# Tentative Outline (Preliminary Proposal of Thematic Issue)

**Special/Thematic Issue for the Journal**
**International Journal of Sensors Wireless Communications and Control**

## Synergy of Blockchain and the Internet of Vehicles (IoV) for a Secure and Connected Future

***Guest Editor: Dr. Wattana Viriyasitavat***
***Co-Guest Editors: Dr. Shanshan Zhao & Dr.Qindong Sun***

**Scope of the Thematic Issue:**

The rapid rise of the Internet of Vehicles (IoV) has led to significant debates surrounding the management of intelligent vehicular networks. Key concerns in the IoV domain revolve around vehicle data storage and information protection. Real-time information within vehicles, such as weather data and traffic positioning, can assist vehicles and Intelligent Transportation System (ITS) administrators in taking necessary actions, including emergency weather response and intelligent route planning. However, the existing centralized administration approach for the Internet of Vehicles faces challenges when it comes to real- time functionalities. To address these issues, Blockchain technology emerges as a valuable solution for security management and decentralized distributed storage, as it has already demonstrated notable advantages in the realm of cryptocurrencies. The integration of Blockchain technology has begun to have a significant impact on the Internet of Vehicles by enhancing security and enabling the integration of a larger number of vehicles. This advancement paves the way for the rapid adoption of upcoming innovations and unlocks a plethora of opportunities for enterprises in the vehicular sector. By integrating Blockchain with IoV in real-time, it becomes possible to establish and maintain continuous encrypted information, safeguarding against unauthorized modification and alteration of vehicular data. Furthermore, the application of Blockchain in the IoV supports multi-application scenarios while also offering decentralization, scalability, and enhanced security for the IoV space. As a result, IoV applications extend to various areas such as intelligent roadside assistance, vehicle maintenance, and vehicle insurance. Furthermore, it provides extensive assistance and services to the automotive sector, customers, and travel-related applications with multiple scenarios. The core objective of managing information in the Internet of Vehicles should be cost-effective, enabling the IoV environment to become more immutable, transparent, and privacy-preserving. Additionally, a Blockchain-enabled IoV would enhance the digital data of vehicle users, including vehicle engine information, vehicle positioning, and travel data, necessitating decentralized distributed storage for robust security management. Thus, the objective of this call for papers is to gather cutting-edge research submissions that present unique, innovative, and unpublished articles related to the intersection of Blockchain and the Internet of Vehicles (IoV). The primary focus is on achieving scalability, interoperability, and ensuring privacy and security through a decentralized framework.

**Keywords:** Internet of Vehicles (IoV), Blockchain, Vehicular Data, Intelligent Transportation Systems (ITS), Decentralized distributed storage.

**Sub-topics:**

- Trust and consensus mechanisms for secure IoV transactions.
- Privacy-preserving techniques in blockchain-based IoV systems.
- Scalability and performance optimization of blockchain networks for the IoV.
- Interoperability and standardization challenges in blockchain-enabled IoV ecosystems.
- Blockchain-based data marketplaces and sharing economy models in the IoV.
- Decentralized identity management for connected vehicles.
- Blockchain-based solutions for secure vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication.
- Smart contracts and automated governance in the IoV context.
- Integration of artificial intelligence and machine learning with blockchain in the IoV.
- Blockchain-enabled cybersecurity in autonomous vehicles.
- Blockchain-based traceability and provenance for supply chain management in the automotive industry.
- Energy-efficient consensus mechanisms for blockchain in vehicular networks.

**Schedule:**

- Complete Thematic issue submission deadline: **October 10, 2023**

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