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VoteBlock: Blockchain Based E-Voting System

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Abstract: *In the contemporary digital landscape, where the ease of hacking and system breaches prevails, the potential for data tampering looms, resulting in unfavourable circumstances. To mitigate this rick, blockchain technology emerges as steadfast solution, characterised by its near- impenetrable security features, rendering data alteration virally impossible. The act of voting, integral to any nation's democratic process, stands as a cornerstone of societal decision making. The consequences of vote miscalculation or manipulation by external forces are dire, emphasising the need for a secure and reliable system. It is in this context that blockchain technology plays a cubical role, offering an avenue to enhance the integrity and accessibility of the voting process.*

This paper presents a comprehensive proposal for decentralised national e-voting system build upon blockchain technology. The system incorporates an administrative panel designed to facilitate the scheduling of elections, candidate management, and the declaration of election results. Concurrently, a user-friendly web application empowers citizens with an interface for inputting their personal details, including their name, mobile number, and a live photo captured during the voting process.

To maintain the integrity of the voting system, voter eligibility is rigorously verified at the point of User ID entry. A crucial layer of security is added by confirming eligible voters through their registers phone numbers using One Time Passwords (OTPs). Subsequently, individual voters gain the privilege to cast their votes, with their actions monitored through a webcam or front cameras. Votes are securely recorded within a blockchain ledger, immune to tapering, while the system checks the voter's addressed corresponding constituency in the backend. The voting results are diligently declared on a predefined date and managed by the administrator, with graphical representations available to provide clarity and transparency. This holistic system not only upholds the sanctity of the voting process but also offers citizens a technologically advanced and secure means to exercise their democratic rights.

Keywords: E-Voting System, Online voting system, Blockchain, Machine learning, Deep learning.

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