

A Blockchain-Based Privacy-Preserving Physical Delivery System

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Abstract : The internet has transformed the way we shop. Previously, most of our purchases came in the form of shopping trips to a nearby store. Now, it's as easy as clicking a mouse. But with great convenience comes great responsibility. We have to be constantly vigilant about our personal information. In this work, our proposed approach is to encrypt the information printed on the physical packages, which include personal information in plain text, using a symmetric encryption algorithm; then, we store that encrypted information into a Blockchain network rather than storing them in companies or corporations centralized databases. We present, implement and assess a blockchain-based system using Ethereum smart contracts. We present detailed algorithms that explain the details of our smart contract. We present the security, cost, and performance analysis of the proposed method. Our work indicates that the proposed solution is economically attainable and provides data integrity, security, transparency, and data traceability.

Keywords : blockchain, Ethereum, smart contract, commit-reveal scheme

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