Chapter 7

IoT-Based Railway Logistics

Security Issues and Challenges

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Summary

In order to improve and optimise logistical operations, the railway sector is integrating Internet of Things (IoT) technology and systems. Real-time data is collected, sent, and analysed throughout the railway logistics process via linked equipment, sensors, data analytics, and communication networks. Various parts and systems of the rail infrastructure are outfitted with IoT sensors and devices for IoT-based railway logistics. These sensors can keep watch on and record data on the train's whereabouts, its speed, the temperature, the state of the cargo, and any necessary repairs. A central management system or cloud-based system will subsequently get the collected data for analysis and decision-making. IoT-based railway logistics promises to improve efficiency, safety, and dependability in railway logistics operations by using real-time data, connections, and intelligent decision-making skills. By boosting customer happiness, lowering costs, and improving operational efficiency, it has the potential to completely change the railway sector.

To secure the integrity, confidentiality, and availability of data and systems, a number of security concerns and difficulties related to railway logistics must be addressed. These include security flaws on the internet: Railway logistics IoT systems and devices are vulnerable to cybersecurity risks such as malware, hacking, and unauthorised access. These devices can serve as entry points for cyberattacks since they are networked and connected to the internet, which might interrupt operations, compromise data, or endanger users' safety. Railway logistics IoT devices produce and send a large quantity of data, including train movements, freight details, and maintenance logs. It is essential to protect this data and maintain privacy and prevent unauthorised entry. Both IoT devices and railway infrastructure are susceptible to physical assaults, vandalism, and manipulation. Critical components are physically accessed by unauthorised people. A possible point of

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The primary object of this chapter is to focus on IoT-based railway logistics and security issues and challenges. Our studies will help the railway industry and new researchers.

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