

Smart Cities and the Integration of IT Infrastructure

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Abstract: *As urban populations rapidly expand, the efficient management of waste is becoming a critical challenge for cities worldwide. Integration of Information Technology Infrastructure (TI) as part of "Smart City" provides transformative solutions to optimize waste collection processes, isolation and elimination. By leveraging technologies like the Internet of Things (IoT), sensor networks, data analytics, and cloud computing, smart waste management systems can monitor fill levels in waste bins in real-time, optimize collection routes, facilitate waste segregation at source. This paper explores the potential of IT infrastructure in smart cities for waste management, delving into key technologies like smart waste bins equipped with sensors, intelligent routing algorithms for waste collection vehicles, data-driven decision-making platforms, and citizen centric applications that promote responsible waste disposal behaviours. IoT-enabled waste bins: The utilization of sensors embedded in waste bins to monitor fill levels, triggering alerts for collection when nearing capacity, thereby reducing unnecessary collection trips and optimizing truck routes.*

Keywords: Smart Cities, Waste Management, IoT-Sensors, Data Analytics, Cloud Computing, Recycling

