

# Engineering Workshop

Project Report

## Automatic Day Night Switch



Submitted By

Muhammad Ibrahim

Abdul Basit

Muhammad Hanzla

Student's Registration Number

23i – 6090

23i – 6079

23i – 6014

Supervisor

**Arslan Ahmed**

DEPARTMENT OF ELECTRICAL ENGINEERING  
FAST-NUCES ISLAMABAD

May 2024

## Table of Contents

1. Objectives .....	3
Motives. ....	3
2. Project Description .....	3
Working .....	3
3. Theoretical & Component Knowledge .....	3
4. Simulation and Hardware Results .....	3
5. Problems Faced and Alternative Methods: .....	4
6. Conclusion .....	4
7. Supervisor's Comments.....	4

## 1. Objectives

The main goal of this project was to create an Automatic day-night switch system. The purpose was to automatically control lights based on whether it's daytime or nighttime.

**Motives:** We chose this project because it solves a practical problem: people forgetting turning off lights and waste electricity. We all thought about what would be helpful and as a team, we decided that making as Automatic day-night switch could be really useful for homes and offices.

## 2. Project Description

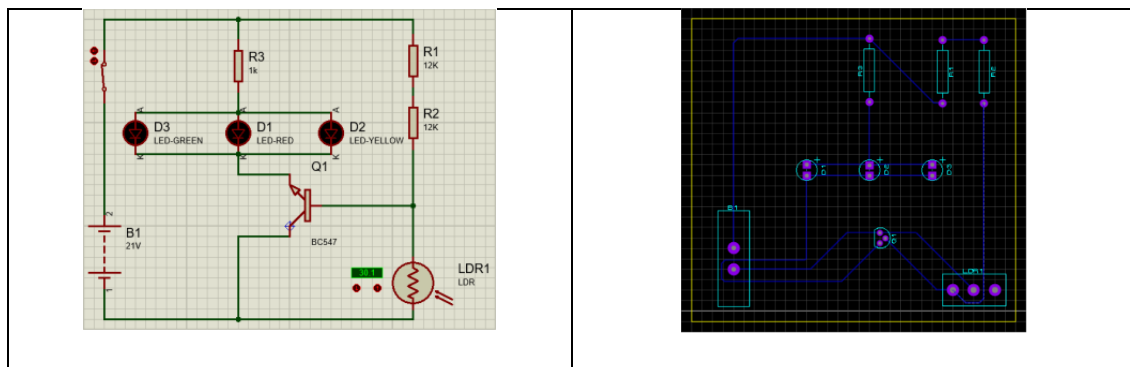
Our project is a switch that turns on and off by sensing light. It includes one LDR, one BC547 transistor, three resistors, three LEDs, a switch, a 9V battery, wires and wood pieces.

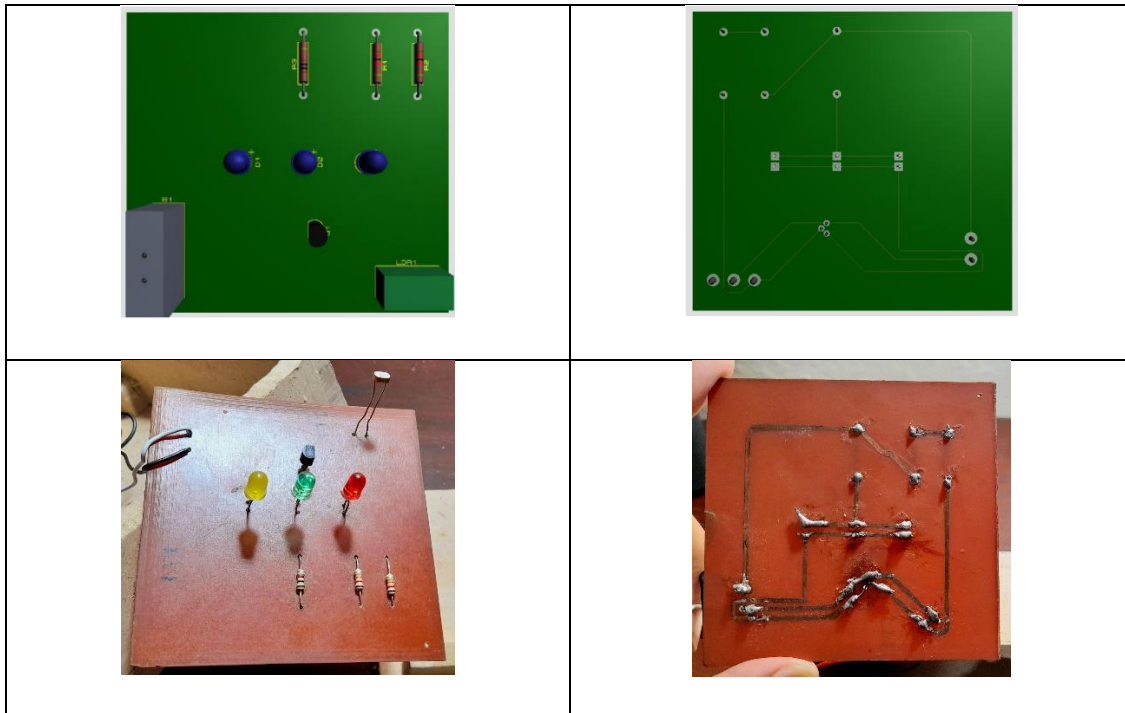
**Working:** The LDR detects if it's day or night. When it's dark, the LDR's resistance increases. This affects the BC547 transistor, which controls the circuit. Depending on the resistance, the transistor lets electricity flow or stops it, turning the light on or off.

## 3. Theoretical & Component Knowledge

During our Project, we learned about light sensors, transistors and resistors. We understood how to design circuits first on Proteus and then on PCB and control the switch based on the light sensor input. The theoretical understanding helped us in the practical implementation of our Automatic Day-Night Switch.

## 4. Simulation and Hardware Results





## 5. Problems Faced and Alternative Methods:

Throughout the project, we faced challenges in component purchasing, printing, and soldering. We tackled these by searching different component suppliers for reliable sourcing and lasers printers for printing on glossy paper. Also practiced soldering techniques for neat and secure connections.

## 6. Conclusion

We learned a lot about circuits. To make it better, we can use integrated circuit for more convenience. It could be used in homes, offices and security systems to save energy and make things safer.

## 7. Supervisor's Comments

Your overall design is good. But just your lights are dim. But you can also make it better if use Integrated Circuit to avoid any issues.

Signature of Supervisor

Name of Supervisor

Arslan Ahmed