ABSTRACT

Controlling system is used for controlling a system according what we want. Controlling system that I haved made is a system that has function to control the intensity of lamp in room for increasing the energy efficiency. The lamp that commonly use lately stil haven't efficient yet, because not consider the environment intensity around the room. For example if the light intensity outside is quite bright , but the light intensity inside is quite dark and need more lighting, and when we turn on the lamp, it will make the intensity of room lighting become too bright, uncomfortable and also wasteful of energy.

For that reason above, we need a system which controlling the intensity of room lighting .The system should consider the light intensity inside and also outside, so that the intensity of lamp can be reduced automatically according the value of light intensity outside for increasing the energy efficiency. In this system I have used microcontoler AVR ATMega 16 as a processor by implementation of *Fuzzy Logic* algorhitm.The input system are LDR sensors. We used 2 LDR sensor. The input value will be processed by ATMega that used to trigger the block of voltage controlling lamp (driver for AC load) by using PWM signal to control the intensity of lamp in a room. The room using the virtual room (prototype) like a box which is assumed as a room.

The result of this research have showed that the decreasing of illuminance of room lighting will decerease the power consumtion too. It will make the eficiency energi. But , the problem or the minus point of this project is about the level of comfortable. The decereasing and increasing of illuminance haven't work smoothly. It seems like quite disco lamp (look like bling bling). It will make uncomfortable. In the other side, the system have worked and tried to make the iluminance stable at 200l ux like we want, althought it still heven't maximal yet. In short, by using this system has increased the energy efficiency which has level of energy savings up to 20-30%.

Keywords: Light Intensity, LDR, ATMega 16, Fuzzy Logic, PWM