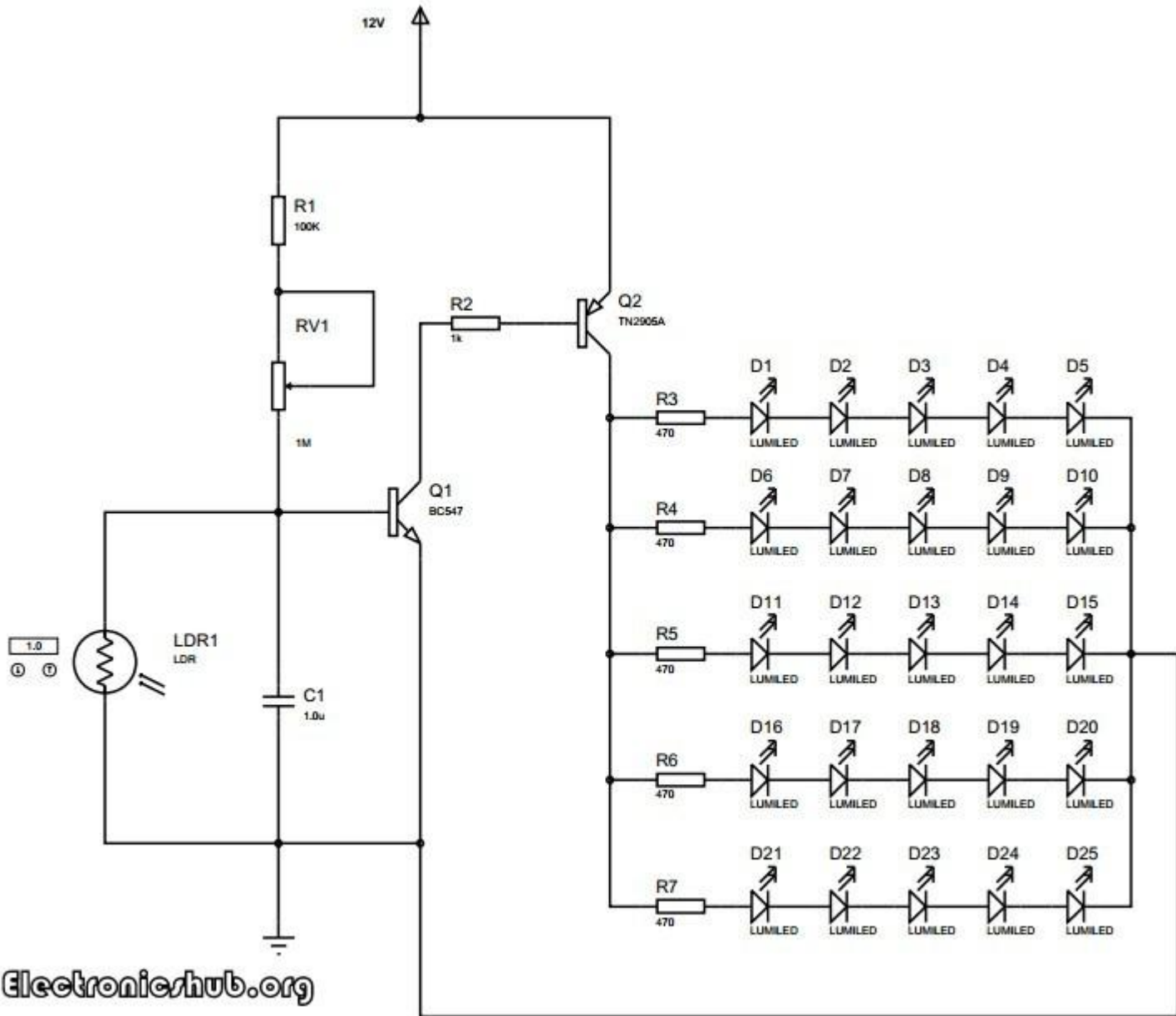


Auto Night Lamp Using High Power LED

Auto Night Lamp Using High Power LEDs is a circuit which turns ON the LED lights interfaced to it at night time and it turns OFF the lights automatically when it is day. Usage of LEDs is growing day by day due to the advantages they provide compared to the conventional filament bulbs or fluorescent lamps. They provide good quality of white light with a better intensity compared to others. They also consume less power compared to their alternatives. These are the advantages which the LEDs encourage us to use them compared to their alternatives.

In this article, we shall see the circuit and the working of turning on or off of high power LEDs with light intensity. The element which is used for sensing light in the circuit is the light dependent resistor. The resistance of the light dependent resistor depends on the light incident on it. If the intensity of light incident on it is more, then the resistance of the circuit decreases. If the intensity of light incident on it decreases, then the resistance of the device increases. We are making use of this property of the light dependent resistor to detect the light and thereby operate the LEDs. We are arranging twenty five light emitting diodes in an array such that five LEDs are in series and five such series LEDs are arranged in parallel.

Circuit Diagram of Auto Intensity Control of LED Lights:



The transistors are used in saturation mode. They are used as electronic switches in this mode. The transistor BC547 is a general purpose NPN transistor which is used to further switch the LEDs. This is a power transistor with a heat sink. The heat sink helps the transistor to dissipate the generated heat into air so that the transistor can handle higher power loads than it can do without the heat sink.

The entire circuit along with the LEDs is powered by a 12V DC power supply. A battery based DC power supply is usually preferred. However, you can use a ac rectified and regulated power supply.

The LEDs used in the circuit are high powered white LEDs. The intensity of light produced by these LEDs equals an ordinary fluorescent bulb. The lighting produced is sufficient for reading or to do any other daily activity. The circuit can be assembled

on a printed circuit board with all the components neatly arranged and the LEDs placed in order. Try to place the LEDs maintaining a distance of about 1 cm between the LEDs so that the the lighting will be well distributed in your room.

Source: <http://www.electronicshub.org/auto-night-lamp-using-high-power-led/>