

# Password Based Room Security And Automation System

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# Introduction

- The Password-Based Room Security and Automation System combines access control and home automation, providing secure access to a room while enabling the control of electronic devices through a password-protected interface.

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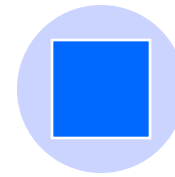
Components  
Required



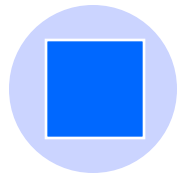
Design contains



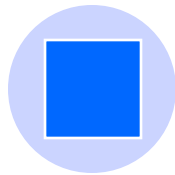
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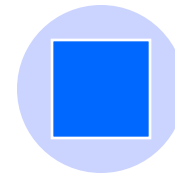
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# Description of the project

- The project includes a keypad for password input, an electronic door lock, and relay modules for device control. It offers a streamlined way to manage access and automation in a room.

# Components Required

## 1 Digital Components

- 2-input 74LS266 XNOR IC.
- 3-input 74LS11 AND IC.
- 2-input 74LS08 AND IC.
- 2-input 74LS32 OR IC.
- 74LS04 NOT IC.
- 7476 JK Flip-Flop.
- 555 Timer IC.
- 4511 BCD to 7-segment Latch/Decoder/Driver.
- Dip Switches.

## 2. Analog Components

- Capacitors (1nF, 10uF).
- Resistances (10kohm, 100kohm).
- BJT BC547.
- 1N4007 Diode.

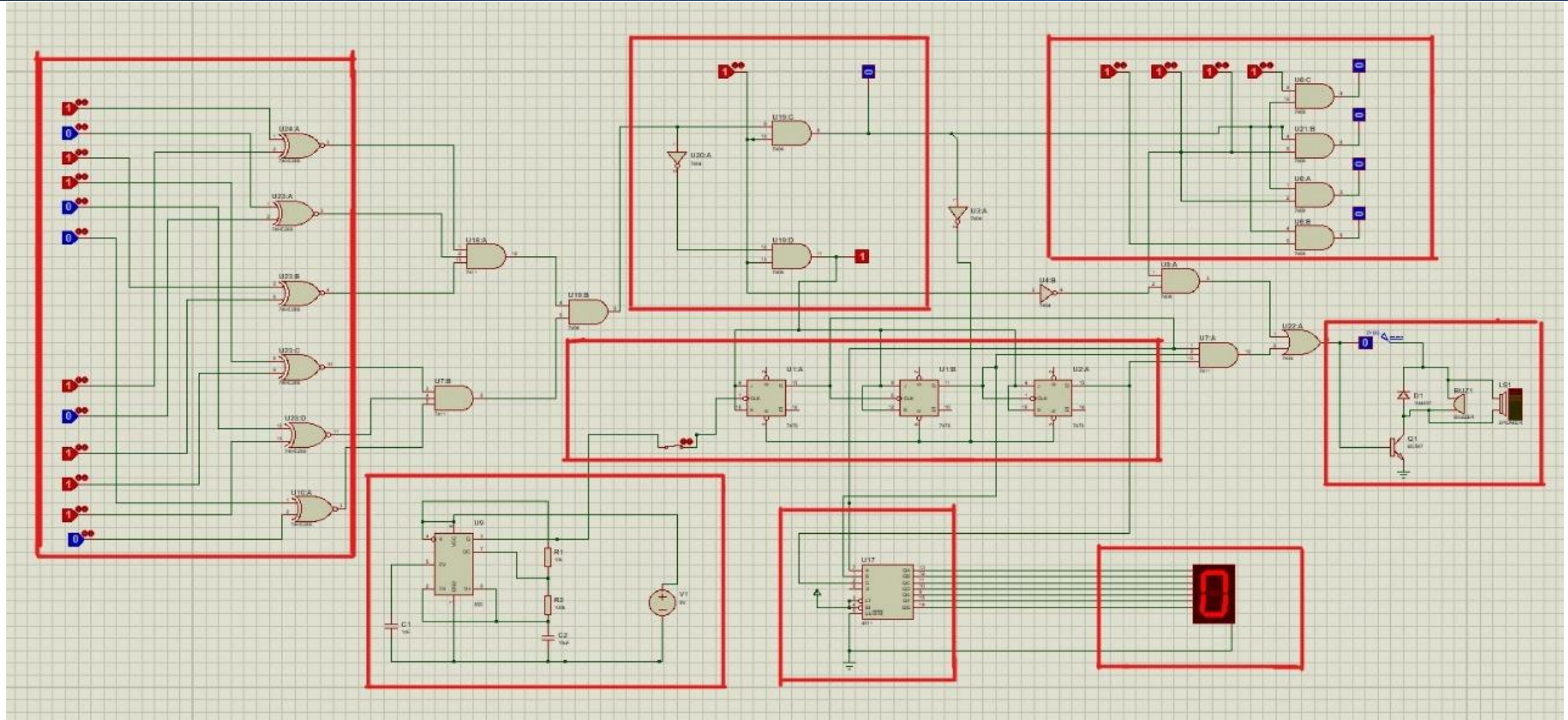
## 3. Additional Components

- Buzzer
- Battery

# Design Contains

- Counters
- Decoder
- Comparator
- flip-flop
- Registers

# circuit diagram



# Explanation

Step 1: Input Equality Check (6-input XNOR gate)

Step 2: Counter using JK Flip-Flop

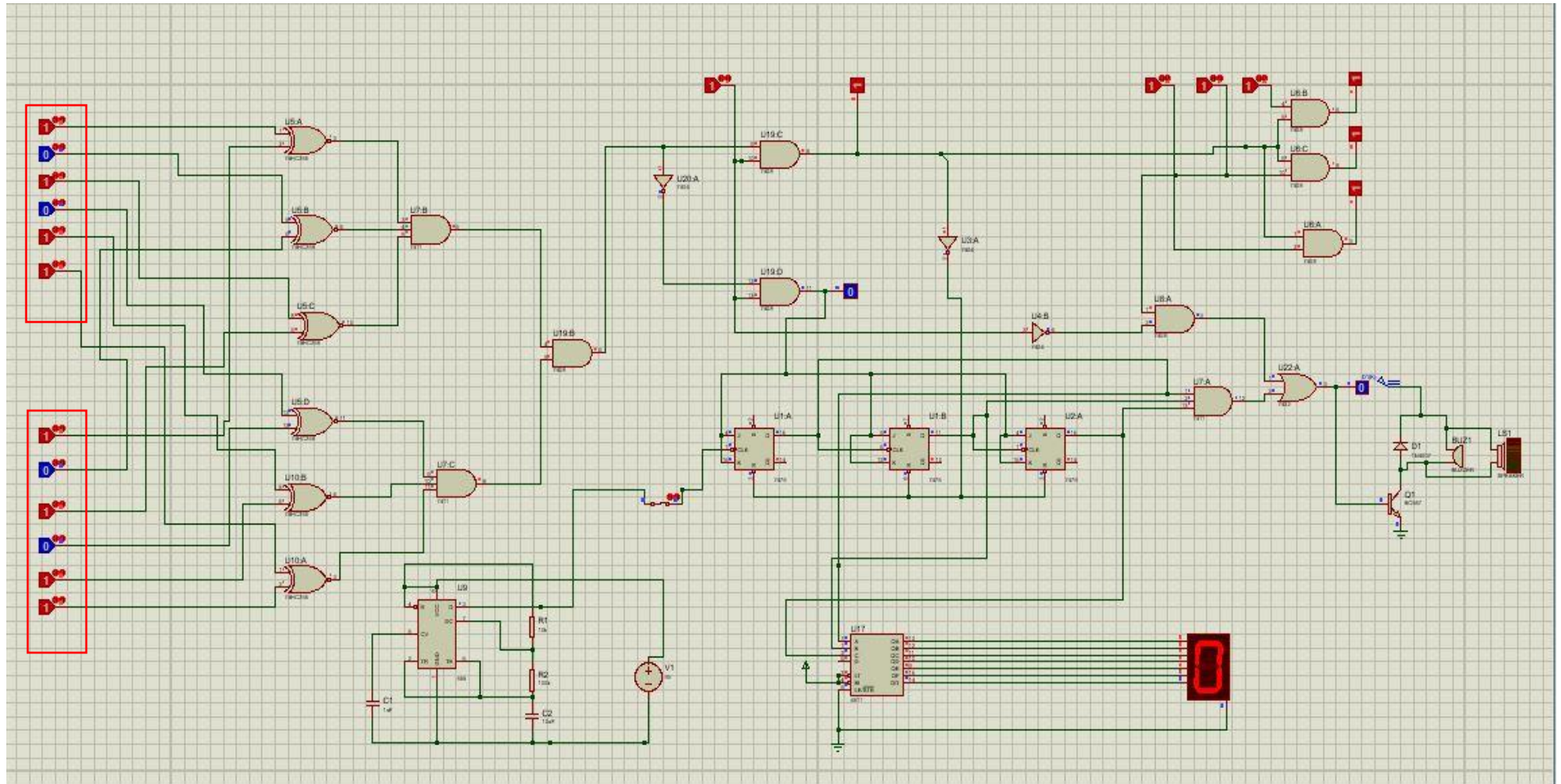
Step 3: Alarm System (Logic Gates)

Step 4: Conditional Control (Logic Gates)

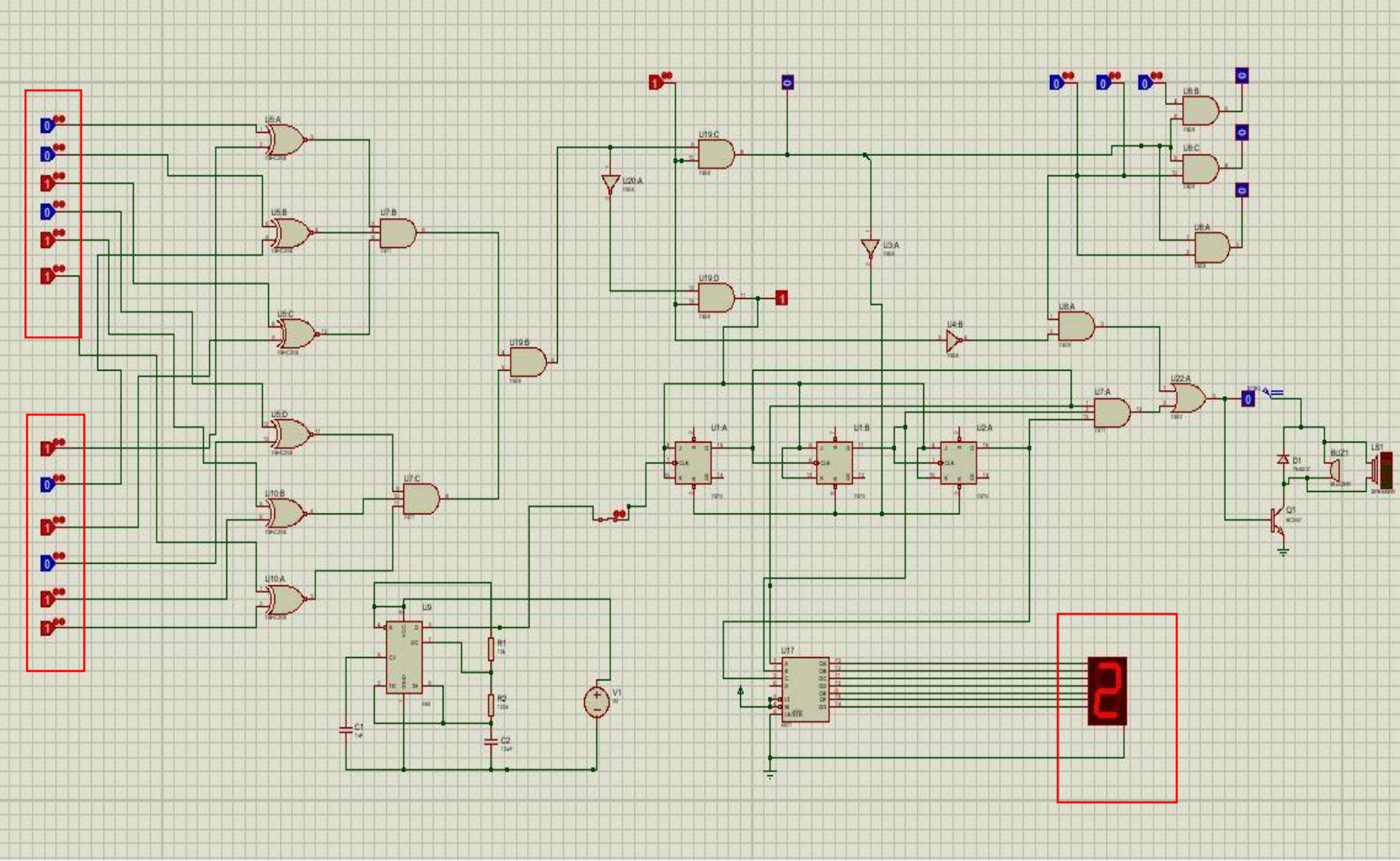


# Simulation Result

# Password Match

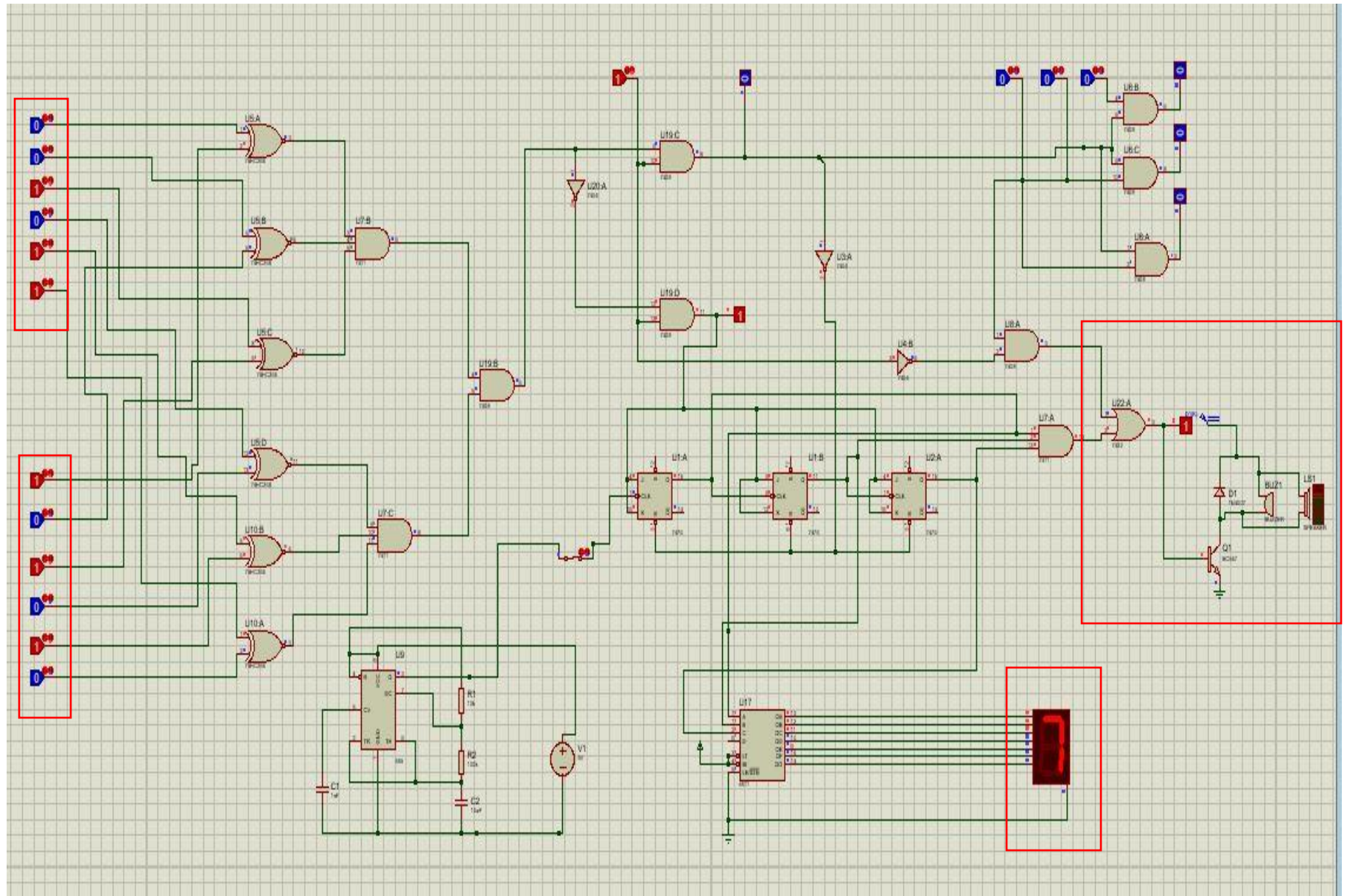


# 2 Times Wrong Password



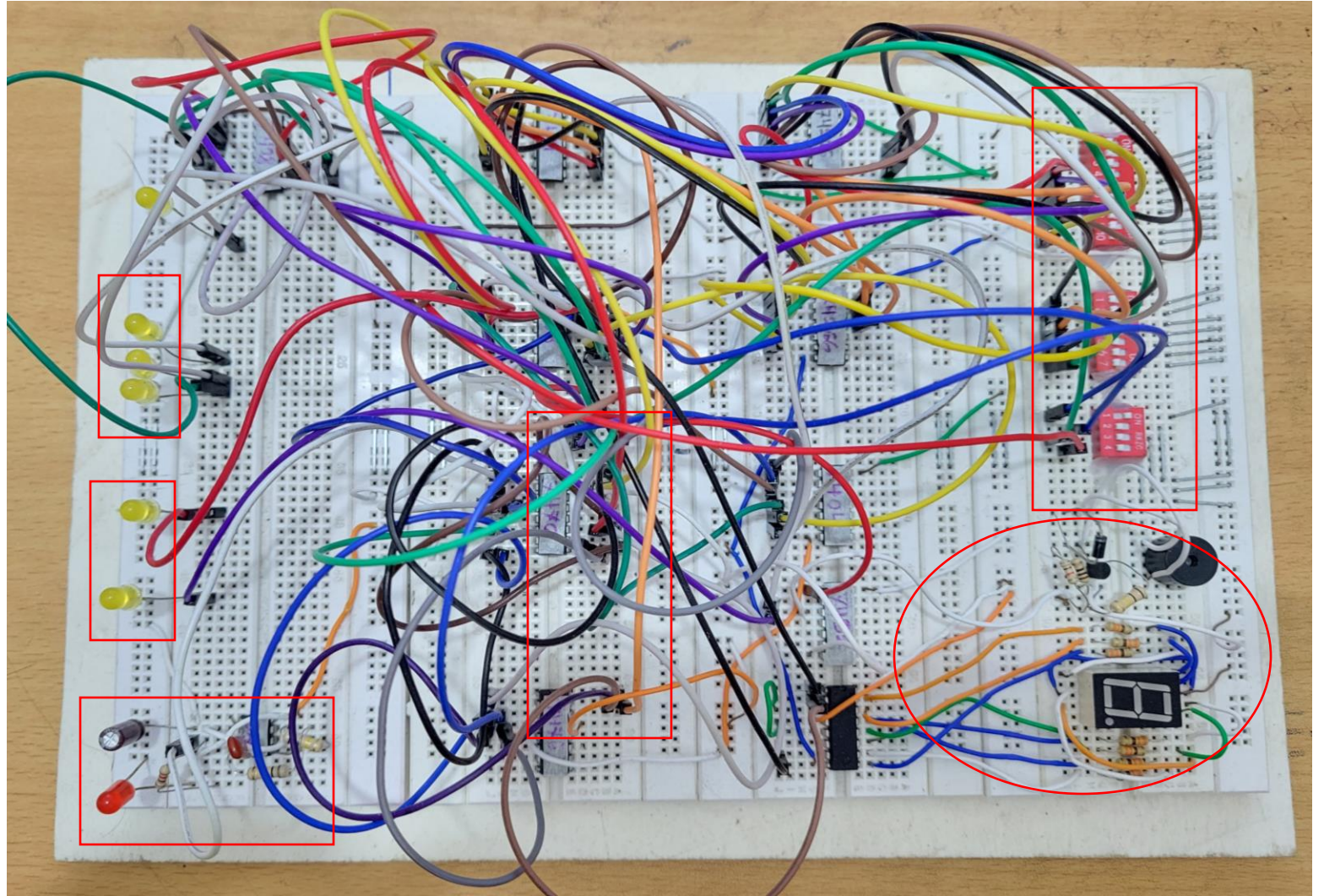
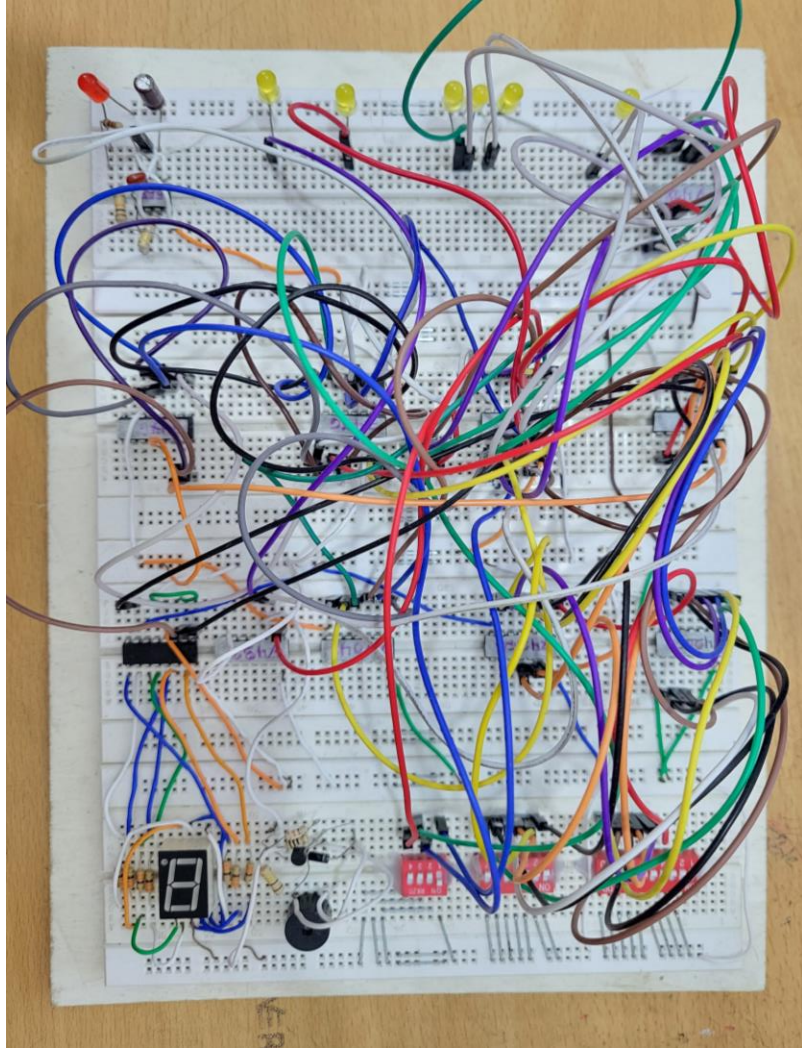


# 7th Time Wrong Password and Alarm





# Picture of the project



# Application areas, Limitations

## **Application Areas:**

Suitable for homes, offices, and secure environments, offering enhanced security and automation.

## **Limitations:**

Vulnerable to brute-force attacks.

Initial setup complexity for non-tech-savvy users.



# Conclusion

The Password-Based Room Security and Automation System is a valuable solution for controlled access and efficient management of electronic devices in various environments, despite certain limitations.



**Thank You**