ABSTRACT

Automation is needed in this life, especially with the advancement of the era that demands effective and efficient human work. It's because of the ease of doing everything automatically without having to use a button. As changing the temperature of the room to a cooler manually using the remote control is less effective, because user satisfaction is limited by the button and the distance to where the cooling device is located becomes less effective the fan spin. The condition inspired me to create a tool that is economical and efficient. For that we need to designed a method on the speed performance of the fan rotation in a room automatically based on the room temperature.

In this final project, to solve the problems that exist in the performance of the fan rotation, then made a microcontroller as a fan controller that can adjust the fast or slow the fan rotation. Aim for efficiency of fan turn performance using PWM principle. Fan rotation speed is adjusted to the duty cycle obtained from the temperature sensor data and adjusted according to the normal temperature in the classroom. After the amount of PWM is known, the data is processed on microcontroller. In addition to the fan command, the temperature data obtained is used to provide the amount of room temperature information and to adjust the PWM quantity for the fan speed to suit the needs of the user.

Testing system automatically starts from temperature 26^{o}C-33^{o}C with pwm output from 0-255. After that calculation kWh to get the estimated cost generated when the system is in condition 1 (on) during one hour lecture is 76.000 Rupiah and do comparison with system which (on) based on room temperature is 15,500 Rupiah.

Keywords: microcontroller, RFID, PWM (Pulse Width Modulation), duty cycle, temperature sensor and database