

Smart Vacuum Cleaning Robot

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Abstract: *In today's fast-paced world, the demand for efficient and convenient household technologies continues to surge. Among these, smart vacuum cleaning robots have emerged as indispensable tools, promising automated cleaning solutions that integrate seamlessly into modern lifestyles. This abstract presents a comprehensive overview of a cutting-edge smart vacuum cleaning robot embedded system, featuring five key components for enhanced functionality. The system is anchored by an Arduino Nano-based model, leveraging the versatility and reliability of Arduino technology to orchestrate the robot's operations. Through a Bluetooth-operated interface facilitated by a dedicated mobile application, users can effortlessly control the robot's movements and cleaning schedules, offering unparalleled convenience and flexibility. Equipped with a dry vacuum cleaning system optimized for dust collection, the robot ensures thorough cleaning performance while minimizing maintenance hassles. Additionally, an ultrasonic sensor serves as a robust obstacle detector, enabling the robot to navigate intelligently and avoid collisions with furniture and other obstructions. Crucially, the entire system operates on a battery-powered module, granting the freedom to traverse various spaces without constraints imposed by traditional power sources. By synergizing these components, the proposed smart vacuum cleaning robot embedded system epitomizes the convergence of innovation and practicality, poised to revolutionize the landscape of home cleaning automation.*

Keywords: Embedded Technology, Dry Vacuum Cleaning, Dust Collection

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