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ParkChain: An IoT Parking Service Based on Blockchain

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Abstract:

The IoT ecosystem is evolving quickly, developing several applications in different sectors. The majority of these applications use centralized infrastructures something that poses several challenges especially related to trust and data security. Recently, blockchain has been introduced as an effective solution to IoT applications trying to provide solutions to these challenges. In this paper, we introduce a new decentralized IoT application using blockchain technology, namely, ParkChain. The ParkChain application operates in a way that no one can delete, revert, hack or question the time a registered vehicle securely entered a parking area. In order to evaluate ParkChain, we have implemented the smart contract on top of Ethereum Blockchain along with a traditional Image Processing / Computer Vision approach for License Plate Recognition, and using a Raspberry Pi we control the access on a parking place. We report on several experiments that assess the performance of ParkChain application.

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