Utilizing IoT for Waste Collection: A Review of Technologies for Eco-Friendly Waste Management

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Abstract : Population growth and changing consumption patterns have led to waste management becoming a significant global challenge. With projections indicating that nearly 67% of the Earth's population will live in megacities by 2050, there is a pressing need for smart solutions to address citizens' demands. Waste collection, facilitated by the Internet of Things (IoT), offers an efficient and cost-effective approach. This study aims to review the utilization of IoT for waste collection and explore technologies that promote eco-friendly waste management. The research focuses on information and communication technologies (ICTs), including spatial, identification, acquisition, and data communication technologies. Additionally, the study examines various energy harvesting technologies to further reduce costs. The findings indicate that the application of these technologies can lead to significant cost savings, energy efficiency, and ultimately reshape the future of waste management.