

Smart Solar Based Home Automation System

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Abstract: *The "Intelligent Solar-Powered Home Automation and Gas Detection Alert System" represents an innovative solution at the nexus of automation, renewable energy, and safety, aimed at modernizing residential living. Utilizing an Arduino microcontroller and solar panels for power, this system integrates dynamic load management, gas detection, and fire safety mechanisms to optimize energy usage, enhance security, and promote sustainability. Through continuous monitoring and real-time alerts, it proactively addresses issues such as inefficient energy management, reliance on non-renewable energy sources, gas leak hazards, and lack of remote monitoring in traditional home automation systems. By combining advanced technologies with a user-friendly interface, this project offers a holistic approach to create smarter, safer, and more energy-efficient homes, aligning with the evolving needs of contemporary living environments*

Keywords: Automation, Renewable Energy, Safety, Efficiency, Monitoring, Integration, Sustainability

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