

SYSTEM DESIGN INTERNET OF THINGS (IoT) ON DESIGN CONCEPTS

SMART HOME BASE

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ABSTRACT

Coal is the largest source of electrical energy that used in Indonesia. However, coal is also the largest source of greenhouse gas emissions that caused climate change. Therefore, renewable energy sources are the best alternative, one of them is solar energy. This is in line with Smart Home Base innovation concept of housing development that is environmentally friendly, efficient and energy self production by utilizing the integrated system of solar panel with thermoelectric generator, biogas, and Internet of Things (IoT). Smart Home Base IoT System Design is an activity to design an IoT system starting from components and circuits that are adapted to the design of the electrical load of the house on the Smart Home Base concept. The main components of the IoT Smart Home Base include Arduino UNO, ethernet shield, PZEM-004T, and relays. The monitoring system at the output of the hybrid solar panel system uses the PZEM-004T sensor to measure current, voltage, active power, and energy output of the solar panel system as well as for home electrical needs. Electrical load requirements include 7 lamps, fans, refrigerators, washing machines, water pumps, rice cookers, irons and TVs. Relays are added to each electronic load as a remote control, all of which are integrated with an ethernet shield which is used as a link between the server and the device. The IoT system in the Smart Home Base Design Concept is indispensable for monitoring and remote control of home electrical loads. Through the innovation of the IoT system on the Smart Home Base can simplify energy saving, increase security, provide comfort, and control efficiency of home appliances.

Keyword: *Internet of Things, Smart Home Base, Solar Cell*