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Blockchain and Zero-Sum Game-based Dynamic Pricing Scheme for Electric Vehicle Charging

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Abstract

This paper proposes a zero-sum game theory and blockchain-based secure and decentralized dynamic pricing scheme for electric vehicle charging. It aims to secure data sharing between electric vehicles and charging stations. We integrate the sixth-generation (6G) communication network to enable data transactions between electric vehicles and charging stations with low latency and high reliability. We employ a zerosum game theory approach to maximize the payoff of electric vehicles and charging stations. The performance of the proposed system with 6G is evaluated by comparing it with 5G and 4G traditional networks. The performance evaluation of the proposed system has been analyzed with various parameters latency, profit for electric vehicles, profit for charging station, and optimal payoff of the system. The results show that the proposed system is highly secure and reliable than traditional systems. © 2022 IEEE.

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