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Patent Search

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Abstract:

Abstract The "Dynamic AI-driven Sensor Coordination and Optimization for Enhanced Data Accuracy in Smart City IoT Infrastructures" is a groundbreaking system designed for the continuous improvement of sensor networks in smart city environments. Leveraging artificial intelligence, the system dynamically adjusts sensor configurations in real-time, ensuring optimal performance in response to changing environmental conditions, sensor degradation, and evolving city dynamics. The integration of a continuous learning mechanism refines the system's coordination strategies over time, enhancing its adaptability and decision-making capabilities. Compatible with diverse sensor types and seamlessly integrating with existing smart city infrastructures, the invention offers a comprehensive solution for improving data accuracy, reliability, and efficiency. The system's applications are wide-ranging, from traffic management to environmental monitoring, making it a pivotal advancement for the sustainable and intelligent development of smart cities.

Complete Specification

Description:DYNAMIC AI-DRIVEN SENSOR COORDINATION AND OPTIMIZATION FOR ENHANCED DATA ACCURACY IN SMART CITY IOT INFRASTRUCTURES

Filed of the invention

The invention proposes a dynamic and intelligent system for coordinating and optimizing sensor networks within smart city Internet of Things (IoT) infrastructures.

Background:

Smart cities represent a paradigm shift in urban development, utilizing advanced technologies to improve the quality of life for residents, enhance sustainability, and optimize resource utilization. Central to the success of smart city initiatives is the deployment of Internet of Things (IoT) technologies, which involve the integration of sensors, actuators, and communication networks to collect and exchange data from various urban systems.

In the context of smart city IoT infrastructures, diverse sensor networks play a pivotal role in gathering data for applications ranging from traffic management, air quality monitoring, waste management, to public safety. These sensors are strategically placed throughout the city to capture a comprehensive view of its dynamic and often unpredictable environment. However, ensuring the accuracy, reliability, and longevity of the data collected by these sensors pose significant challenges.

2.1. Challenges in Smart City Sensor Networks:

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