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Smart Lawn Cutter using Solar and Bluetooth

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Abstract: *An eco-friendly, solar-powered smart lawn mower is designed to automate lawn maintenance while minimizing cost, emissions, and user effort. The system integrates photovoltaic panels charging a 12 V rechargeable battery, which supplies power to multiple DC motors—including those driving wheels and the cutting blades—with optional height adjustment functionality. User interaction is enabled via an Android smartphone app communicating over Bluetooth (typically HC-05) and/or Wi-Fi to control motions (forward/backward/turn), blade activation, and optional functions like height control or sprinkling timing. Obstacle detection is implemented using IR or ultrasonic sensors, ensuring operational safety and path correction during cutting.*

The onboard microcontroller (e.g. Arduino UNO) serves as the central controller, managing power distribution, motor drivers (e.g. L293D), sensor readings, and wireless communication with the app. In some designs, sun-tracking panels further optimize solar harvesting efficiency. The smart lawn mower offers benefits in terms of reduced labour, low maintenance, quiet operation, and zero emissions. Further developments propose features like automatic scheduling, sprinkler integration, time-tracking, smart-home connectivity, and enhanced obstacle avoidance/path-planning for improved autonomy and user experience.

Keywords: *"Solar Powered, Bluetooth lawn cutter"*

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