Project Proposal

Blockchain-Based Voting System

Group Members:

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Section: BCY-6B
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Proposed Project

Project Objective

The objective of this project is to develop a secure, transparent, and tamper-proof blockchain-based voting system. Traditional voting systems often encounter challenges such as electoral fraud, double voting, and a lack of transparency. By leveraging blockchain technology, we aim to ensure that votes are immutable, verifiable, and accessible only to authorized voters.

This system will utilize smart contracts to automate vote recording, prevent duplicate votes, and provide real-time vote tallying. Our proposed solution will enhance the trustworthiness, efficiency, and security of the voting process, ensuring a decentralized and fair election mechanism.

Tools and Technologies

To develop the blockchain-based voting system, we will utilize the following tools and technologies:

- **Blockchain Platform:** Ethereum (for smart contract deployment)
- **Smart Contract Language:** Solidity
- **Development Framework:** Hardhat (for compiling, testing, and deploying smart contracts)
- **Web3 Integration:** Ethers.js / Web3.js (for interacting with Ethereum blockchain)
- **Frontend Development:** React.js (for user interaction and interface)
- **Backend (Optional):** Node.js & Express.js (for additional functionalities)

- **Database (If Required):** IPFS (for decentralized data storage)
- **Wallet Integration:** MetaMask (for user authentication and secure transactions)
- **Testing Network:** Ethereum Testnets (Goerli/Sepolia) for deployment and testing

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Work Distribution

Task	Member Responsible
Smart Contract Development (Voting contract, security measures)	SAHIL
Frontend Development (React UI, Web3.js integration)	HADI
Backend Setup (Optional – IPFS, APIs)	SAHIL AND HADI
Blockchain Deployment & Testing	SAHIL
Integration of MetaMask & Web3	HADI
Documentation & Report Writing	SAHIL AND HADI

Each team member will collaborate on debugging, testing, and finalizing the project to ensure smooth execution.

Conclusion

This project will provide a decentralized and secure solution to traditional voting systems, addressing concerns related to transparency, security, and voter authentication. By implementing blockchain technology, we aim to reduce election fraud, eliminate intermediaries, and build public trust in the voting process. Our system will serve as a proof-of-concept for future large-scale blockchain-based voting applications, ensuring fair and fraud-free elections.
