

ABSTRACT

Rapid population growth in Indonesia has increased the need for electricity as the main energy source. Currently, electricity distribution in Indonesia still uses a centralized system, which causes some areas to be difficult to reach by the electricity network and face supply stability problems. To overcome this problem, Smart Grid, which integrates information and communication technology (ICT) and software, offers a solution by enabling automatic and real-time monitoring and control of the electric power system.

Telkom University, as a green campus, seeks to reduce the use of fossil fuels and ensure efficient electricity distribution by adopting the Smart Grid concept and renewable energy sources. Alternative power plants owned, such as PLTS, PLTB, PLTBIO, PLPICOHIDRO, PLTHH, and PLTD, still use inefficient manual monitoring systems. Therefore, this project aims to design an Internet of Things (IoT)-based monitoring system that can monitor power, current, and voltage in real-time via the web and android applications. This system allows users to monitor electricity usage remotely, so that power distribution can be carried out evenly and efficiently.

Keywords: Smart Grid, Internet of Things (IoT), alternative energy, monitoring