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Design and Fabrication of Kitchen Waste Decomposer Device

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Abstract: *The increasing generation of kitchen waste in urban and semi-urban households presents a significant challenge to sustainable waste management. This research focuses on the design and fabrication of a compact, stationary kitchen waste decomposer system integrated with biogas generation capabilities. The system consists of a sealed plastic drum equipped with a temperature-regulated heating bulb and a biogas outlet. By maintaining optimal conditions for anaerobic digestion, the unit effectively converts organic waste into two valuable by-products: nutrient-rich compost and methane-rich biogas. The temperature control system accelerates the decomposition process, making it suitable for daily household use. Experimental trials indicate that the system can process up to 2 kg of waste per day, producing sufficient biogas for small-scale cooking applications while also reducing the burden on municipal waste systems. This project promotes an eco-friendly, low-cost, and energy- efficient solution for managing biodegradable waste at the source.*

Keywords: kitchen waste

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