Digital Locking System in LabVIEW

Project Title: Digital Password Locking System for Door in LabVIEW

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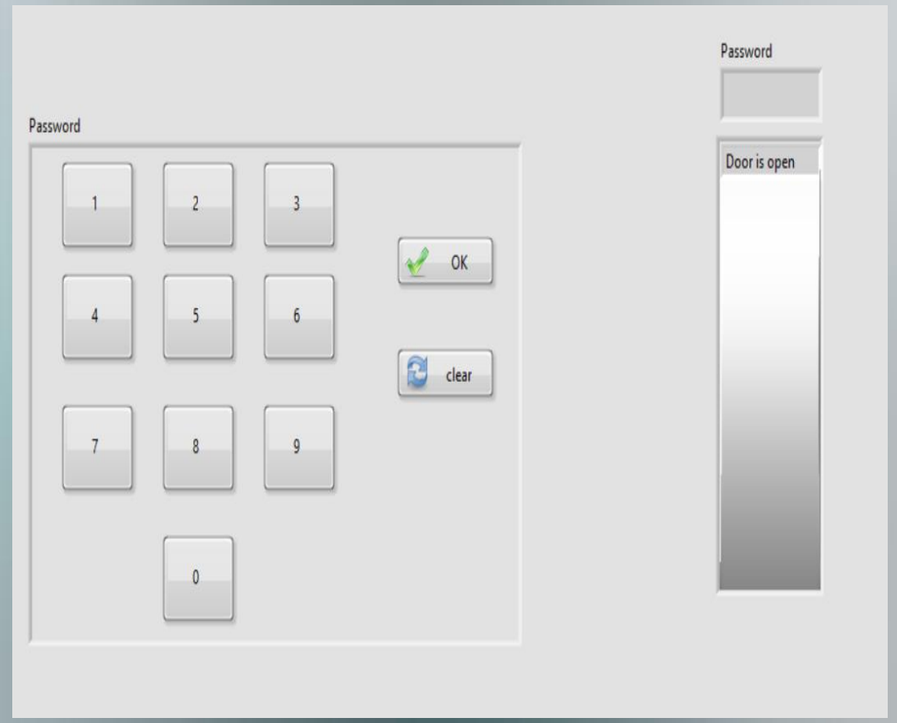
Digital Locking System in LabVIEW

This presentation explores the design and functionality of a digital locking system built in LabVIEW.



Introduction

1 Purpose

Secure, password-based access control for restricted areas.

2 Target Environments

Labs, offices, or homes.

3 LabVIEW's Role

Building a responsive control system.

Project Requirements and Tools Used

Software

LabVIEW (specify version if needed).

Components

- 12-button interface (0-9, Clear, OK)
- While Loop for continuous operation
- Event and Case Structures for efficient response handling

System Design and Development

1. **Password Input Interface**

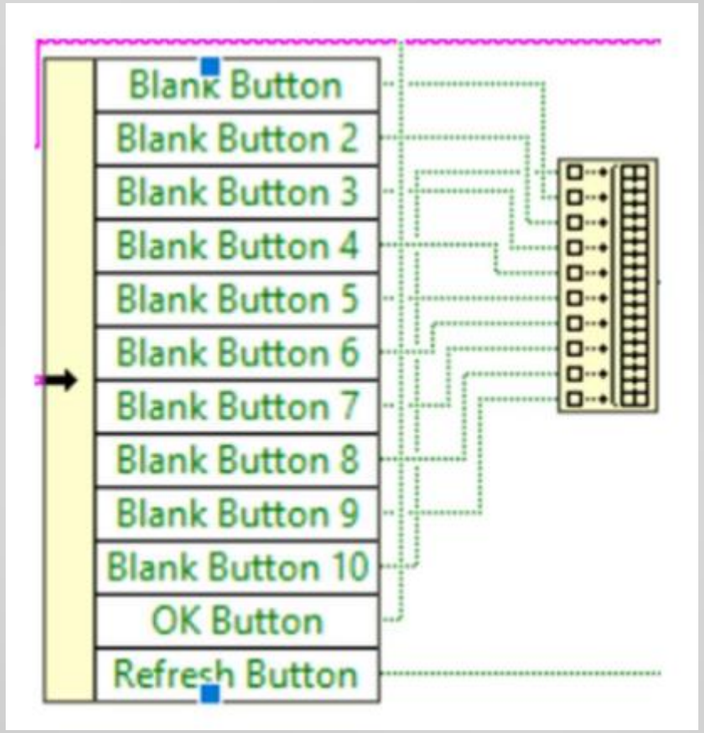
   Numeric keypad interface (0-9, Clear, OK buttons).

2. **Password Verification Process**

   AND gate and comparator check the 4-digit password.

3. **Gate Mechanism and Indicators**

   Virtual gate represented by a slider.



Program Flow

1

User Input

User enters password.

2

Password Verification

System verifies password.

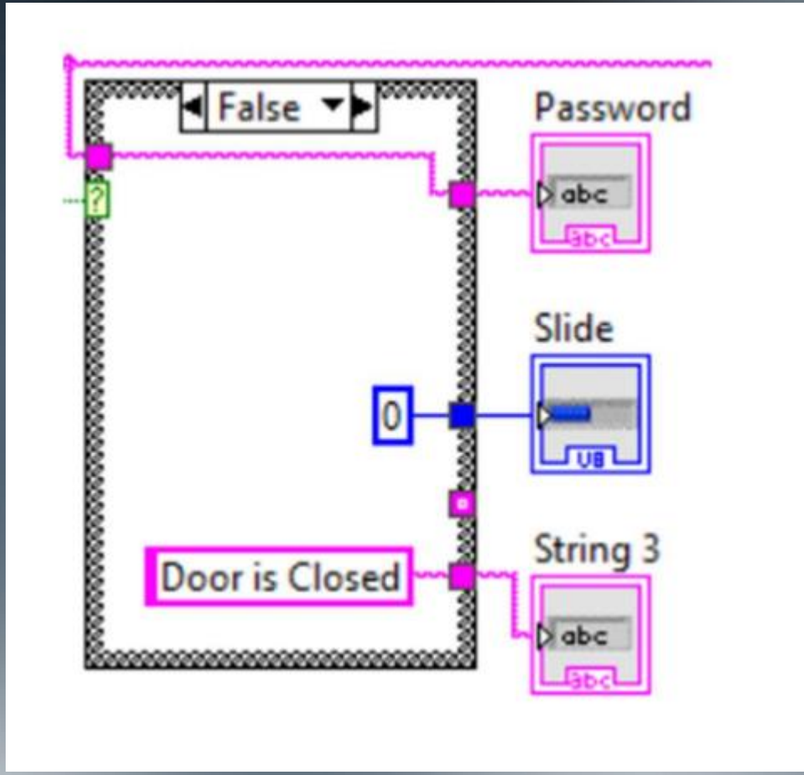
3

Gate Response

Gate opens or remains closed.

Event Structure and Case Structure Explanation

Event Structure	Captures button presses.
Case Structure	Defines actions for password entry, clear function, and verification.



Functionality Testing and Results

1 **Test Cases**

Correct password entry, incorrect password entry, password clearing.

2 **Observations**

Screenshots or results documenting system behavior.

Use Case Diagram

Enter Password

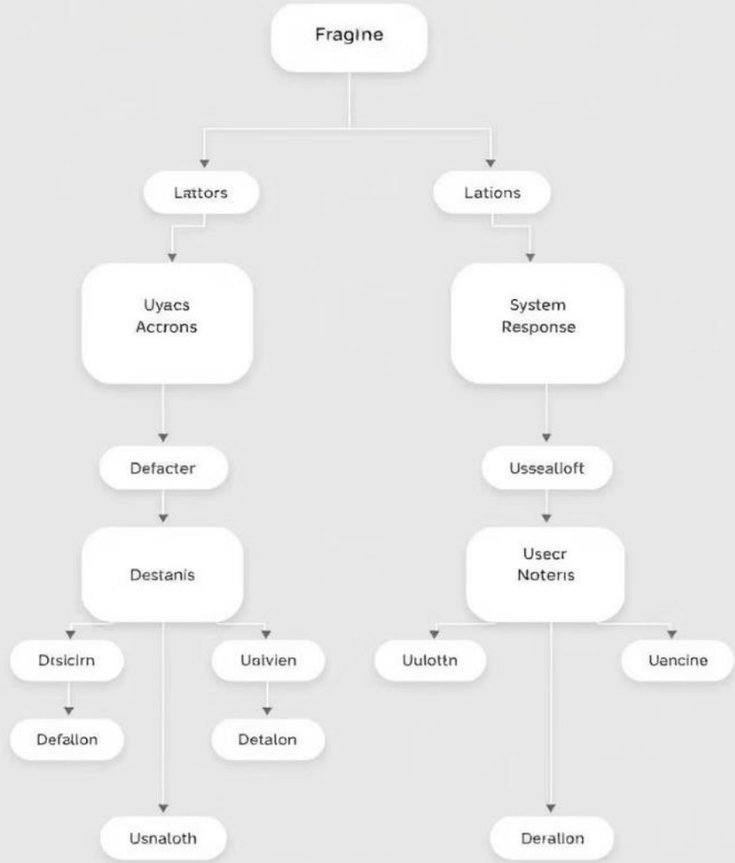
User enters password.

Press OK

User presses OK button.

Press Clear

User presses Clear button.



Challenges Faced and Solutions Implemented

Challenges

Synchronizing button events, managing user interactions efficiently.

Solutions

Structured event logic to isolate actions and enhance system reliability.

Conclusion

1 **Accomplishments**

User-friendly and secure access control prototype.

2 **Benefits**

Accuracy in password verification, reliable response system, clear user feedback.