

PWM LED Dimmer Using NE555

ABSTRACT

In this project, we will see a PWM based LED Dimmer using 555 Timer IC. The main principle of this circuit is to generate a Pulse Width Modulation PWM Signal with the help of the good old reliable 555 Timer IC and vary the power being delivered to the LEDs and hence achieving the effect of LED Dimming.

The Pulse Width Modulation (PWM) plays an important role in controlling lot of circuits. If you want to control the speed of the motor, PWM plays a key role. Here, in our project, the PWM Technique is used for dimming the LEDs.

working

- The 555 Timer is made to operate in the Astable Multivibrator Mode. The 1K Ω Resistor, the 50K Ω POT and the 0.1 μ F Capacitor connected with respect to Pins 2, 6 and 7 will play an important role.
- Based on the charge and discharge timings of the Capacitor, a PWM Signal is generated at the OUT Pin i.e. Pin 3 of the 555 Timer IC. The output of the 555, which is taken from pin 3, is connected to the led panel through the NPN Transistor (2N2222 is used here) and a 1K Ω resistor.
- The 1K Ω resistor is used to limit the base current of the transistor and the transistor is used as an amplifier to limit or enhance the current which is given to the LED panel.

Components

- 555 Timer IC
- 1K Ω Resistor x 6
- Red LEDs x 4
- 2N2222 NPN Transistor

- 0.1 μ F Capacitor
- 0.01 μ F Capacitor
- 50K Ω Potentiometer
- 1N4148 Diodes
- 12V Power Supply
- Mini Breadboard

Block Diagram



Circuit Diagram

