

Dark Sensor using Transistors

Abstract:

Led will glow according to the light intensity. Whenever there will be minimum(low) light intensity the led will glow and when there is maximum light intensity the led will go off.

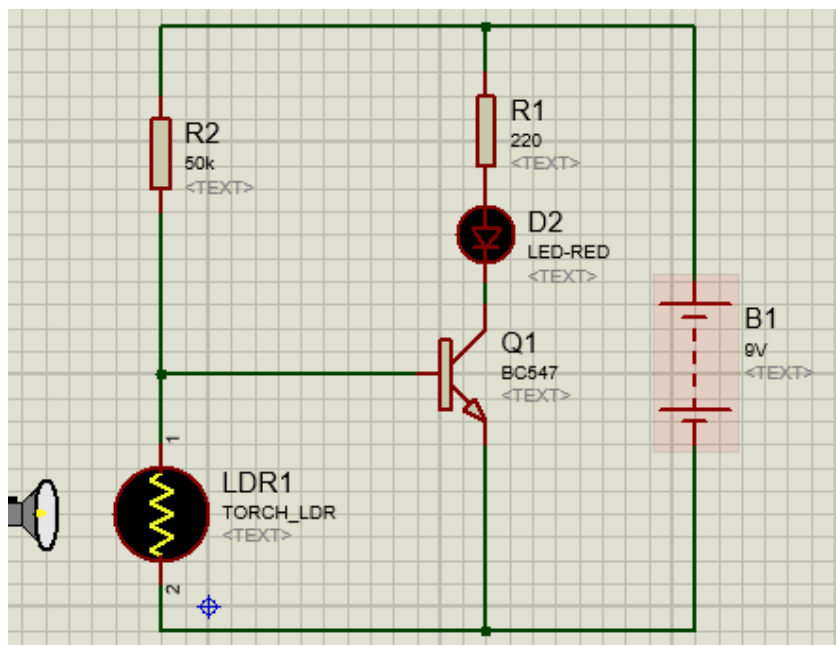
Components:

1. Transistors NPN 547
2. Resistance(220 Ω and 50K Ω)
3. LDR
4. Battery(9v)
5. Led

About Component:

- **LDR:** Ldr is light depended resistor when there is no light falling on ldr the resistor decreases so current flow through it. When the light falls on ldr the resistance in that sensor increase hence less current will flow through it.
- **Transistor (NPN 547) :** As a switch when a certain rate of current above threshold current flows through base of transistor then it allows the current to pass from collector to emitter. When current flows through base is less then it doesn't allow current to pass from collector to emitter. Transistor needs very less base current to its start working

Circuit Diagram:



Working:

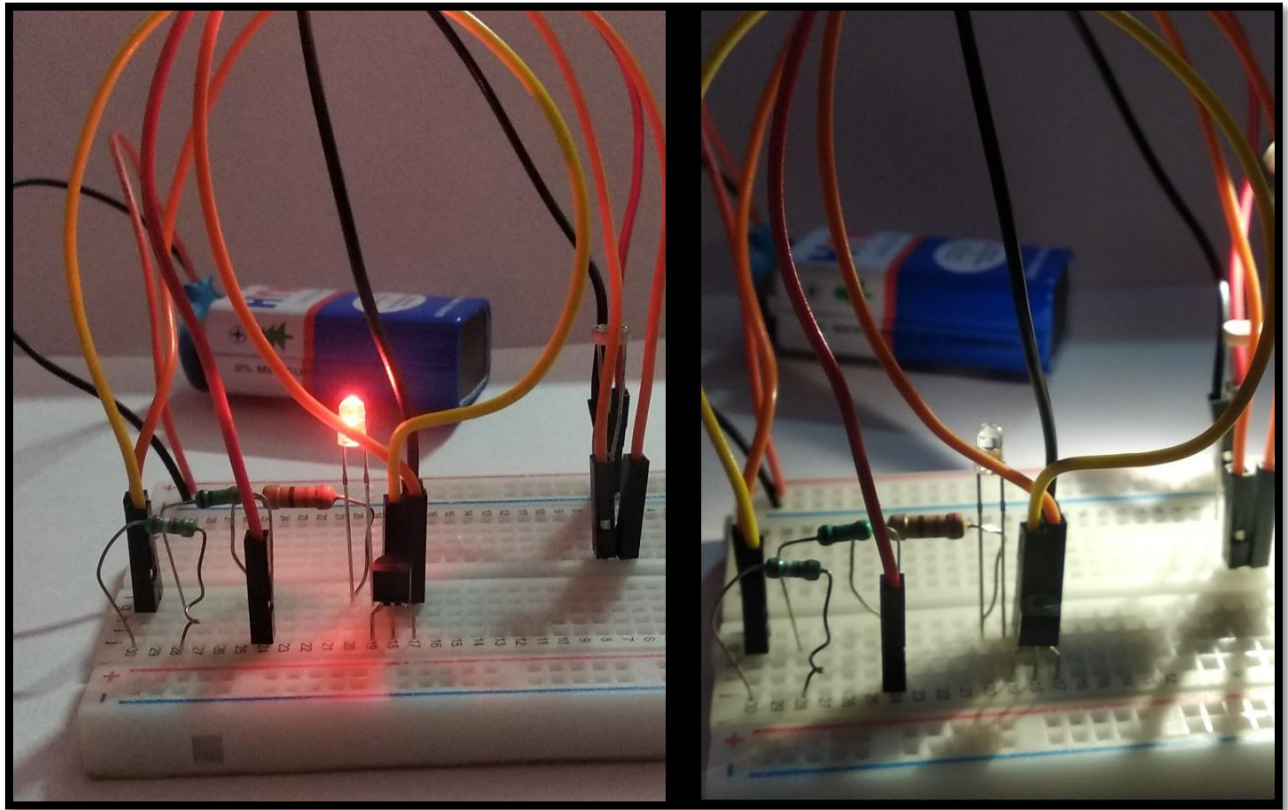


Fig 2.Implementation on Hardware

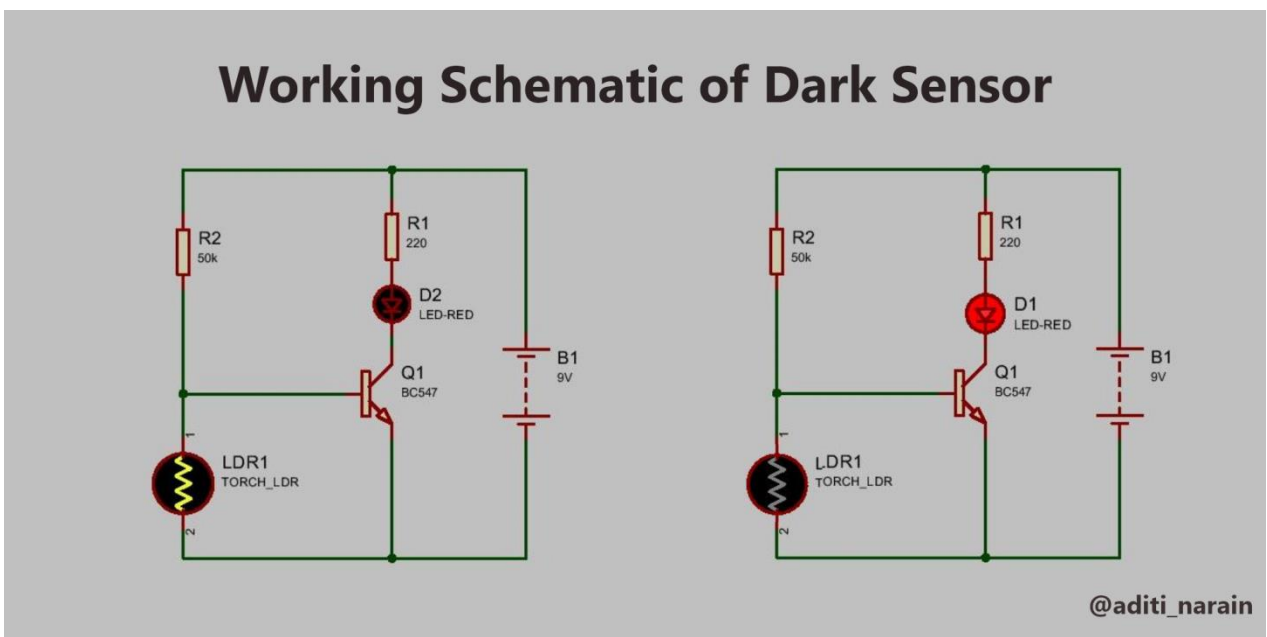


Fig 2.Implementation on Proteus

When current flows from battery

1. There is no light falling on LDR then value of resistance is low so maximum current will flow through that path and very less current will flow from base of transistor. Hence transistor didn't allow current to flow from collector to emitter (open circuit).

Conclusion: *Led Will Not Glow.*

2. Light falls on led then the resistance in increases so current will flow through the base of transistor. Hence current will start flowing from collector to emitter which closes the circuit (short circuit).

Conclusion: *Led Will Glow.*

Applications:

1. Night Lamp: We can also make a night lamp which will automatically goes off when there is light in the room and lamp will start to glow when there is no light in the room.
2. Automatic Street Light: At day light the street lights will be off and at night street lights will get on.