

ABSTRACT

The IoT-based Smart Waste Management System offers an intelligent and efficient solution for modern waste collection challenges. By embedding sensors in garbage bins, the system continuously monitors fill levels and sends real-time data to a central server through the Internet of Things (IoT) network. This information is used to plan optimized routes for waste collection vehicles, reducing fuel consumption, labor costs, and traffic congestion. The system also helps prevent bin overflow and ensures timely disposal, contributing to a cleaner and healthier environment. Through mobile and web applications, both authorities and users can track bin status and receive notifications. The system can also generate reports and analytics for better decision-making and long-term planning. This smart waste management approach promotes sustainable living, reduces human intervention, and enhances operational efficiency. By integrating IoT technology with urban sanitation systems, cities can achieve improved hygiene, environmental conservation, and a step toward becoming truly smart cities.