Arduino Based Solar Tracking System

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Abstract: *This project presents the design and implementation of an Arduino-based solar tracking system aimed at optimizing solar energy harvesting. The system employs a dual-axis tracking mechanism to ensure that solar panels are continuously aligned with the sun's position throughout the day, maximizing energy output. Light-dependent resistors (LDRs) are used as sensors to detect sunlight intensity, and the Arduino microcontroller processes the data to control servo motors that adjust the panel's orientation.*

The system's key advantages include increased energy efficiency compared to fixed solar panels, cost-effectiveness, and adaptability for various applications. The proposed solution leverages open-source technologies, making it accessible and customizable for researchers, educators, and renewable energy enthusiasts. This project demonstrates the feasibility of integrating microcontroller-based automation into renewable energy systems, paving the way for more efficient and sustainable solar power solutions.

Keywords: Tracking, Arduinonano, Motordriver L298N,Solar panel, Gear motor, LDRs