ABSTRACT

Electrical energy is a primary need for every human being, where every activity is inseparable from electrical energy. Supply of electrical energy are increasingly limited because they come from un-renewable resources. So to maintain the supply of electrical energy, should make efforts that can support the supply of electrical energy optimally. One of them by making home automation. This automation system is needed to provide comfort, convenience, energy efficiency and security. House automation with power management is expected to be the best solution to reduce energy consumption.

In this final project, the writer design and implement greedy algortima on a prototype. The regulation of electrical energy usage is based on Knapsack 0/1 problems whose use is limited to produce optimum value. Electrical equipment can be controlled automatically using PLC (Programmable Logic Controller) based on scheduling that adjusts to the initial cost. Incoming data will be stored in the database so that users can monitor, review, and control the system through a server on the computer or can be accessed via internet.

As results of this research is to created a system for power management by using greedy algorithm. So to created the home automation system for control the electrical equipment that is limited for certain cost. From the experimental results, it is obtained the scheduling time to turn on or turn off the lights obtained time average is 0.296 seconds. So for efficiency experimental results of power management using greedy algorithm is approaching 100%.

Keywords: *Home automation, Power management, Knapsack problem, greedy algorithm.*