

Security Alarm System



Light Dependent Resistor [LDR] Sensor

An **LDR** is a component that has a (variable) resistance that changes with the light intensity that falls upon it. This allows them to be used in light **sensing** circuits. A Light Dependent **Resistor** (**LDR**) or a photo **resistor** is a device whose resistivity is a **function** of the incident electromagnetic radiation. Hence, they are light sensitive devices. They are also called as photo conductors, photo conductive cells or simply photocells.

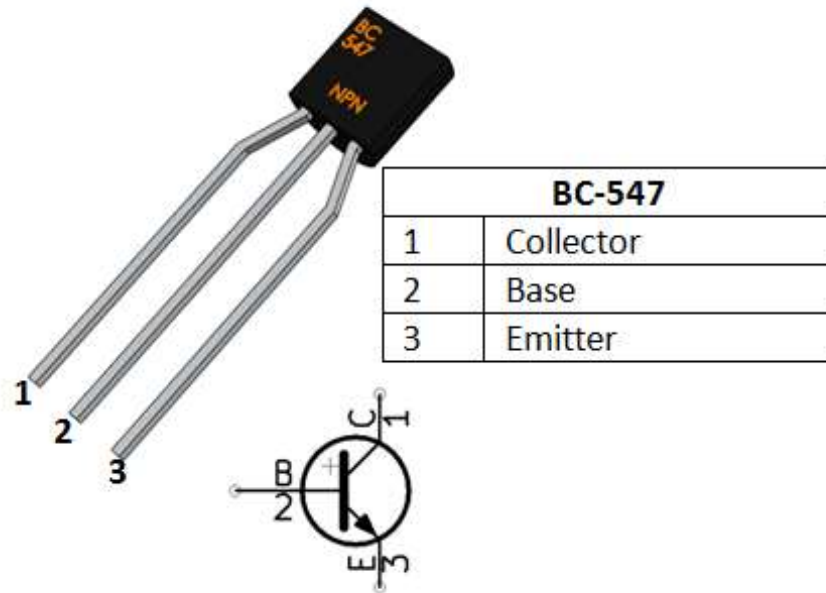


Working of LDR sensor

- We will use a LDR and a resistor together in series. An LDR is simply a device that changes resistance based on ambient light. The brighter the light, the lower the resistance, the dimmer the light, the higher the resistance.
- When there is no light , LDR will offer high resistance and less current flows through the resistor and voltage across resistor will be less near to GND.
- When light falls on LDR, its resistance decreases and current flow through it increases. Then voltage across the resistor increases and LED gets a HIGH signal.

BC547

BC547 is a NPN transistor hence the collector and emitter will be left open (Reverse biased) when the base pin is held at ground and will be closed (Forward biased) when a signal is provided to base pin.



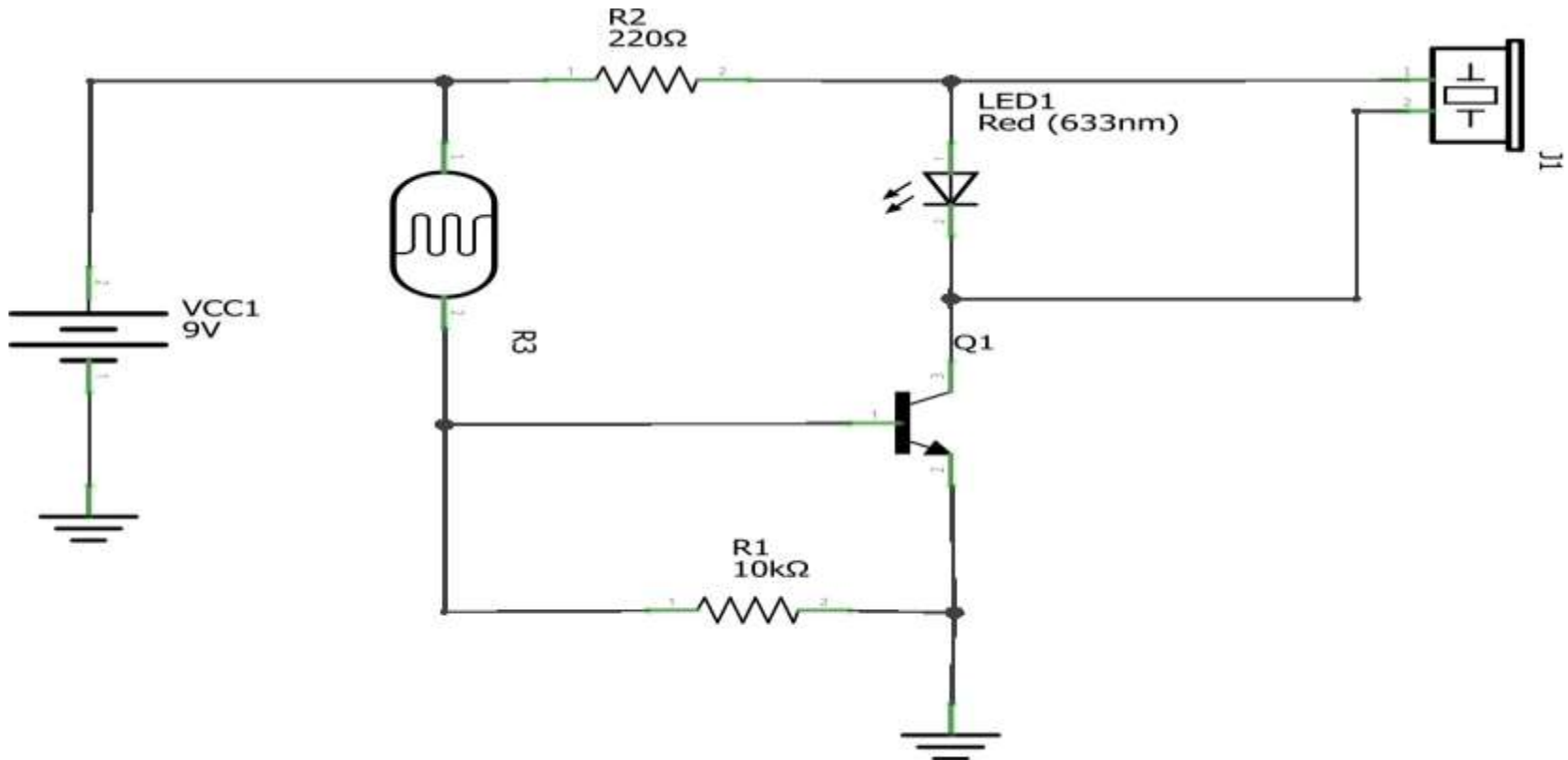
About Project

A Security Alarm System operates by projecting a beam of invisible laser light across a doorway or window opening. When the light is broken, it activates a buzzer or alarm. The principles are very similar to those of lower tech burglar alarms. A laser alarm requires only slightly more sophisticated electronics and can be put together by anyone with a soldering gun and a knack for tinkering with basic circuits and transistors.

Components Required

- Zero PCB
- Soldering machine
- Soldering wire
- LDR*1
- BC547 Transistor*1
- Led*1
- Buzzer(BIG)*1
- Resistor 220ohm*1,10kohm*1
- Battery 9v
- Battery connector

Connection Diagram



Working of project

In order to detect a person, an LDR is used as the sensor. Light on the LDR determines whether a person is present or not. When there is any object at the entrance, LDR is in dark and buzzer starts ringing and the LED starts glowing.

Future Scope

- It is used in company or industries.
- It is used in unauthorized entry into a building or area.
- It is used in home security purpose.
- Development of Biometric sensors

Project Link : <https://youtu.be/ivGY6CxrlIM>