



ABU DHABI UNIVERSITY

ELECTRONIC DEVICES AND CIRCUITS

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# Project Report

## Part 2

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*Author: IDs:*

Mirza Mohsin 1005689

Ali Raza 1012542

Bilal Arshad 1011929

*Supervisor:*

Dr. Muhammad Akmal

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## Abstract

In this part of the project we used the AC to DC circuit made in part 1 to make an automatic street lamp which turns ON when the LDR is in dark.

## 1 Introduction

LDR is a light dependant resistor which changes its resistance according to the light shining on it. We are using this LDR in our project as a light sensor. The way this works is that the LDR divides the voltage coming from the source depending upon the light shining on it.

LDR increases its resistance as the light shining on it increases. When a light is shined, the resistance increases so more voltage drop occurs on the LDR and this voltage should be high enough to turn ON a relay which is connected in parallel with the LDR. In our case this should be 5V as we have a 5V relay.

## 2 Project Set-up

The project was Set-up according to the following diagram.

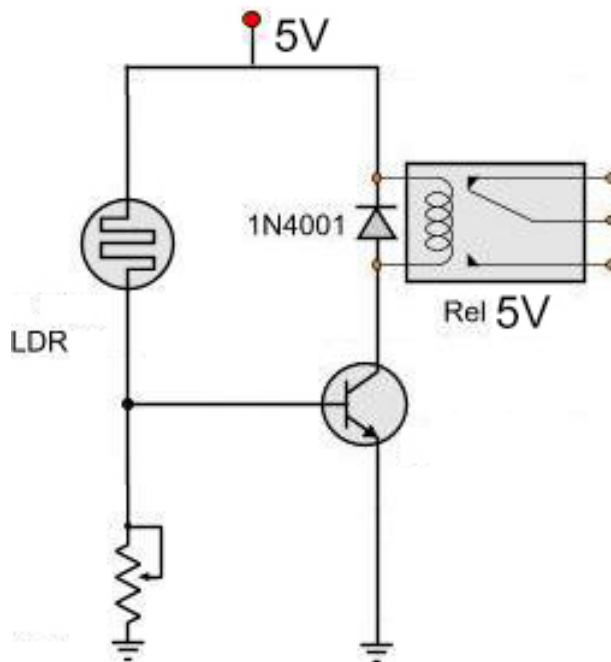


Figure 1: The DC power supply providing 5.0V constant and the relay's normally open terminals are connected to the light bulb

## 3 List of Equipment used

- Diode.
- 5V Relay.

- LDR.
- Potentiometer.
- Transistor.

## 4 Procedure

**In Active Mode** The relay was connected to the collector as the current in the collector is usually high. and we connected a potentiometer in series with the LDR and power source, which we took from our AC to DC board so that the voltage is divided and optimization to different light intensities would be possible after the circuit was made.

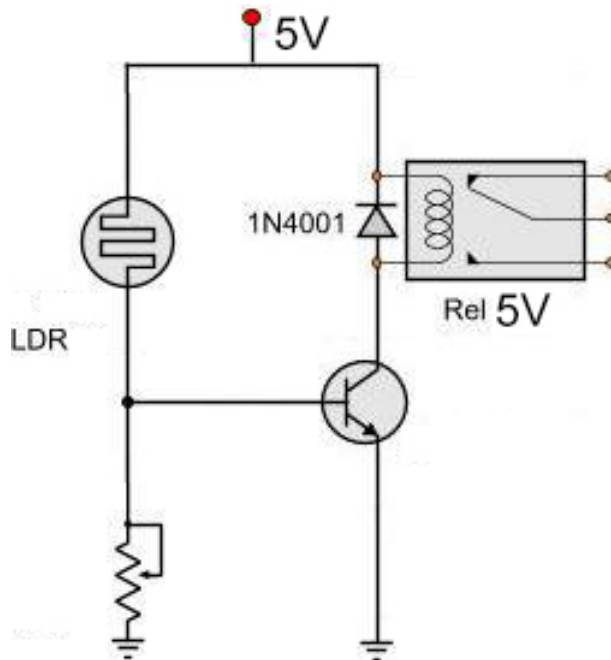


Figure 2: We connected the circuit as shown in the figure below

## 5 Results and Discussions

Here are the results we got from the project.



Figure 3: When LDR is in light, the Bulb is OFF



Figure 4: When LDR is not in light, the Bulb is ON

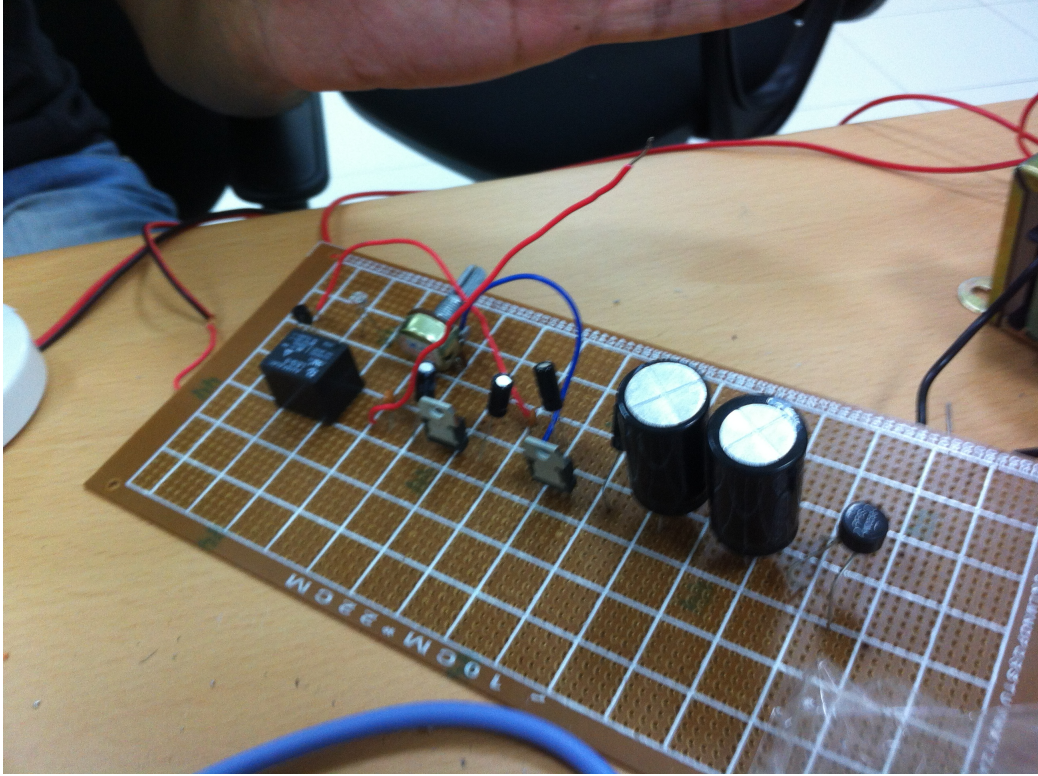


Figure 5: A close-up of the circuit



Figure 6: Bright Bulb ON



Figure 7: Bright Bulb OFF

## 6 Conclusion

- The potentiometer is used to pre-set the optimum value for turning on the relay and the optimum value was found by trial and error method.
- the Bulb used to switch ON and OFF very fast when the LDR was close to the bulb because the when LDR was in dark it used to turn ON the bulb and when bulb was ON, the LDR wasn't in the dark any more.
- We did not use the diode in our project but it would be a added measure of protection to use the diode to protect the relay.