CMPSC 390 and Art 387 Applications

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  - Follow My Vote, Voatz

Health

Arab J Sci Eng. 2020 Oct 12 : 1–17.
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Blockchain for COVID-19: Review, Opportunities, and a Trusted Tracking System

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Abstract

Go to:

The sudden development of the COVID-19 pandemic has exposed the limitations in modern healthcare systems to handle public health emergencies. It is evident that adopting innovative technologies such as blockchain can help in effective planning operations and resource deployments. Blockchain technology can play an important role in the healthcare sector, such as improved clinical trial data management by reducing delays in regulatory approvals, and streamline the communication between diverse stakeholders of the supply chain, etc. Moreover, the spread of misinformation has intensely increased during the outbreak, and existing platforms lack the ability to validate the authenticity of data, leading to public panic and irrational behavior. Thus, developing a blockchain-based tracking system is important to ensure that the information received by the public and government agencies is reliable and trustworthy. In this paper, we review various blockchain applications and opportunities in combating the COVID-19 pandemic and develop a tracking system for the COVID-19 data collected from various external sources. We propose, implement, and evaluate a blockchain-based system using Ethereum smart contracts and oracles to track reported data related to the number of new cases, deaths, and recovered cases obtained from trusted sources. We present detailed algorithms that capture the interactions between stakeholders in the network. We present security analysis and the cost incurred by the stakeholders, and we highlight the challenges and future directions of our work. Our work demonstrates that the proposed solution is economically feasible and ensures data integrity, security, transparency, data traceability among stakeholders.

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Other applications

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Help with reproducibility (for example, blockchain in clinical trials).

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Jordan refugee camp that runs on blockchain.

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Prediction Markets:

Decentralized market platform for forecasting and reporting (`https://augur.net/`)