

ABSTRACT

The rapid development of the era, of course, the development of technology is also growing. Especially in the field of electro, especially on the development of lights. The lamp that was originally an incandescent lamp then developed into a luminescent tubular lamp (TL) and now many start using light emitting diode (LED). There are 2 types of led lamps are LED lights alternating current (AC) and LED direct current (DC).

DC LED lights have a lot of power variations but in this final project, will only make 4 kinds of power that is 5 watt, 7 watt, 9 watt and 15 watt. The first step is to create a series of DC LED lamps by plotting the number of LED lamps used in a series and the value of resistors to be used in the circuit. Then design the circuit by using proteus software, then soldering the component according to the circuit.

The completed DC LED lamps will be tested and loaded. The data taken are the current, voltage, power and intensity of light. The final result of the manufacture of DC LED lamps is comparing the light intensity between the manufacturer's DC lights, LED miniature LED type lights, DC DC type DC LED lamps and modified LED lights from AC to DC with the same power.

Keywords: DC LED light, circuit, light intensity

INTISARI

Perkembangan zaman yang semakin pesat, tentunya perkembangan teknologi juga semakin berkembang. Khususnya dalam bidang elektro, utamanya pada perkembangan lampu. Lampu yang pada awalnya berupa lampu pijar lalu berkembang menjadi lampu *tubular lamp* (TL) dan sekarang mulai banyak yang menggunakan lampu *light emitting diode* (LED). Lampu led terdapat 2 jenis yaitu lampu LED *alternating current* (AC) dan lampu LED *direct current* (DC).

Lampu LED DC memiliki banyak variasi daya tetapi dalam tugas akhir ini, hanya akan membuat 4 macam daya yaitu 5 watt, 7 watt, 9 watt dan 15 watt. Langkah awal untuk membuat rangkaian lampu LED DC dengan merencanakan jumlah lampu LED yang dipakai dalam satu rangkaian dan nilai resistor yang akan digunakan dalam rangkaian. Kemudian merancang rangkaian dengan menggunakan software proteus, lalu menyolder komponen tersebut sesuai rangkaian.

Lampu LED DC yang sudah selesai dibuat akan diuji dan diambil datanya. Data yang diambil yaitu arus, tegangan, daya dan intensitas cahaya. Hasil akhir dari pembuatan rangkaian lampu LED DC yaitu membandingkan intensitas cahaya antara lampu LED DC pabrikan, lampu LED DC jenis miniature LED, lampu LED DC jenis SMD LED dan lampu LED modifikasi dari AC menjadi DC dengan daya yang sama.

Kata kunci: lampu LED DC, rangkaian, intensitas cahaya