A Machine Learning-Powered Navigation System for Smart Cities: Optimizing Traffic Flow and Air Quality

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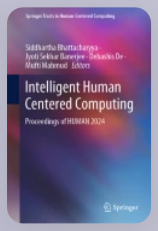

Intelligent Human Centered Computing

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Abstract

This research presents a novel navigation system harnessing the power of machine learning to address two critical challenges in smart cities: traffic congestion and air pollution. The system seamlessly integrates real-time traffic data and air quality

monitoring, enabling dynamic route optimization and proactive pollution mitigation. By leveraging machine learning algorithms and deep learning algorithms such as neural networks, the system predicts traffic congestion patterns and reroutes vehicles for optimal flow, reducing travel time and fuel consumption. Simultaneously, information on cars like the rate of fuel consumption, and engine size provides continuous data, allowing the system to reroute vehicles away from high-pollution areas, thereby minimizing public exposure. This comprehensive approach is anticipated to yield significant benefits, including improved air quality, reduced traffic congestion, and increased public health. Additionally, the system's predictive capabilities enable proactive interventions, fostering the development of more resilient and sustainable urban environments. This research represents a significant step towards intelligent and environmentally conscious urban management, paving the way for smart cities' healthier and more efficient future. This paper extensively analyses the areas in which pollution emissions can be intelligently and effectively calculated through data mining and deep learning techniques.

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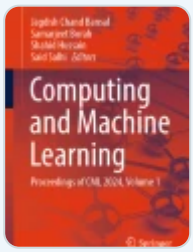

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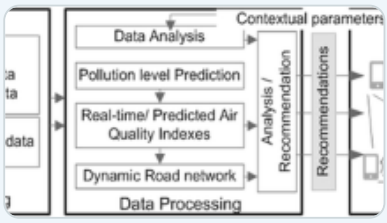

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