

Blockchain, Internet of Things, AI, and Smart Factory Synergies for Secure Carbon Trading

Abstract

Greenhouse gas emissions significantly drive climate change, necessitating efforts to mitigate these emissions through mechanisms such as carbon credit exchanges. Unfortunately, implementing the Carbon Credit exchange still faces several obstacles, such as manual record-keeping and fraudulent reporting of emission levels. This research aims to explore current blockchain, Internet of Things (IoT), and Artificial intelligence (AI) technologies to solve these problems. This paper aims to design a data architecture integrating blockchain, IoT, and AI by conducting a literature review. Carbon emission sensors collect and process data through IoT gateways, analyzed by edge nodes, and stored on the blockchain for secure carbon credit transactions. This research offers innovations in implementing the carbon credit exchange system by integrating blockchain and IoT technologies, which can monitor and track carbon emissions in real time and ensure security in transactions. Integrating blockchain, IoT, and AI technologies in carbon credit transactions effectively reduces emissions, providing reliability and validity to fight climate change.