

ABSTRACT

The increasing global energy demand has driven the development of renewable energy sources, such as Solar Power Plants (PLTS). However, one of the challenges in implementing PLTS is the ability to accurately and efficiently calculate the economic aspects, including investment cost estimation, capital return, and long-term profitability. With the growing use of mobile technology, a mobile-based application can provide a practical solution for simplifying economic analysis of PLTS. This study aims to design and develop a mobile-based application to calculate the economic aspects of a solar power plant. The application is expected to provide comprehensive information and assist Users in making decisions regarding renewable energy investments. The research methodology includes User requirements analysis, system design for Android platforms, and implementation of economic calculation models for PLTS using Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period methods. Testing was conducted using real-world data simulations to evaluate the application's accuracy and usability. The study results show that the designed application can calculate the economic aspects of PLTS with high accuracy and faster processing times compared to manual methods. Testing across 30 simulation scenarios provided consistent results with theoretical calculations. Furthermore, the application interface was rated as User-friendly by 85% of test Users. This mobile-based application is effective in assisting the economic analysis of PLTS and can serve as an essential tool for individuals or companies planning to invest in renewable energy. Future developments may include integrating real-time weather data to enhance calculation accuracy.

Keywords: *Solar Power Plant, Economic Aspects, Mobile Application, Renewable Energy*