Project Design Phase-I

Solution Architecture

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Team ID	ED14E0CE805D179835E48EA9C1BE5026
Project Name	Electronic Voting System
Maximum Marks	4 Marks

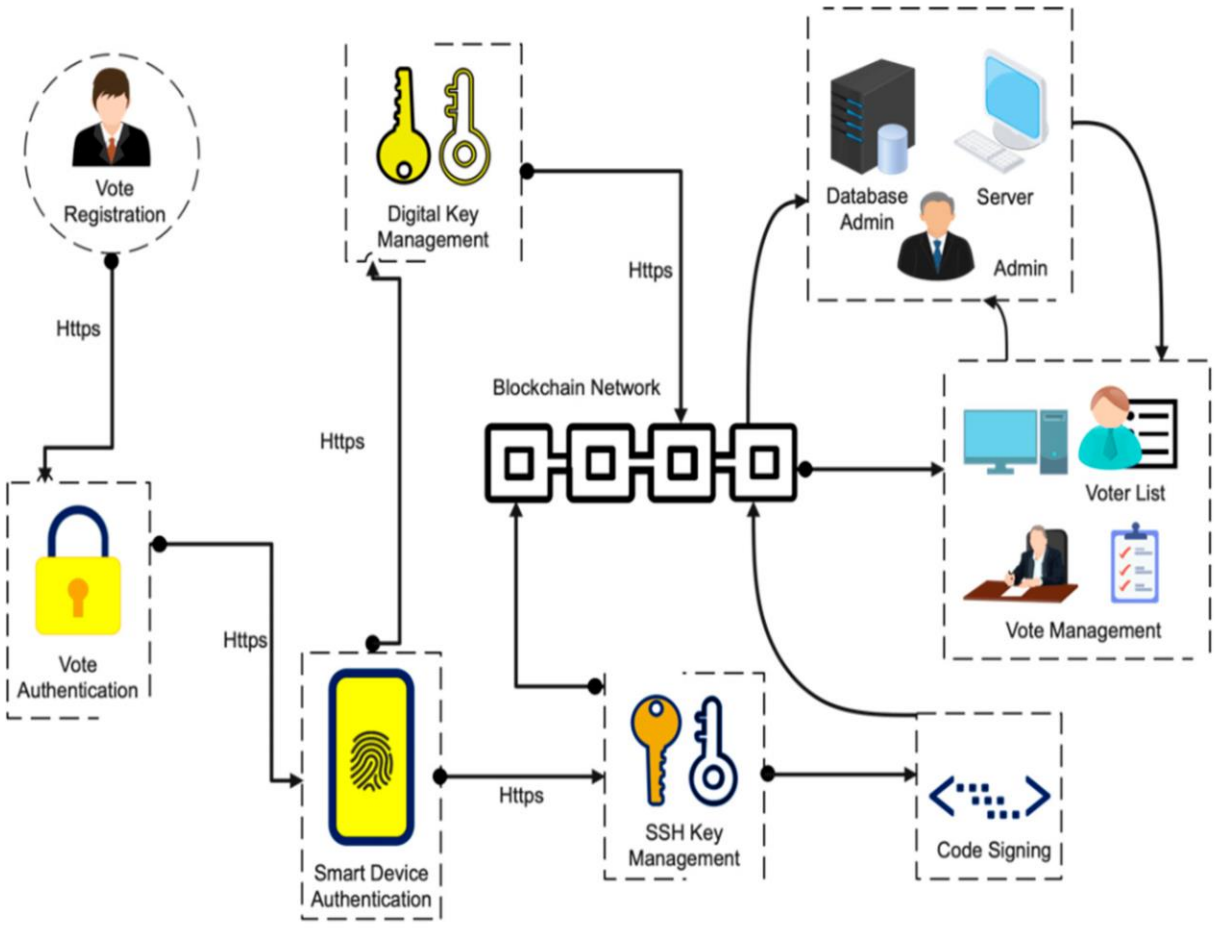
Solution Architecture:

A solution architecture for an electronic voting system using blockchain technology is a design that specifies how various components of the system interact and function to achieve the desired goals of security, transparency, and reliability. There are different approaches and frameworks that can be used to implement such a system, depending on the requirements and constraints of the specific use case. Here are some examples of existing or proposed architectures for electronic voting systems using blockchain technology.

- Decentralized Voting System using Blockchain: This architecture uses smart contracts to develop an e-voting Decentralized Application (DApp) on the Ethereum blockchain and develops a frontend to access the DApp easily on the blockchain. The system allows voters to register, verify their identity, cast their vote, and check the results in a secure and transparent manner. The system also provides a receipt of

the vote in the form of a transaction ID that can be used to ensure that the vote has been counted correctly.

Solution Architecture Diagram:



- Implementation of blockchain-based e-voting system: This architecture uses smart contracts to develop an e-voting DApp on the Ethereum blockchain and integrates it with a biometric authentication system to ensure voter identity and privacy. The system also uses a zero-knowledge proof protocol to enable anonymous voting without revealing the voter's identity or choice. The system allows voters to participate in the election from anywhere using a web or mobile interface and provides real-time tracking of the votes.

- Electronic Voting Using Blockchain And Smart Contracts: Proof Of Concept: This architecture uses smart contracts to develop an e-voting DApp on the Ethereum blockchain and uses a web interface to interact with the DApp. The system allows voters to register, authenticate, vote, and view the results in a simple and user-friendly manner. The system also uses encryption and hashing techniques to ensure the security and integrity of the votes.

- Electronic Voting System Using an Enterprise Blockchain[4]: This architecture uses Hyperledger Fabric as a framework to develop an e-voting DApp on an enterprise blockchain network. The system allows voters to register, verify their identity, cast their vote, and view the results in a secure and transparent manner. The system also uses a mechanism to protect cryptographic artifacts from users and network nodes.

- A Framework to Make Voting System Transparent Using Blockchain Technology: This architecture uses smart contracts to develop an e-voting DApp on the Ethereum blockchain and uses a web interface to interact with the DApp. The system allows voters to register, authenticate, vote, and view the results in a transparent and reliable

manner. The system also uses a distributed ledger to store the votes and a consensus algorithm to validate them.