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# Photovoltaic Applications and a USB Power Bank Prototype Implementation

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*The economic efficiency of PV energy should be improved to put such new energy in practical use and to disseminate the utilization of new energy sources. This project takes the advantages of the contemporary research technologies in developing the performance of the PV energy sources. The ultimate goals of this research are essentially two: 1. Optimal solar energy harvesting: Development of PV panels' orientation strategies to achieve the maximum incident radiation at a reasonable cost. 2. Efficient power conditioning and smart integration: Proposing new algorithms and techniques—to enable higher energy conversion efficiency at low-complexity for cheap fabrication to participate in disseminating the culture of using PV energy harvesting. Investigations will be conducted in three forms: Mathematical analysis, Computer aided simulations, and Experimental breadboards as well.*