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Design of Power Monitoring and Electrical Control Systems to Support Energy Conservation

Design Power Monitoring and Electrical Control Systems

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ABSTRACT

The increasing demand for electrical energy and the decreasing supply of fossil fuels in recent years have increased the cost of electrical energy. So that the culture of saving electrical energy is a habit that must be cultivated in the community. On the other hand, energy-saving behavior cannot be realized massively without a support system that can control energy use. With these concerns, it is necessary to develop a method that encourages a culture of saving electrical energy. This paper proposes a system that supports active energy efficiency methods that can support an energy-efficient culture. This system is an electric power monitoring system that is integrated with a smart electrical panel that continuously monitors the use of electrical energy and can control electrical loads automatically, record electricity usage, provide comprehensive reports and analyze energy usage. The method used to carry out this research is research and development. This research has produced a prototype of electrical power control and monitoring system that has a smart panel based on a raspberry PI 3 and PZEM-004t power energy meter. The monitoring system performs and executes automatic control of electrical loads. The system can also provide reports in the form of data monitoring in daily, weekly, monthly or annual period. From the test results, it can be concluded that the system can work well. This research is expected to contribute to providing a system that can support government efforts in saving energy.

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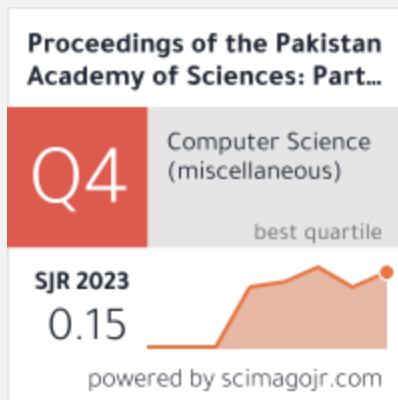Proceedings of the Pakistan Academy of Sciences: Part A (Physical and Computational Sciences)

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