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Forensic Evidence Protection System Using Blockchain Technology

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Abstract: *In the digital era, maintaining the integrity and authenticity of forensic evidence is critical to ensuring justice and transparency. This 'Forensic Evidence Protection System Using Blockchain Technology' presents a secure and tamper-proof solution for storing and managing digital forensic evidence. The system allows a single authenticated user to register and log in to a web-based platform to upload forensic evidence files. Once uploaded, the file is processed and stored within a blockchain ledger to ensure immutability and transparency.*

Each uploaded file is encapsulated in a new block that contains key attributes, including an index, evidence hash, timestamp, previous hash, nonce, block hash, file name, and allowed actions. The blockchain ledger ensures that evidence cannot be altered once added, and any attempt to tamper with the data triggers a warning alert. Users can download the proof and verify its integrity using the evidence hash, thus confirming that the data remains unmodified. This system effectively utilizes blockchain's decentralized and secure nature to protect the chain of custody for digital forensic evidence.

Keywords: Blockchain, Digital Forensics, Cybersecurity, Evidence Integrity, SHA-256, AES Encryption, Tamper-Proof Storage

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