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IEEE Internet of Things Journal Special Issue on

AIoT-enabled Secured and Green Supply Chain Systems: Challenges and Opportunities

Supply Chain Systems (SCS) range from the procurement of raw materials to the production and delivery of items. The main stakeholders in SCS are vendors, suppliers, and retailers responsible for delivering the right product to the right customer on time. This can be achieved through intelligent technologies such as Artificial Intelligence (AI)-based Internet of Things (IoT). The AI-based IoT (AIoT) performs real-time tracking of products, sustaining a green environment by reducing carbon emissions as the entire system is digitally connected. The AIoT-based systems provide numerous opportunities, however, they have certain challenges that need to be overcome. For example, digital systems are prone to adversarial attacks, and their security is of utmost importance for the smooth operations of green SCS. The secured and green SCS are efficient and cost-effective for sourcing, manufacturing, delivering, and returning products. In this system, the IoT devices monitor the external world and securely track the products. These devices can also be deployed to enhance the storage conditions of the products for quality assurance while sustaining a green environment.

Although the AIoT-enabled SCS is at the initial stage it will use next-generation technologies such as big data, cloud computing, 5/6G, and cybersecurity for efficient operations. However, a big challenge is making a global AIoT-enabled secured and green SCS by joining multiple sites. Furthermore, designing such a system for small-scale industries is another challenge as they have limited resources. Hence, we need an intelligent, secure, green, economical, global, and fast SCS to accelerate business opportunities, serve customers better, save money, and improve efficiency. This special issue aims to collect recent advancements, innovations, and industry-oriented practices in AIoT-enabled secured and green SCS to provide excellent customer satisfaction and business growth at a low cost. The topics of interest include, but are not limited to:

- IoT for Supply Chain Resilience and Agility
- Sustainable and green practices through AIoT in SCS
- Blockchain technology for transparency in AIoT-enabled SCS
- AIoT innovations in logistics and smart warehousing
- IoT-driven innovations in logistics in autonomous vehicles and drone delivery
- Energy efficiency and carbon footprint reduction in SCS via IoT
- 5/6G and edge computing integration for real-time operations in SCS
- Predictive analytics and intelligent decision-making in SCS
- IoT-enabled circular economy models for green and secured SCS
- Cross-industry impact of AIoT on global SCS
- Smart contract applications in IoT for privacy and security in supply chain transactions
- AIoT in enhancing product lifecycle management and traceability
- AIoT-driven solutions for supply chain risk management and mitigation
- Interoperability and standards for AIoT in supply chain ecosystems

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Submission Deadlines:

Submission Deadline:	**Extended to April 30th, 2025**

Submission Deadline: **Extended to April 30th, 2025**
First Reviews Due: May 31st, 2025
Revision Due: June 30th, 2025
Second Reviews Due: July 20th, 2025
Final Manuscript Due: August 15th, 2025
Publication Date: October 2025