

LDR Automatic Turning On Lights:



Designed by:

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INTRODUCTION

About:

- This Project is very simple but very useful. Basically, idea is that when there will be darkness outside the LDR sensor will not detect any light and it will send voltage signals to light.

How it works:

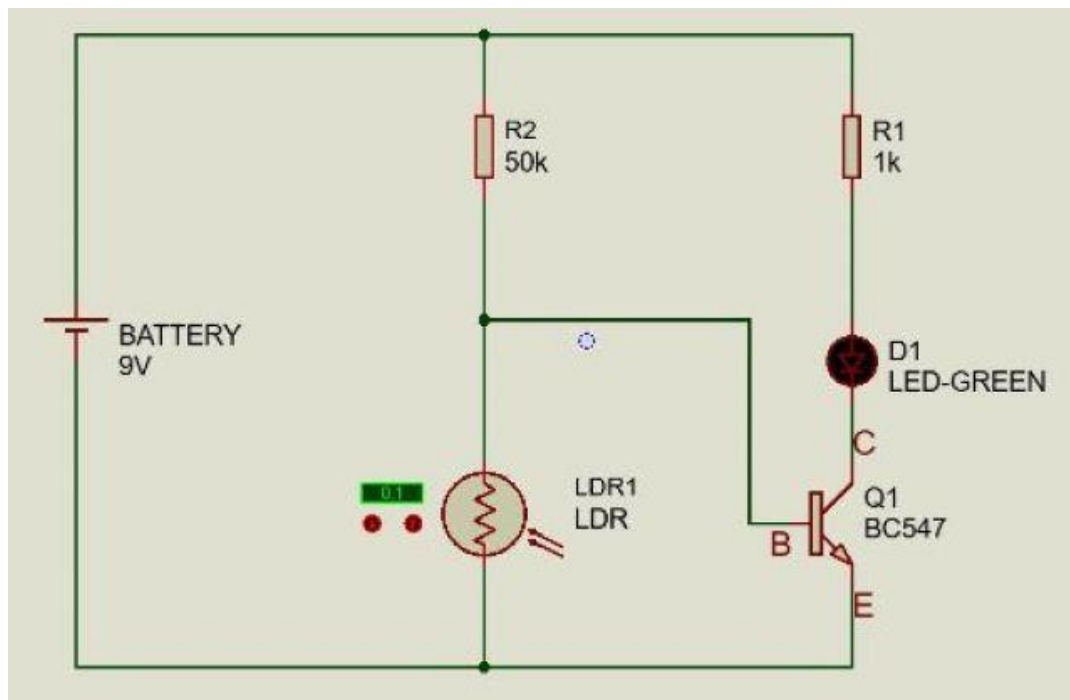
LDR stands for light dependent resistor, as name suggest it is a type of resistor whose resistance is depends on the amount of light falling on it.

LDR is made up of high resistance semiconductor.

When light photons fall on LDR these photons are absorbed by the semiconductor this gives enough energy to the bound electron to jump to the conductive band. as a result free electron as available in LDR this makes it more conductive and drop in resistance of LDR.

In dark its resistance is high as several mega ohm, and in light it's down to few ohms. This change in resistance of LDR will detect by a circuit and it will turn on LED accordingly.

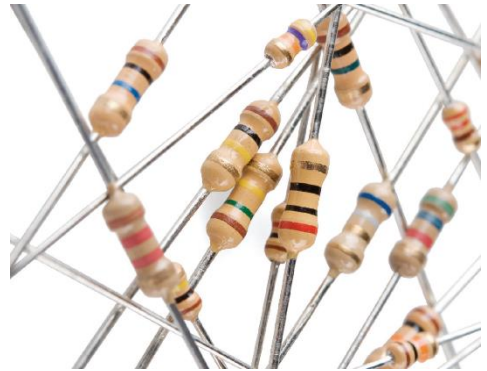
Circuit Diagram:



Required Components:



9V battery with cap



Resistors



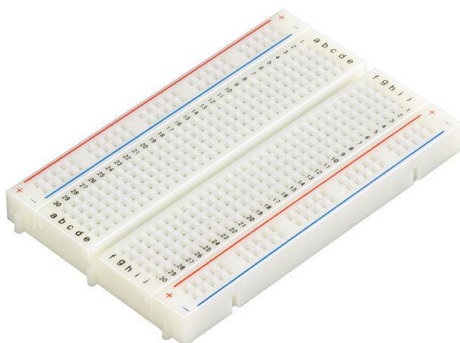
LDR Resistor



BC 547 Transistor



LED



Breadboard



Connectors

9V battery
5V DC relay
230V AC Lamp
50K, 1K Ohm resistor
1N4007 Diode
BC547 Transistor
50K, 1K Ohm resistor
BC547 Transistor

Advantages:

This Circuit is to operate 230V AC bulb or light on LDR circuit.

This will use in our house, garage, factory, building, streetlight to turn on lights in dark.

Here also the working principle is same just led is replaced by a DC relay to operate high voltage load,

When light is not falling on LDR the relay will operate and the contact of relay changeover, in this way 230V lamp get connected with 230V supply and start glowing.

A flyback diode 1N4007 is used to save circuit from back EMF generated by relay while de-energizing

Disadvantages:

The main disadvantage is that when due to rough weather when it will dark outside LDR will not detect the light and it will turn on lights

References:

For project idea and report: <https://electricdiylab.com/ldr-darkness-sensor-circuit/>

For Images: <https://github.com/EngrAsgharAli/LDR-Automatic-Turning-On-Lights/tree/main/Images/>

Note: All components used in this project are available in market.