

Decentralized Supply Chain Management Using Blockchain for Enhanced Security and Anti-Counterfeiting

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Abstract: *As global supply chains grow in complexity, the infiltration of counterfeit products has become a pervasive issue, threatening consumer safety, brand equity, and compliance. This paper proposes a blockchain-based decentralized supply chain management system leveraging Ethereum and Hyperledger Fabric for enhanced transparency, security, and anti-counterfeiting. The system integrates smart contracts and QR code-based verification, providing end-to-end traceability and user-friendly interactions. Results demonstrate significant improvements in product authenticity verification, operational efficiency, and stakeholder trust.*

Keywords: Blockchain, supply chain, counterfeit detection, smart contracts, QR code, decentralization