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(57) Abstract :
The proposed invention pertains to a solar energy system designed for isolated installations, featuring a step-up DC-DC converter. The system incorporates an intelligent control algorithm with a Maximum Power Point Tracking (MPPT) strategy for optimized power extraction from solar panels. It includes a robust protection mechanism against potential faults and extreme conditions, and it offers scalability across different energy requirements. Advanced communication and monitoring features allow remote system tracking. The system is adaptable for integration with other renewable energy sources and can efficiently charge various energy storage devices. Its design balances cost-effectiveness, efficiency, durability, and user-friendliness. Accompanied Drawing [FIGS. 1-2]

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