# DESIGNING AN ELECTRICAL POWER SYSTEM FOR PADDY SEPARATOR, WEIGHING, AND MOISTURE CONTENT MEASUREMENT USING A PORTABLE SOLAR PANEL

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**ABSTRACT**

Electric power requirements during post-harvest processes, such as separating, weighing, and measuring the moisture content of paddy, pose a significant challenge in remote areas without access to the electricity grid. This study aims to design a portable solar-powered electrical system to efficiently supply energy for these tools. The system consists of a 50Wp solar panel, a solar charge controller (SCC), a 12V battery, and a PZEM-017 module. The solar panel serves as the primary energy source, the SCC regulates the battery charging process, and the battery supplies power to the separator, scale, and moisture content measuring device. The PZEM-017 module is used to monitor electrical parameters such as voltage, current, power, and consumption in real-time. With a total load power of 7.425W, the system is capable of operating for 11 hours. The results show that the system can provide sufficient energy to power the equipment in sunny conditions and is both portable and sustainable. This system offers a practical renewable energy solution to support farmers' productivity in off-grid rural areas.

**Keywords**: solar panel, portable power system, paddy, PZEM-017, renewable energy.