

# Password-Based Authentication and Automatic Entry Monitoring System with Security Alert and Thief Detector

*Project Based on Digital Logic Design*  
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# Abstract

This project presents a password-based authentication system integrated with an automatic entry monitoring mechanism, a security alert feature, and a thief detection system. The system is designed to restrict unauthorized access, provide real-time entry counts, and raise alerts for incorrect password attempts. When the password is entered incorrectly, a buzzer is triggered, serving as an additional thief detection alert. The system ensures enhanced security and efficiency through robust components and logic.

## Working Principle

- A password is set and managed using a secure mechanism.
- Once set, the password cannot be changed when the voltage is low, enhancing security by disabling the setting switch.
- A main switch controls the activation of the password system.
- When the system is active:
  - If the entered password is incorrect:
    - \* A red LED is triggered as a visual alert.
    - \* A buzzer sounds to serve as a thief detection alert.
  - If the entered password is correct:
    - \* A green LED is activated as a success indicator.
    - \* The system starts an entry monitoring process.
- A counter, integrated with a laser sensor, tracks the number of people entering by detecting interruptions in the laser beam.

# Components

- **Registers and ICs:**
  - 74LS194 Register
  - CD4023B IC
- **Resistors:**
  - 10k Resistors
  - 470 Ohm Resistors
  - 330 Ohm Resistors
- **Power Supply:**
  - Battery 5V/3.7V
  - Battery 5 to 12 Volts
- **Switches:**
  - Dip Switch
  - Push Button
  - Tactile Switch (black and white)
- **Logic Gates:**
  - XOR Gate 7486
  - NOR Gate 7402
- **LEDs and Indicators:**
  - Green LED
  - Red LED
- **Sensors and Counters:**
  - Laser Light
  - LDR
- **Others:**
  - Diode 1N4007
  - 7-Segment Cathode Display (1 digit)
  - Buzzer
  - Wires and Breadboard

## Simulation

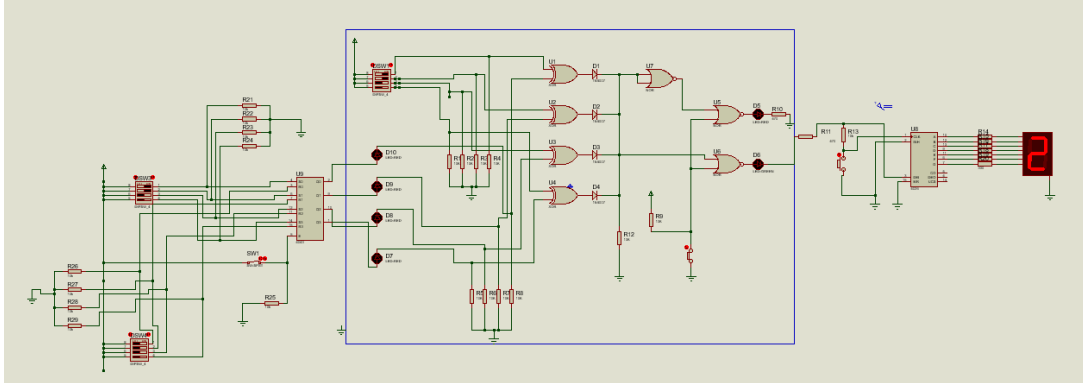


Figure 1: Simulation of the Password-Based Authentication and Entry Monitoring System

## Advantages

- Enhanced security through password authentication and alert mechanisms.
- Prevents unauthorized password changes when voltage is low.
- Real-time monitoring and counting of entries using laser sensors.
- Visual and auditory feedback for system status and security alerts.
- Cost-effective and efficient for small to medium-scale applications.

## Limitations

- Limited scalability for larger systems with multiple entry points.
- Dependence on a constant power supply for uninterrupted operation.
- Environmental factors might affect laser sensor accuracy.

## Conclusion

This project demonstrates a reliable and secure system for authentication and entry monitoring. The integration of password protection, security alerts, thief detection, and an automatic counter makes it an ideal solution for restricted access environments, ensuring both security and operational efficiency.