SUBHAPREET PATRO
2211CS010547
CSE-ZETA.

APPLIED PHYSICS PROJECT WORK

LASER SECURITY SYSTEM

* Components required and their functions:-

S.No.	Components	Value	Quantity
1.	Transistor	2N4403 (or) 2N3906	1
2.	Piezo Buzzer	—	1
3.	LDR	—	1
4.	Laser Beam (as an input source)	—	1
5.	Potentiometer	50k	1
6.	Capacitor	1000μF	1
7.	Battery	9 to 12 Volts	1

1) Transistor :- It is a miniature semiconductor that regulates or controls current or voltage flow in addition amplifying and generating these electrical signals and acting as a switch / gate for them.

2) Piezo buzzer :- It is a type of electronic device that is used to produce a tone, alarm or sound.

3) LDR :- Photoresistors, also known as light dependent resistors (LDR), are light sensitive devices most often used to indicate the presence or absence of light, or to measure the light intensity.

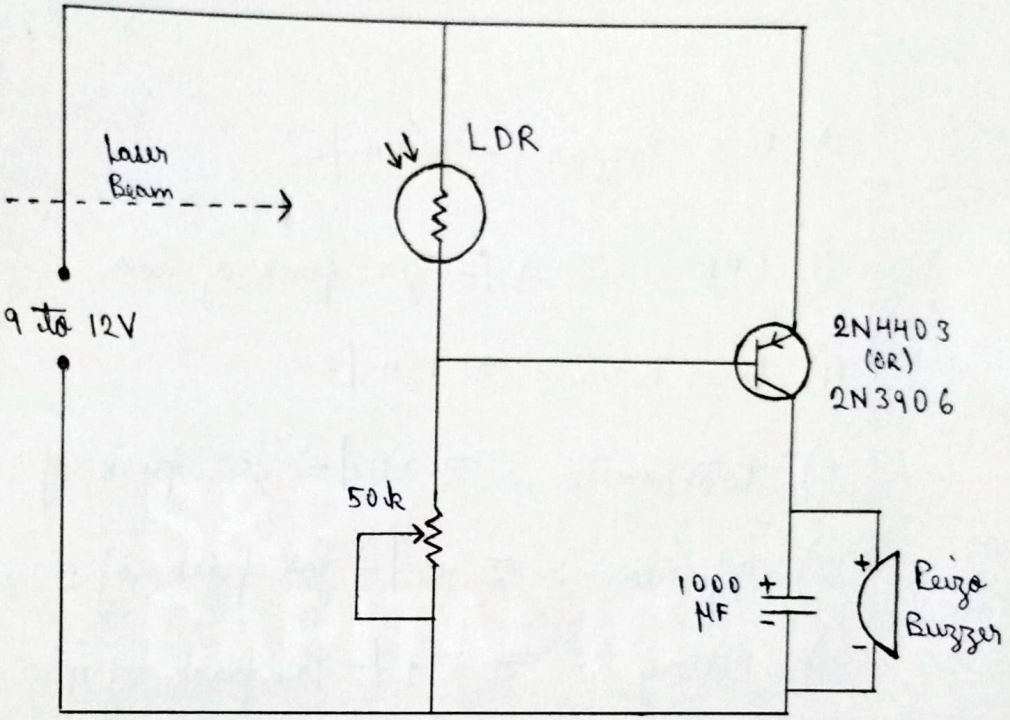
4) Laser beam :- It is a device that stimulates atoms or molecules to emit light at particular wavelengths and amplifies the light, typically producing a very narrow beam of radiation.

5) Potentiometer :- It is an instrument used for measuring the unknown voltage by comparing it with the known voltage. It can be used to determine the emf and internal resistance of the given cell and also used to compare the emf of different cells.

6) Capacitor :- A device for storing electrical energy, consisting of two conductors in close proximity and insulated from each other.

7) Battery :- It is a device that ~~converts~~ stores chemical energy and converts it to electrical energy. The chemical reactions in a battery involve the flow of electrons from one material (electrode) to another, through an external circuit. The flow of electrons provides an electric current that can be used to do work.

* Laser Security Alarm Circuit :-



* Working :-

In this Laser Security Alarm System, there is an LDR as the major electronic component. When you connect the circuit and apply ~~to~~ the voltage, the LDR works according to the light falling or going. Thus, when there is a consistent light laser falling on the LDR, the circuit doesn't work. At the point when somebody comes between the LASER and LDR, the LDR resistance gets decreased and current starts flowing through the circuits. As a result, the buzzer starts beeping until the circuit gets the light again on LDR.

* Budget for the prototype :-

1) Transistor 2N4403 (OR) 2N3906 :- ₹49/- for pack of three.

2) Piezo buzzer :- ₹54/-

3) LDR :- ₹21/- for pack of two.

4) Laser Beam :- ₹134/-

5) Potentiometer :- ₹80/- for pack of 3.

6) Capacitor :- ₹45/- for pack of 2

7) Battery :- ₹379/- for pack of 4.

Total cost :- ₹762/-

Source :- https://www.amazon.in.