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Patent Search

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Abstract:

The Efficient Water Management System for Sustainable Urban Development integrates IoT sensors, smart meters, and predictive analytics to optimize water usage and distribution in urban areas. This system enables real-time monitoring and control of water resources, ensuring efficient leak detection, demand management, and integration of renewable water sources like rainwater and recycled wastewater. By providing real-time data to consumers and utilities, the system promotes water conservation and reduces wastage. It is scalable, adaptable to various urban environments, and enhances resilience to climate change. The system's advanced features support sustainable urban development, environmental protection, and economic growth by improving water management efficiency and reducing operational costs for utilities.

Complete Specification

Description:The present invention relates to the field of sustainable urban development with a specific focus on efficient water management systems. This invention addresses the critical challenges of water conservation, distribution, and management in urban environments, where rapid population growth and industrialization impose immense pressure on existing water resources. The system integrates advanced technologies, including Internet of Things (IoT) sensors, smart meters, and predictive analytics, to monitor, control, and optimize water usage. It is designed to ensure the equitable distribution of water, reduce wastage, and support sustainable practices through real-time data collection and automated decision-making. This invention is applicable to residential, commercial, and industrial settings, aiming to promote sustainability and resilience in urban water management.

Background of the proposed invention:

Water is one of the most critical resources for sustaining life and supporting economic development. However, with rapid urbanization, population growth, and the intensification of industrial activities, urban areas worldwide are facing increasing challenges in managing water resources efficiently. The traditional methods of water management, which often rely on centralized infrastructure and outdated technologies, are proving inadequate in addressing the complexities of modern urban environments. These challenges are exacerbated by the growing impacts of climate change, which manifest in more frequent and severe droughts, floods, and other extreme weather events. As cities continue to expand, the demand for water is escalating, and the need for innovative solutions to manage this precious resource sustainably has never been more urgent.

In many urban areas, the current water management systems are characterized by inefficiencies, such as high levels of water wastage, unequal distribution, and inadequate monitoring and control mechanisms. Leaks in aging infrastructure, unauthorized water usage, and the inability to accurately measure and monitor consumption are

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