ABSTRACK

Society in general are encouraged to make energy savings. Examples efficient in the utilization of electrical energy. Actually saving electrical energy is very easy to do. But sometimes things like this forgotten by society. Sample only fan in the classroom, students / lecturers is sometimes lax in regulating or turn off the fan in the room, but they do not know how much the temperature is in the room. By looking at this situation then be made a means of controlling the rotational speed the fan automatically.

Overall, this system works by detecting an object such as the position and number of people in the room. The detection of the position and the number of people is done by using the camera sensor then do the processing on the image produced by the camera. From the results of the detection, the data is processed by a microcontroller Arduino to provide output in the form of a PWM signal that will affect the output voltage of the Solid State Relay. The method digukan fuzzy logic and haar cascade, determine the conditions which have been given a relay driver outputs from the Arduino form of the PWM signal, then the relay driver determines the rotational speed fan. In this final design made this automatic air-conditioning controllers are expected to light up when there is a face that terdektsi and able to regulate the speed of rotation according to the number of people who are in the room. The room will be monitored by a camera as a webcam monitor to detect faces in the amount received. Arduino Uno microcontroller to be used as a controller. Cooling face lights up when there is an input received in accordance with the number of people who are the diruangan. Expected results of this study obtained a system that can regulate the room temperature automatically.

Keyword : *image processing, Arduino uno,fuzzy logic,PWM*