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BLOCKCHAIN APPLICATION FOR PROMOTING THE SECURE AND SUSTAINABLE DEVELOPMENT OF THE INTERNET OF VEHICLES INDUSTRY

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Abstract

This study investigates the role of blockchain technology in enhancing the security and sustainability of the Internet of Vehicles (IoV) industry. The rapid growth of IoV offers opportunities for safer, more efficient, and environmentally friendly transportation systems, but it also raises critical concerns about cybersecurity and privacy breaches. By employing a game theory model, this research analyzes the trade-offs between data collection strategies, data protection measures, and the profitability of IoV platforms, while considering their impacts on user engagement and consumer trust. The findings demonstrate that blockchain technology not only strengthens data integrity, privacy protection, and resistance to cyberattacks but also fosters sustainable development by supporting secure, transparent, and efficient data flows within intelligent transport systems. However, challenges remain in terms of implementation costs, scalability, and energy consumption, which must be carefully balanced against environmental and economic benefits. The paper contributes novel insights into how blockchain-driven IoV platforms can align technological innovation with sustainable mobility, offering guidance for businesses, policymakers, and researchers seeking to advance secure, resilient, and environmentally responsible transportation ecosystems.

Key words: blockchain technology, connected car, cybersecurity, privacy protection, game theory

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