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Research Paper

Block chain E-Voting Done Right: Privacy And Transparency With Public Block Chain

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Abstract:

Traditional electronic voting systems often face challenges related to trust, transparency, and security, leading to concerns about electoral fraud and voter manipulation. Blockchain technology presents a transformative solution by introducing tamper-proof, transparent, and decentralized mechanisms for conducting elections. This project explores a public blockchain-based e-voting system that ensures both voter privacy and vote verifiability. It uses cryptographic techniques such as zero-knowledge proofs, public-key encryption, and smart contracts to enable anonymous yet verifiable voting. The system enhances voter confidence, reduces dependence on centralized authorities, and promotes fair and transparent democratic processes.

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I.INTRODUCTION

Elections form the cornerstone of democracy. However, traditional and centralized electronic voting (e-voting) systems often suffer from centralized control, lack of transparency, data breaches, and voter distrust. With the advent of blockchain—a distributed, immutable, and transparent ledger technology—it is now feasible to design an e-voting mechanism that is secure, verifiable, and privacy-preserving.This project proposes a blockchain-based voting platform where votes are recorded immutably on a public blockchain, ensuring that every vote is counted and can be verified by any observer. At the same time, it maintains voter anonymity using cryptographic techniques. This model allows voters to cast their ballots remotely, improves auditability, and eliminates the risks of vote manipulation or tampering..

II.LITERATURE SURVEY

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III.EXISTING SYSTEM

Current e-voting systems rely on centralized servers, which are vulnerable to hacking, tampering, and denial-of-service attacks. These systems often lack public verifiability and end-to-end transparency. Voters cannot independently verify that their votes were recorded correctly without trusting the central authority. Furthermore, privacy concerns arise due to possible voter identity exposure during authentication or transmission. Systems that do attempt to integrate security often compromise

usability or scalability.

IV.PROPOSED SYSTEM

The proposed blockchain e-voting system leverages the power of public blockchain networks like Ethereum or Hyperledger to ensure decentralization, immutability, and auditable recordkeeping. Each voter is issued a unique, anonymous token (or cryptographic credential) during registration. Votes are cast as encrypted transactions and recorded on the blockchain via smart contracts, which manage the election process and ensure integrity. Advanced cryptographic protocols such as homomorphic encryption or zero-knowledge proofs (ZKPs) are employed to maintain vote secrecy while allowing public verification. The result is a voting system that is transparent to all but private to individuals, ensuring end-to-end trust without central oversight.

V.SYSTEM ARCHITECTURE

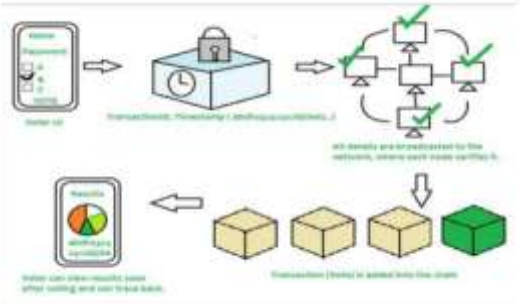

Fig 5.1 System Architecture

The system architecture for AI-Powered Depression Detection using Chatbot and Live Video Facial Analysis integrates multimodal input sources to assess an individual's emotional and mental health state. A person under observation is monitored using two primary data acquisition methods: image/video recording of facial expressions and EEG signal acquisition of brainwave activity. The camera captures live images or videos to detect emotional cues such as anger, disgust, fear, happiness, sadness, neutrality, and surprise through computer vision models.

VI.IMPLEMENTATION

Fig 6.1 Home Page

Fig6.2 :Admin Login Form

Fig 6.3 Add party

Fig 6.4 User Signup

Fig 6.4 Results

VII.CONCLUSION

Blockchain technology offers a transformative opportunity to redesign electronic

voting systems by addressing long-standing issues of transparency, privacy, and trust. The proposed public blockchain-based e-voting system ensures that every vote is anonymous, verifiable, and immutable, while the entire process remains auditable by all stakeholders. By combining cryptographic techniques with decentralized architecture, this system has the potential to reinforce democratic processes, reduce electoral fraud, and enhance voter confidence. With proper implementation, such systems can scale globally, supporting secure and transparent elections at every level.

VIII.FUTURE SCOPE

Integration with biometric authentication for voter identity verification. Mobile app version with offline ledger syncing for rural voting.

Cross-border e-voting for expats and military personnel.

Quantum-resistant encryption for future-proofing the system.

AI-based anomaly detection to monitor voting patterns and detect fraud attempts.

Interoperable voting framework for national and local elections via different blockchain networks.

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