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Implementation of an E-voting Prototype using Ethereum Blockchain in Ganache Network

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Abstract

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Abstract

Digitization of a secure electoral system capable of ensuring fairness and privacy has been a long-standing challenge for a variety of reasons. One is the system's reliance on a third-party organization to manage and verify election results, rendering it insecure. There is a possibility that data will be altered

during the election process. As a result, a decentralized e-voting system application capable of verification will be developed in this work using blockchain technology. The Ethereum network and the Truffle framework will be used to implement smart contracts as self-executing electoral agreements. The Ganache (local blockchain) network design demonstrated that the prototype is capable of recording every voting transaction on the network without the use of a central database. The voter can verify the election result by inspecting each voting transaction on the local blockchain . The proposed design will ensure that all voting transactions are stored in a decentralized database, ensuring that no administrative control over the ballot is exercised. © 2022 IEEE.

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