Abstract

Almost the whole world using electricity power to the lights. Thus the automatic control system needs to utilize an electronic device that is Embedded System based microcontroller. Actually the use of automatic light was applied to several places or locations, but its use hasn't been too effective in the electrical power consumption. Therefore, carried out the research in making use of the light control system using a microcontroller-based fuzzy programming algorithm to control the light intensity requirements are necessary so that the use of power is more optimally and efficiently.

This research applied the implementation of control systems using Light Dependent Resistor (LDR) as a sensor receiver light input, ATMega16 microcontroller embedded system programming language C fuzzy logic and the combination of different inference and defuzzification method between Mamdani-Sugeno inference and defuzzification weight-average method, height method and centroid method. Research system is implemented by an electronic circuit prototying as needed.

Algorithms with fuzzy inference Sugen and defuzzification Weight-Average Method will produce the right results to fit the needs of this system. Then, use the sensor LDR (Light Dependent Resistor), assisted by the microcontroller can be effectively and efficiently in the use of automated lighting, which saves the cost of the unnecessary use of energy and reduce electricity also facilitate the exploitation of human life.

Keywords: *Embedded Systems, Microcontroller, Light, Fuzzy Logic System*