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Review LDR Sensing Solar Lamp

Ms. Prachi A. Mali[1], Ms. Diksha C. Bhosale[2], Prof. Ajinkya B. Patil[3]
[1,2]*U.G. Student, Department of Electrical Engineering, Nanasaheb Mahadik Collage of Engineeering, Peth Maharashtra, India*
[3]*Asst.Professor, Department of Electrical Engineering, Nanasaheb Mahadik Collage of Engineeering, Peth Maharashtra, India*

Abstract: Automatic Street Light Control System is a simple yet powerful concept, which uses transistor as a switch. 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). (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 street 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. This project clearly demonstrates the working of transistor in saturation region and cut-off region. The working of relay is also known.

I. INTRODUCTION

Street light controllers are smarter versions of the mechanical or electronic timers previously used for street light ON- OFF operation. They come with energy conservation options like twilight saving, staggering or dimming. Also many street 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 Street Light Control System is a simple and powerful concept, which uses transistor as a switch to switch ON and OFF the street 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 street 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 This project exploits the working of a transistor in saturation region and cut-off region to switch ON and switch OFF the lights at appropriate time with the help of an electromagnetically operated switch. A street light, lamppost, street 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 street lights to be on poles which have wires strung between them, or mounted on utility poles.This project exploits the working of a transistor in saturation region and cut-off region to switch ON and switch OFF the lights at appropriate time with the help of an electromagnetically operated switch Automatic Streetlight 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.

II. WORKING PRINCIPAL

The automatic streetlight control system operates on 12 V DC supply. The automatic streetlight 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 transistor as a switch.Light dependent resistor, a photoconductive device has been used as the transducer to convert light energy into electrical energy. The central dogma of the circuit is that the change in voltage drop across the light dependent resistor on illumination or darkness switches the transistor between cut-off region or saturation region and switches OFF or ON the LEDAs we know property of LDR that during the time of day resistance is low therefore voltage at the inverting input (IE pin 2) is higher than the voltage at the non- inverting input (pin3) hence the output at the pin6 is low so the transistor goes into the cut off state which means LED or bulb will not glow.

III. PROCEDURE

1) Insert first transistor Q1-BC547 (NPN) on PCB board shown in the circuit diagram
2) Insert first transistor Q1-BC547 (NPN) on PCB board shown in the circuit diagram
3) Connect another transistor Q2-BC547 (NPN) on PCB board shown in the circuit diagram.

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4) Connect wires across emitter pin of both transistor and negative terminal of battery on the PCB board.
5) Connect a wire across collector pin of transistor Q1 and base pin of transistor Q2.
6) Connect a resistor 1k across positive terminal of battery on the PCB board and collector pin transistor Q1.
7) Connect LDR (Light Dependent Resistor) across positive terminal of the battery and base terminal of transistor Q1
8) Insert a transistor 330 ohm across base pin of transistor Q1 and negative terminal of battery.
9) Connect another transistor Q2-BC547 (NPN) on PCB board shown in the circuit diagram.
10) Connect wires across emitter pin of both transistor and negative terminal of battery on the PCB board.
11) Connect a wire across collector pin of transistor Q1 and base pin of transistor Q2.
12) Connect a resistor 1k across positive terminal of battery on the PCB board and collector pin transistor Q1.
13) Connect LDR (Light Dependent Resistor) across positive terminal of the battery and base terminal of transistor Q1
14) Insert a transistor 330 ohm across base pin of transistor Q1 and negative terminal of battery.

IV. ADVANTAGES

1) There are lower chances of the automatic street light system overheating & risk of accidents is also minimized.
2) Cost of operating automatic solar street lights is far less when compared to the conventional street lights.
3) The automatic street light system is eco- friendly & hence helps in reducing the carbon footprint

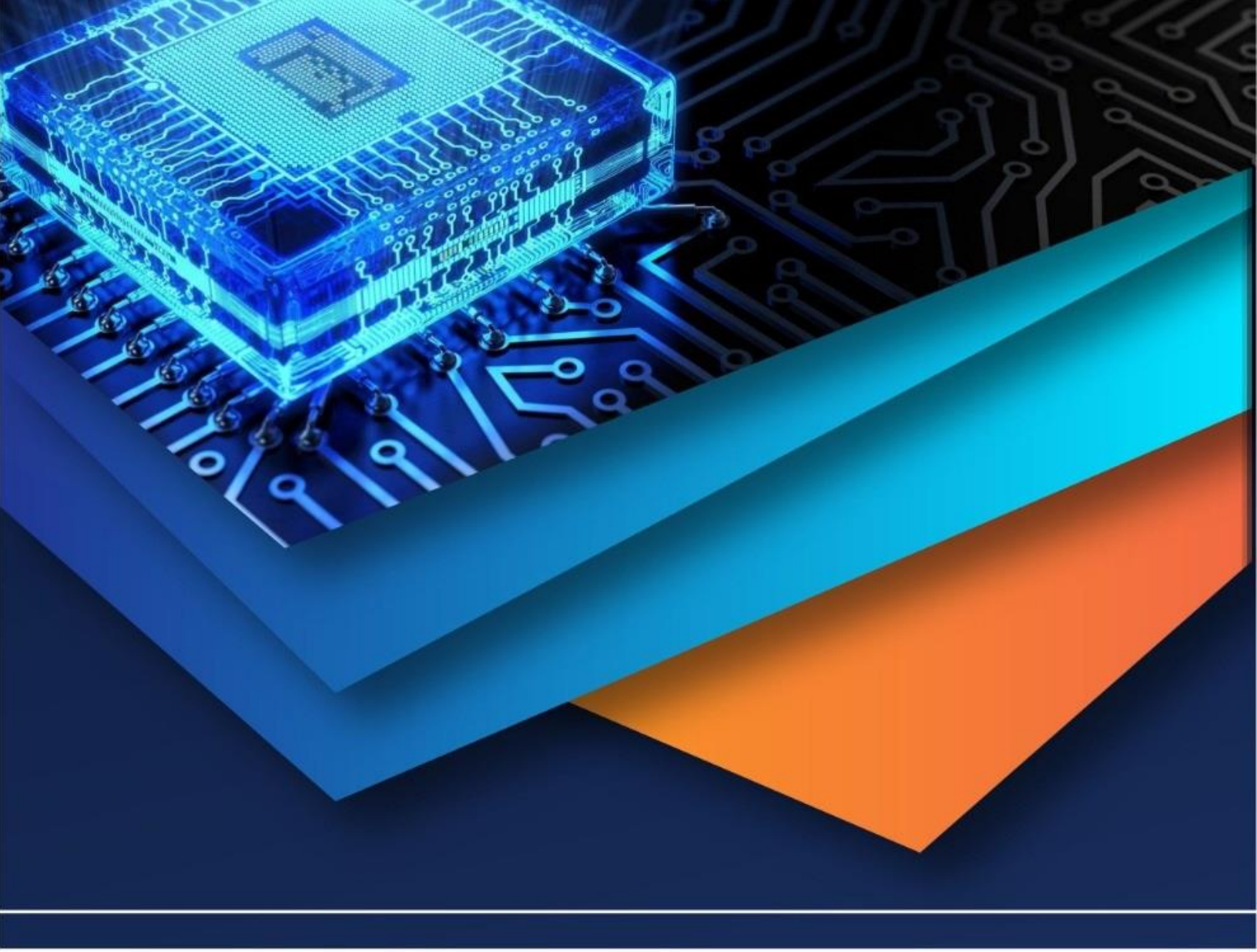
V. CONCLUSION

Light is one of the most important need in human life. This project is a booming concept, which is the future of this young generation. New Innovations are done to make this project an advanced one.

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