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## **SYNOPSIS FOR AUTOMATIC NIGHT LIGHT CONTROL (AC BULB)**

## ABSTRACT

Automatic Night Light Control System is a simple yet powerful concept, which uses IC 555 timer. By using this system manual works are 100% removed. It automatically switches ON lights when the sunlight goes below the visible region of our eyes. This is done by a sensor called Light Dependant Resistor (LDR) which senses the light actually like our eyes. It automatically switches OFF lights whenever the sunlight comes, visible to our eyes. By using this system energy consumption is also reduced because nowadays the manually operated Night lights are not switched off even the sunlight comes and also switched on earlier before sunset. In this project, no need of manual operation like ON time and OFF time setting.

## INTRODUCTION

Night light controllers are smarter versions of the mechanical or electronic timers previously used for Night light ON-OFF operation. They come with energy conservation options like twilight saving, staggering or dimming. Also many Night light controllers come with an astronomical clock for a particular location or a Global Positioning System (GPS) connection to give the best ON-OFF time and energy saving.

Automatic Night Light Control System is a simple and powerful concept, which uses IC 555 timer to switch ON and OFF the Night light automatically. By using this system manual works are removed. It automatically switches ON lights when the sunlight goes below the visible region of our eyes. It automatically switches OFF lights under illumination by sunlight. This is done by a sensor called Light Dependant Resistor (LDR) which senses the light actually like our eyes. By using this system energy consumption is also reduced because now-a-days the manually operated Night lights are not switched off properly even the sunlight comes and also not switched on earlier before sunset. In sunny and rainy days, ON time and OFF time differ significantly which is one of the major disadvantage of using timer circuits or manual. This project exploits the working of an IC 555 timer to switch ON and switch OFF the lights at appropriate time with the help of an electromagnetically operated switch.

A Night light, lamppost, Night lamp, light standard, or lamp standard is a raised source of light on the edge of a road or walkway, which is turned on or lit at a certain time every night. Modern lamps may also have light-sensitive photocells to turn them on at dusk, off at dawn, or activate automatically in dark weather. In older lighting this function would have been performed with the aid of a solar dial. It is not uncommon for Night lights to be on poles which have wires strung between them, or mounted on utility poles.

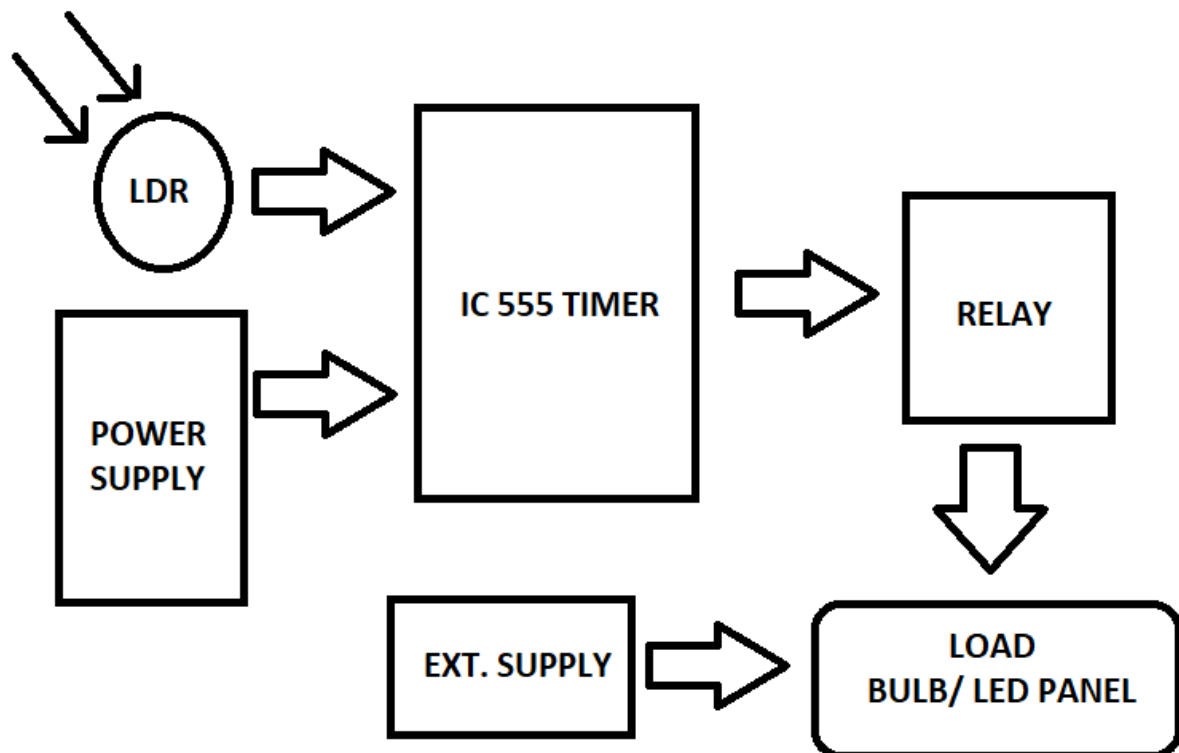
Automatic Night light needs no manual operation of switching ON and OFF. The system itself detects whether there is need for light or not. When darkness rises to a certain value

## BASIC PRINCIPLE

The automatic Nightlight control system operates on 9 V DC supply. The automatic Night light controller has a photoconductive device whose resistance changes proportional to the extent of illumination, which switches ON or OFF the LED with the use of IC 555 timer. Light dependent resistor, a photoconductive device has been used as the transducer to convert light energy into electrical energy.

LDR is a Light Dependent Resistor whose value depends on the quantity of the light which is falling on it. It has a resistance of almost 1 mega ohm when it is in total darkness, but its resistance is about 5k ohms when exposed to full brightness. The IC 555 timer is used to control the operations of the circuit which acts as a comparator circuit with pin 6 connected to the positive terminal. The output goes high when the pin no. 2 i.e trigger pin goes one-third of the supply voltage. Similarly, its output goes to low when output is above one-third of the voltage. For detection of the amount of light, LDR is used as a resistor to adjust the circuit voltage.

## BLOCK DIAGRAM



## COMPONENT LIST

- IC 555 timer with base
- LDR
- Transistor BC548
- Preset 50K
- Resistor 470ohm -2
- Resistor 1K -1
- Handmade PCB -1
- Relay 5V
- DC socket
- DC Pin
- 2 pin Socket
- 5mm LED
- 1N4007
- Switch
- Main lead
- Bulb holder

## Software Requirement

- Fritzing
- Express PCB

## ADVANTAGES & DISADVANTAGES

By using this automatic system for Night light controlling, we can reduce energy consumption because the manually operated Night lights are not switch off properly even the sun light comes and also not switched on earlier before sunset

- Low cost
- Automated operation
- Low power consumption
- Very flexible
- Easy to manufactured In sunny and rainy days, on and off time differ notice which is one of the major disadvantages of using timer circuit or manual operation for switching the Night light system.

## APPLICATION

1. Used in Night light applications.
2. Used in Domestic applications.

## CONCLUSION

The Nightlight controller using Idr based Light intensity & traffic density, in the todays up growing countries will be more effective in case of cost, manpower and security as compare with today's running complicated and complex light controlling systems. Automatic Night Light Controlling System puts up a very user friendly approach and could increase the power

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