

# Novel Design of Blockchain based IIoT Framework for Smart Factory

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**Abstract**—A smart factory is an advanced manufacturing system that utilizes various cutting-edge technologies such as IIoT(Industrial Internet of Things), big data, AI(Artificial Intelligence), blockchain to automate and optimize production processes. While there is a growing demand for smart factories in recent times, the adoption and proliferation of these facilities have been delayed due to concerns about security, the reliability of collected information, and challenges in management and control. Moreover, traditional centralized smart factory systems pose a risk of operational downtime in the event of failures or attacks since a central server controls the entire system. Therefore, we propose the design of a secure, transparent, and reliable blockchain-based IIoT framework for smart factories. The framework consists of three layers: the blockchain core layer, the blockchain operation layer, and the IIoT service layer. The IIoT service layer plays a crucial role in providing various services essential for the advancement of smart factories, utilizing blockchain technology. Our proposed framework combines IIoT and blockchain technologies to leverage the advantages of decentralization, trust, security, transparency, data management, and traceability.

**Keyword**—Blockchain, Industrial Internet of Things(IIoT), Smart Factory, Framework, Decentralization



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