ABSTRACT

Now , the strong growth in population will lead to a growing demand for energy. If people right now do nothing about demand, the expectation is that global energy consumption will increase in the next twenty years. At the same time, millions of people will be faced with a shortage of electrical power, also as a result of climate change.

To assist the government in terms of use efficient electrical energy will be carried out a study to make use of energy saving lamps (Light Emitting Diode) LED . Energy saving LED system lights are designed to use low power microcontroller type ATMega16A used to control LED lights with LED driving method using the port (Pulse Width Modulation) PWM as dimming , so the power is absorbed by the LED is not continuous .

(Light Dependent Resistor) LDR is used to input the system so that the lamp can turn on when the light intensity is reduced and turn off when the light intensity is enough through PORTB who has been on initialization of the PWM. LED lights use DC 1 Watt High Power LED, then 3 pieces mounted in parallel which compatible with the driver / adapter that powered .

Results of power consumption savings are absorbed by the LED is not continuous as compared to the electric power absorbed by the LED is continuously at 60 % , but the intensity of the light produced is reduced by up to 62 % . This is caused by the use of LED driver Timer/Counter1 to be read by the system as PWM .

The system is expected to be implemented by the government for street lighting in the city with a few additions in the power supply using solarcell so as to reduce the government's budget for the financing of electric power consumption .

Keywords: Microcontroller, Atmega16A, LED, LDR, PWM, driving LED, lamp, low power.