Privacy Preserving Voting Scheme Based on Blockchain Technology

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Abstract: *Democracy has made voting incredibly important in any nation due to a general scepticism of the traditional voting process. Individuals have witnessed violations of their fundamental rights. Lack of transparency has led to challenges to other digital voting systems. The majority of voting methods are not sufficiently transparent, which makes it highly challenging for the government to win over voters' trust. The previous and present digital voting systems have failed because they are vulnerable to abuse. The main goal is to fix issues with the traditional and electronic voting systems, including any form of error or unfairness that may occur when voting. To ensure a fair election and lessen unfairness, blockchain technology can be included into the voting process. The computerised voting methods are not flawless enough to be used on a broad scale, and the physical voting systems have numerous problems as well. This evaluates the requirement for a remedy to safeguard citizens' democratic rights. In order to establish a trustworthy working connection between voters and election officials, this article introduces a platform based on cutting-edge blockchain technology. Without using any actual polling places, the proposed technology offers a framework that may be used to conduct voting activity digitally through blockchain. Our suggested design uses adaptable consensus algorithms to support a scalable blockchain. Blockchains with pre-established validation procedures were developed for a specific voting storage.Voter verification will be provided by IRIS Recognition. All systems in a value chain save blocks of time-stamped voting. Blockchain is a log of transactions where members of a community may track asset transfers. Using the SHA-256 technique, two blocks are connected to one another. It has also been elaborated on how to encrypt transactions using cryptographic hashes and guard against 51% attacks on the blockchain. Also, the method for conducting blockchain transactions during the voting process has been developed using Blockchain Lastly, the performance assessment of the suggested method demonstrates that it may be used to a sizable population.*

Keywords: E-polling, voting system, blockchain application, blockchain voting, E-voting, electoral system, blockchain, cryptographic hash, secure voting

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