HOME SECURITY SYSTEM

CBSE Class XII Project

Objective

To design and demonstrate a low-cost electronic home security system capable of detecting unauthorized access and alerting users through visual and audio indicators.

Project Description

The Home Security System is a basic electronic security prototype developed as part of the CBSE Class XII curriculum. The system focuses on detecting intrusion using simple sensors and triggering immediate alerts. A microcontroller is used to process sensor input and activate output devices such as a buzzer and LED when unauthorized access is detected. The project demonstrates a practical and affordable approach to home safety using fundamental electronics concepts.

Key Features

- Detection of unauthorized entry using electronic sensors.
- Real-time alert generation using buzzer and LED indicators.
- Low-cost and energy-efficient design.
- Simple architecture suitable for residential safety applications.

Components Used

- Microcontroller
- Sensors (e.g., IR / motion sensor)
- Buzzer
- LED
- Resistors and connecting wires
- Power supply

Circuit Diagram

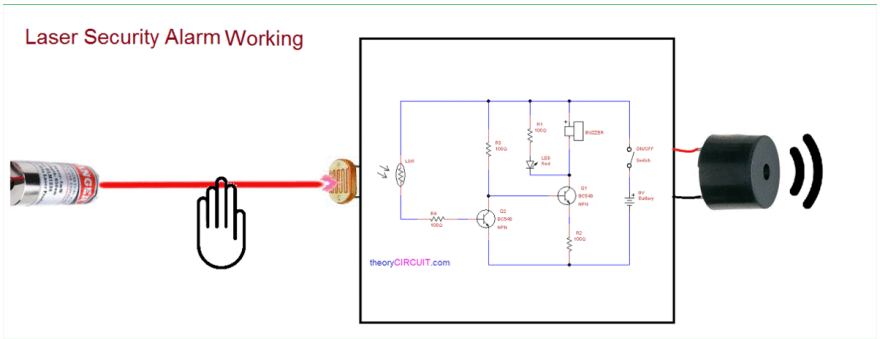

Figure: Circuit diagram of the Home Security System

Working Principle

When an object or person enters the monitored area, the sensor detects the change and sends a signal to the microcontroller. The microcontroller processes this signal and activates the buzzer and LED to indicate a security breach. The alert continues until the system is reset.

Conclusion

The Home Security System successfully demonstrates a simple, reliable, and cost-effective method for detecting unauthorized access. This project strengthens understanding of sensors, microcontrollers, and basic electronic circuit design, making it a suitable learning model for home safety applications.