SMART METER DESIGN TO MONITOR AND IDENTIFY ELECTRICAL ENERGY CONSUMPTION IN HOUSEHOLD SECTOR USING BACKPROPAGATION NEURAL NETWORK

Student Name : Koko Hutoro  
NRP : 2212201201  
Advisors : 1. Prof. Dr. Ir. Adi Soeprijanto, MT  
           2. Prof. Ir. Ontoseno Penangsang, M.Sc, Ph.D

ABSTRACT

This research proposes a concept of smart meters as a replacement of kWh meters. Smart meters are one of the energy management solutions that allow consumers to obtain statistical data of electrical energy consumption in detail. Smart meters are designed to have features that can monitor the load current, identify electronic equipment and record the actual electrical energy consumption include the use of electronic equipment and the time to show the cost to be paid by the consumer. These features are not owned by the kWh meter analog and digital. In the design process, using smart meters ACS712 current sensor devices as a substitute for the current transformer. The reason ACS712 current sensor selection is to minimize the distortion phenomenon in the current measurement of the current transformer. Experimental and simulation results obtained to validate the methodology and to demonstrate some benefits that can be achieved with the introduction of smart meters are applied to the household sector in the context of the identification load profile in real time using backpropagation neural network method. Of the proposed method, obtained significant results that identification load accuracy reaches 99%.

Keywords : Smart Meter, Energy Management, Identification Load Profile, Backpropagation Neural Network