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PharmaSafe - Blockchain-Based Counterfeit Detection in the Pharmaceutical Sector

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D Sivaganesan ; A S Kareshmmaa ; A K Sharan Shankar ; Anitha Petricia B All Authors ...



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Abstract



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Abstract:

The pharmaceutical industry's crucial task is to look after the medicines while they are being transported, by ensuring ideal storage conditions and keeping track of the complete medications sent to prevent risky scenarios. These three classifications are used by WHO: falsified, substandard, and unregistered/unlicensed. The need for sophisticated tools to identify fabricated pharmaceuticals will rise as criminals grow craftier. To identify phoney and substandard drugs, new technologies are continually being developed. A substantial lack of transparency in the current system makes it difficult for patients to understand the cost of acquired medications, making counterfeit drugs a prime issue. Moreover, if there are accusations of illegal or unethical behaviours, it could be difficult to look into supply chain tampering. The blockchain technology was employed. Two parties' transactions can be efficiently and permanently recorded using an open, distributed ledger like blockchain. Blockchains are transparent, decentralized, distributed, and unchangeable, which makes them an ideal solution for the problem of fake medications. This study proposes a mechanism for the safe distribution of medications throughout the whole supply chain. Each product in the chain can be moved between chain associates who have been confirmed using an event request-response approach. A product may be traced back to its source thanks to smart contracts, which are used to record all transactions between entities onto the blockchain. A DApp is made using the React Framework. On a local blockchain that Ganache provided, the smart contracts were put into action. The blockchain connection between the DApp and Web3.js is made possible by the Truffle framework. The outcomes of the studies show that our method is practical and marginally more secure than existing solutions.

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