A Systematic Review on Blockchain-Based Ridesharing System

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Abstract. A Ridesharing market has surged massively in recent years as it enables riders to share rides among other participants, dividing the fare among each other. It further is valuable in the reduction of traffic jams and carbon emissions to the environment. Due to the centralized architecture of the current ridesharing system, major concerns such as privacy issues, lack of transparency, and vulnerability to malicious attacks have emerged through the years. The trust of the system solely depends on the third party and hence it can be vulnerable to a single point of failure and Denial-of-Service attacks. As a solution, many studies relating to blockchain technology have been conducted. This paper presents a systematic review of existing blockchain-based ridesharing architectures and proposals. Suitable studies were initially selected by utilizing a rigorous searching mechanism and they were analysed by quantitative and qualitative methods. The results reveal that blockchain provides security and transparency with the use of smart contracts but also consists of scalability, overhead and safety issues. Ethereum platform is preferable for deployment as it provides smart contracts accessibility and can be tested with ease. Furthermore, a reputation system would aid in enhancing the safety and trust within a ridesharing system.

Keywords: *blockchain, ridesharing, peer-to-peer, decentralized, Smart Contracts*