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(57) Abstract :
The present invention discloses an AI-enabled framework for smart traffic light coordination comprising a data ingestion module (101), traffic analytics engine (102), AI decision-making unit (103), adaptive traffic light controllers (104), emergency priority handler (105), and cloud-based coordination network (106). The system dynamically adapts signal timings based on real-time traffic density, predictive modeling, and emergency prioritization. It ensures coordinated operation across multiple intersections, reducing congestion, minimizing fuel consumption, enhancing pedestrian safety, and improving emergency response times. This invention provides a scalable and sustainable solution for intelligent urban traffic management.

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