

Blockchain-based solutions for smart mobility sustainability assurance

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Abstract

Smart mobility represents the future for many of today's cities and is part of the smart city concept. Besides all its characteristics, the smart city concept aims to use the IoT (Internet of Things) technology to improve the citizens quality of life through a secure and efficient administration of city resources. The exponential growth of population and urbanization creates many challenges, especially from a mobility perspective. The main challenge in this direction is to ensure a sustainable transportation system. The objective of this paper is to present a survey on the sustainability assurance for smart mobility systems by using the blockchain technology. Moreover, this study proposes a conceptual model for a sustainable smart mobility system that implies the usage of blockchain technology. Widely known through its connection with bitcoin and other cryptocurrencies, blockchain can serve the safety and security requirements that are specific to intelligent transportation systems (ITS). The main advantage of this technology is the capability to face against several security threats by storing securely the information. This approach will streamline and secure the sensors networks data handling by the TMCs (Traffic Monitoring Centers). The process of these data handling is challenging because of possible exposure to cyber-attacks that can lead for example to erroneous traffic lights phases and green-interval settings in crossroads. The conclusions will be issued based on a comparison with the current IoT approaches for ensuring the secure storage of traffic data retrieved from sensors networks.

Keywords: smart cities, smart mobility systems, blockchain

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