

Traffic Management Using Artificial Intelligence

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Abstract : Artificial intelligence (AI) has revolutionized traffic management in modern cities by enhancing efficiency, safety, and sustainability. This study explores the transformative role of AI-driven systems, including adaptive traffic lights, real-time incident detection, and coordinated signals, in improving urban traffic flow. Additionally, AI-powered navigation systems utilizing real-time GPS and sensor data offer more efficient and safer travel options. This study employs a mixed-methods approach combining quantitative traffic data analysis and qualitative surveys from traffic management authorities. The study also delves into AI's application in law enforcement, monitoring traffic violations, detecting distracted driving, and reconstructing accidents to analyze causes and responsibilities. Furthermore, the research highlights the environmental and economic benefits of AI in traffic management, such as reduced emissions and energy savings, while addressing challenges like data privacy concerns and high implementation costs. Ultimately, this paper emphasizes AI's potential to shape sustainable traffic systems and promote efficient transportation networks.

Keywords : artificial intelligence, traffic management, urban congestion, traffic safety, real-time data

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