LASER SECURITY ALARM SYSTEM

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ABSTRACT

A Laser Security Alarm System using IoT is a smart security project designed to detect unauthorized access through a laser beam. The system consists of a laser emitter and an LDR (Light Dependent Resistor) sensor. when the laser beam directed at the LDR is interrupted,the sensor detects the change, triggering an alarm. the Laser Security Alarm System is to provide a reliable and cost-effective security solution that ensures the safety of residential, commercial, and industrial spaces. It aims to enhance security by utilizing laser technology for precise detection and immediate alerting of unauthorized access or breaches.

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Introduction

Introduction to Laser security alarm system IOT Project

The Laser Security Alarm System is an innovative solution designed to enhance security through a combination of laser technology and IoT. It establishes an invisible boundary using a laser beam and a light-dependent resistor (LDR). Any interruption in the laser beam triggers an alarm and sends real-time alerts to users via IoT-enabled devices. This system is reliable, cost-effective, and suitable for homes, offices, or industrial areas requiring enhanced perimeter protection

- **Unauthorized Access Detection**: Alert the user to any intrusions by detecting when the laser beam is broken.
- **Cost-Effective Security**: Provide a low-cost yet effective alternative to conventional security systems.
- **Real-Time Alerts**: Trigger immediate audible or visual alarms for quick response to breaches

SYSTEM REQUIREMENTS

Software Requirements:

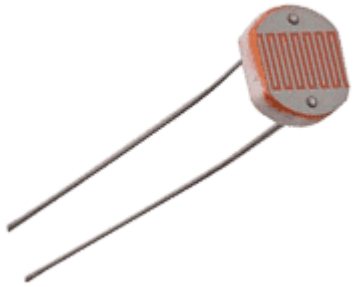
- Operating Systems: Windows 7 & Above Operating system
- Software used: Arduino Software
- Coding Language: C

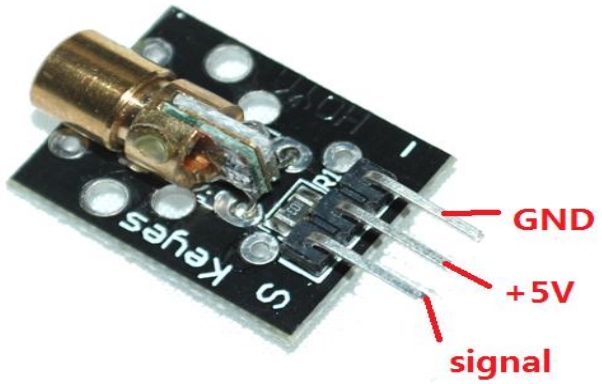
Hardware Requirements:

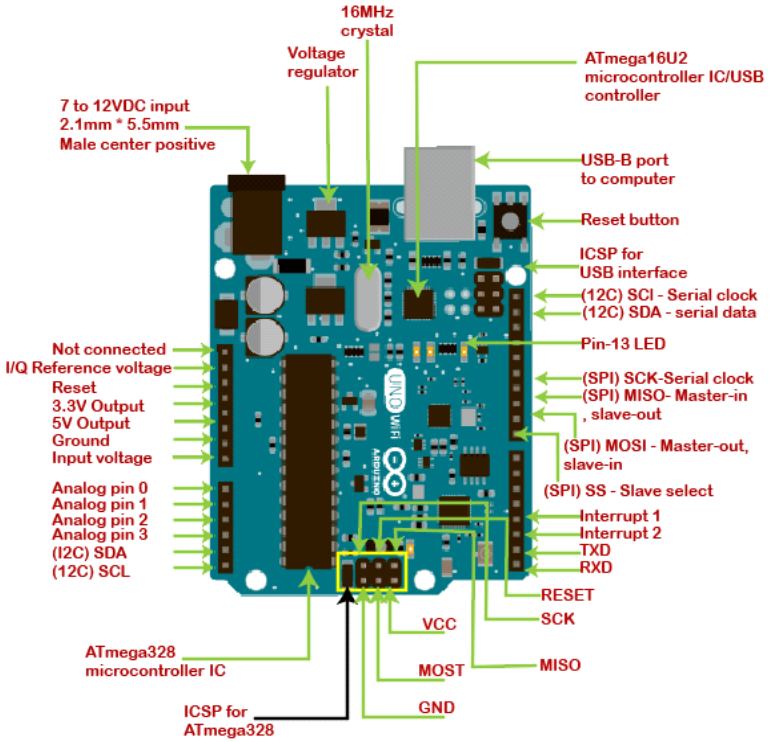
- Arduino uno (R3)
- Photoresistor (LDR)
- Buzzer (5V)
- Power Supply (9V)
- Switch
- Laser Module 650NM(5V)

Modules and Sensors(REQUIREMENTS)

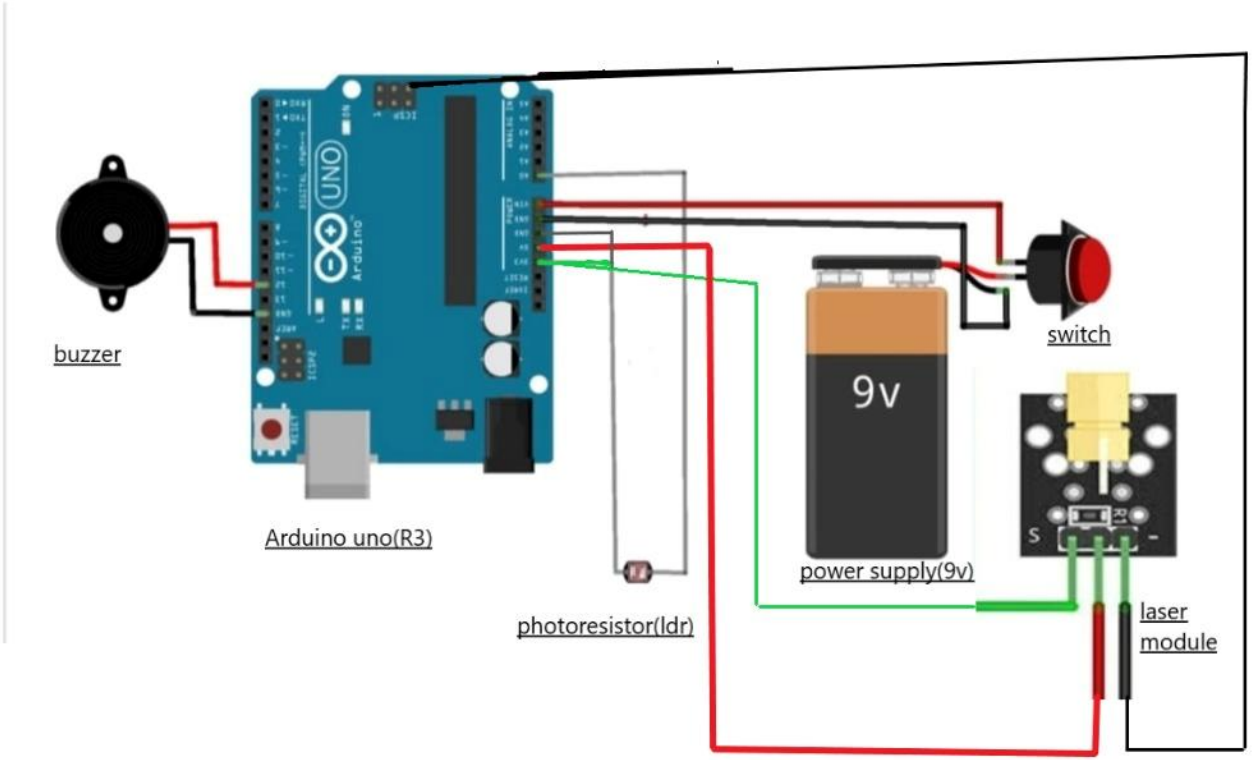
Photoresistor (LDR) Sensor , Laser Module and Arduino uno



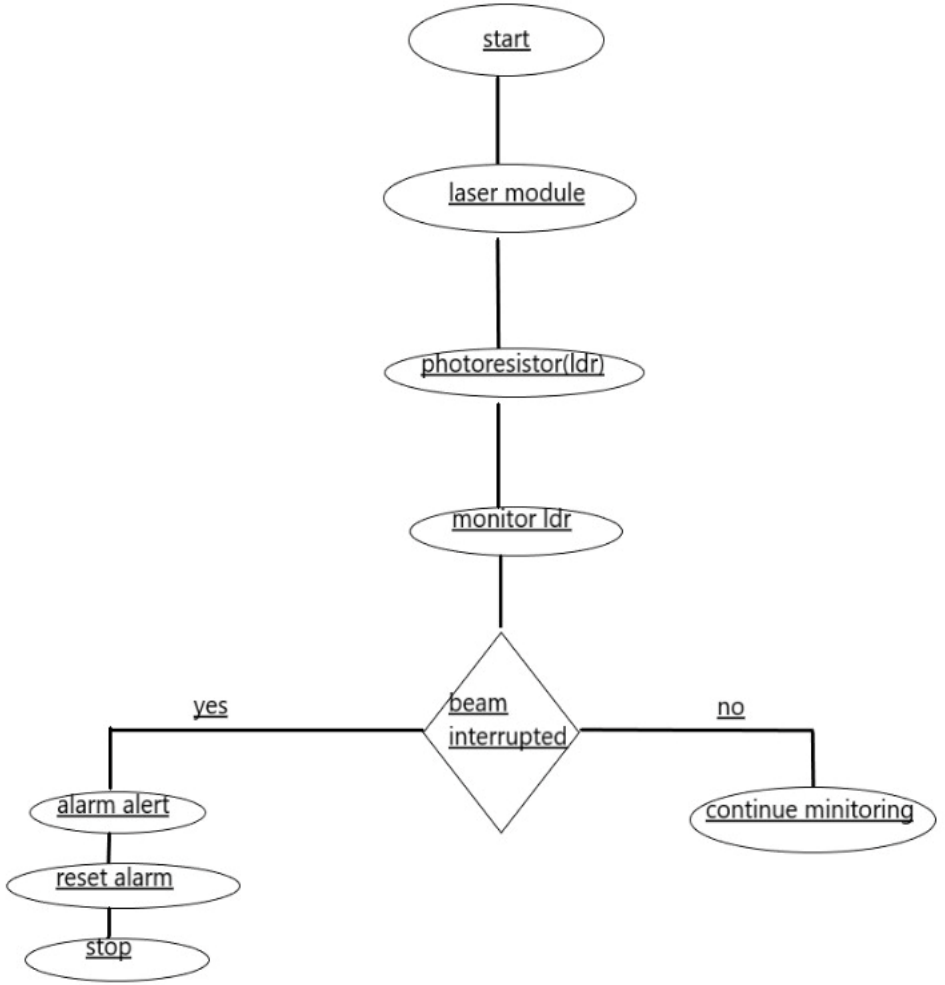




Circuit design



Flowchart


start
laser module
photoresistor(ldr)
monitor ldr
beam interrupted
yes
no
alarm alert
reset alarm
stop
continue minitoring

IMPLEMENTATION

Modules:

"A Module is a high level description of a functional area, consisting of a group of processes describing the functionality of the modules and a group of packages implementing the functionality"

I. Arduino Module

Modules

Software Stack:

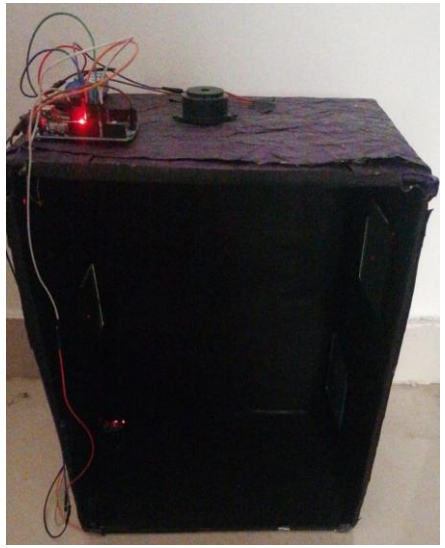
- **Arduino Software :**Arduino software is a open source platform that can be used for configuring the Microcontrollers

Hardware stack:

- **Arduino Uno :** Arduino uno is Microcontroller with ATMega238p that performs the given task
- **Programming Language**: Arduino IDE (C/C++)
- **Sensors:** LDR for light detection
- **Jumper wire:** For connecting devices

Observations and results

Input:Laser Setup(Detecte Intrusion)



Output: Buzzer

CONCLUSION

The laser security alarm system is an efficient and reliable solution for modern security needs. Its IoT integration ensures real-time monitoring and remote access, making it an ideal choice for safeguarding homes, offices, and restricted areas. The project is cost-effective, easy to build, and demonstrates the practical applications of laser and IoT technologies.

REFERENCES

•**Laser Based Security Alarm System**: This project outlines the design of a laser security alarm system using components like an Arduino UNO, LDR, and buzzer.

Hackster

•**Design and Construction of Laser Security System Using Arduino**: This resource discusses the objectives and construction of a laser security system aimed at preventing unauthorized access.

My Project Circuits

•**Laser Security System**: An article that explains the working of a laser security system, including its advantages, disadvantages, and applications.

Electronics Hub

•**Laser Security System Project Report**: A comprehensive project report detailing the implementation of a laser security system using an Arduino board.

SlideShare

THANK YOU

ANY QUERIES...???