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Innovative IoT-Based Smart Waste Management System

Mr. Riyan M. Patel[1], Mr. Mandar M. Kulkarni[2], Mr. Musaif A. Shaikh[3], Mr. Swaraj M. Swami[4] and Prof. Sugre D. D.[5]
Students, Department of Computer Engineering[1-4]
Professor, Department of Computer Engineering[5]
Vishweshwarayya Abhiyantriki Padvika Mahavidyalaya, Almala, India

Abstract: *In today's world, waste management has become a critical issue due to rapid urbanization and increasing waste generation. The Internet of Things (IoT) offers an innovative approach to addressing this challenge through smart solutions. This paper presents the design and implementation of an IoT-based smart dustbin system that enhances waste disposal efficiency by integrating sensors, microcontrollers, and communication modules. The system is designed to detect waste levels in bins, automate lid operations, and notify waste collection authorities when the bin reaches its threshold limit. The implementation of such smart waste management solutions can significantly improve cleanliness, hygiene, and overall waste collection efficiency in urban areas.*

Keywords: IoT, Smart Waste Management, Automated Garbage Collection, Ultrasonic Sensors, Waste Level Monitoring, Smart Dustbin, Environmental Sustainability, Real-Time Data, Municipal Waste Management, Smart City Solutions

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