. Admin approves voters based on their private keys.
7. Voters cast votes and await results.
8. Admin closes the election.
9. Results are displayed.
10. End

Process

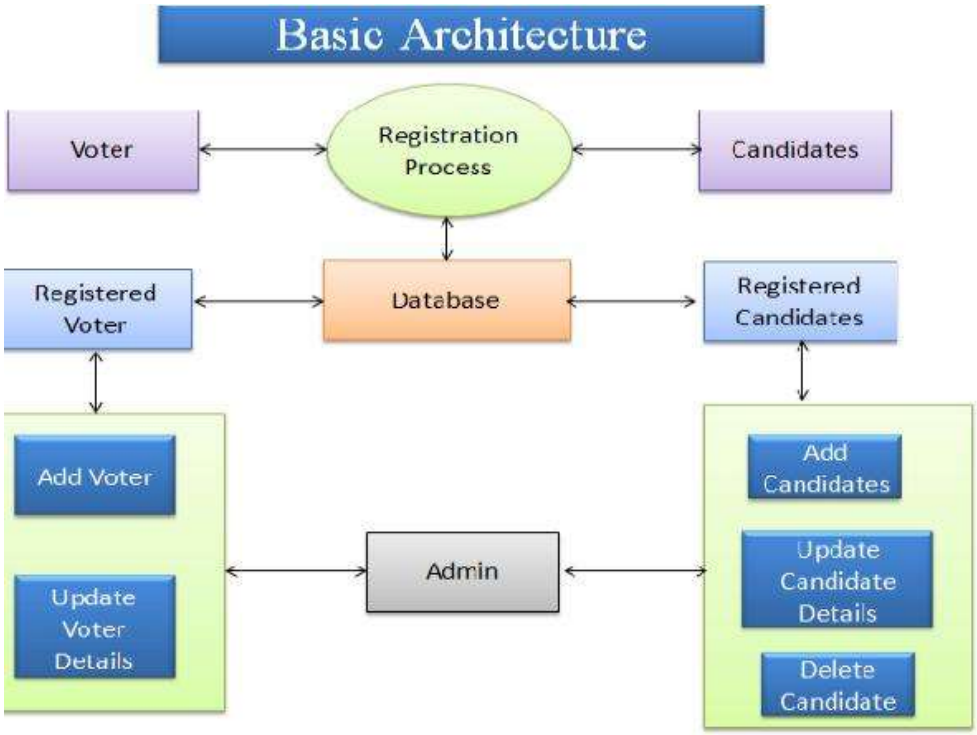
- The admin sets up the system and election details through the PHP network.
- Voters register and their details are verified by the admin.
- Approved voters can then cast their votes.
- After voting ends, the results are automatically displayed.

Project Description

This project is designed for small-scale polls and elections. It uses PHP and MySQL technologies, with a front-end built in HTML, CSS, and JavaScript. The platform allows users to register, vote, and view results remotely. By using QR codes and voter panel logins, this system reduces election costs and time consumption.

The system ensures voter anonymity while maintaining transparency in the voting process. Online voting increases voter turnout by making voting more accessible, particularly for those who cannot physically attend voting locations.

The project uses PHP modules and packages along with node modules to run the system, ensuring smooth transaction processing during the election cycle.



3. CONCLUSIONS

This e-voting system efficiently manages voter information, allowing users to log in and vote securely. It incorporates all aspects of an electoral system, ensuring that each voter casts their vote only once, and results are automatically calculated and displayed. The online voting system helps increase voter participation and streamlines the electoral process. Traditional voting methods are inefficient and time-consuming, but this new system offers a faster, more secure alternative. This technology can be implemented nationwide, providing a smarter solution for elections.

References

1. Appel, Andrew (2020-06-08). "Democracy Live internet voting: surprisingly insecure". Princeton University.
2. "Internet Voting". Verified Voting.
3. Kohno, Tadayoshi, et al. "Analysis of an Electronic Voting System", Johns Hopkins University Technical Report, 2003.
4. Stubblefield, Adam, et al. "Analysis of an Electronic Voting System", IEEE, 2004.
5. Election Assistance Commission, National Institute of Standards and Technology, FBI, Cybersecurity & Infrastructure Security Agency (2020-05-11).
6. "RISK MANAGEMENT FOR ELECTRONIC BALLOT DELIVERY, MARKING, AND RETURN".
7. Bureau of Police Research and Development, Ministry of Home Affairs, New Delhi.