

# Smart Floor Cleaning Robot for Domestic and Industrial Use

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**Abstract:** Automatic floor-cleaning robots are widely available, but most are expensive for their functionality. This project presents a low-cost Automatic Home Cleaning Robot capable of detecting and avoiding obstacles while cleaning the floor. The robot is smartphone-controlled via Bluetooth using an HC-05 module and an Arduino UNO microcontroller. It features rotating mops, a movable foam roller, a water pump with a reservoir for wet cleaning, and adjustable motor speed control. Powered by a 12V lead-acid battery, the robot uses homemade cleaning mops made from recycled materials, making it cost-effective and efficient for small household areas. Future improvements may include fully autonomous operation and advanced cleaning features.

**Keywords:** Robot, Arduino UNO microcontroller, DIY, UI, PWM