Digital Lock

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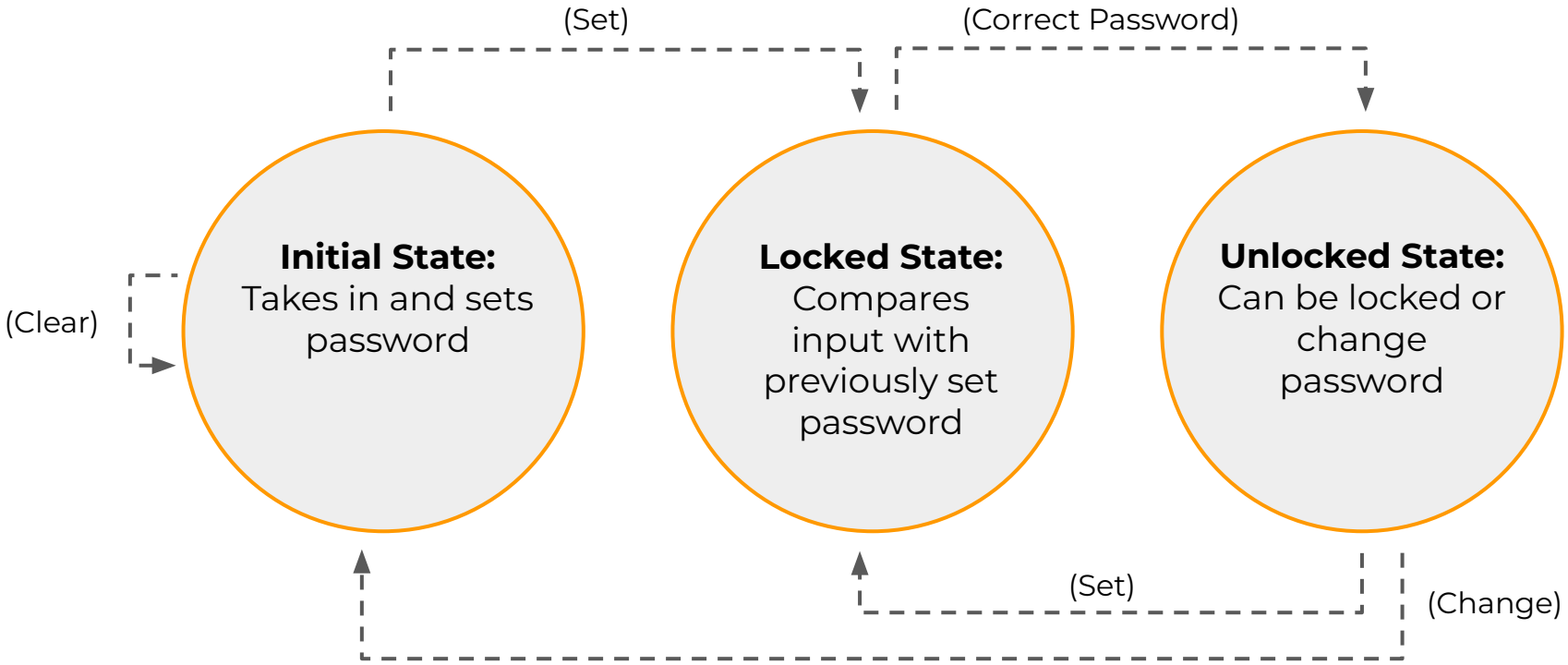
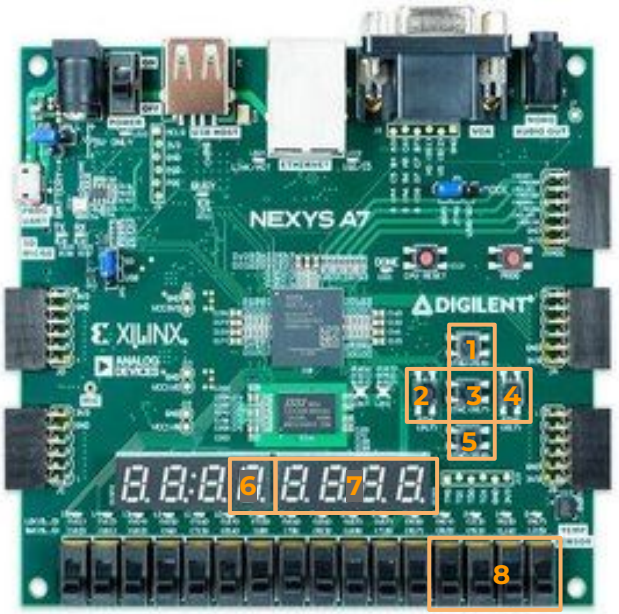
Functionality



Features & Inputs/Outputs

1. Reset: Resets entire circuit
2. Clear: Resets user input
3. Enter: Sets one digit of the password
4. Set: Creates master password/Relocks device
5. Change: Changes password (when unlocked)
6. Status SSD: Displays status of lock
7. Digit SSD: Displays each hexadecimal input
8. Switches: Hexadecimal input for password digit



Approach

Lock Module:

- Each hexadecimal digit is one state
- States advance once enter is pressed

Main Module:

- Determines state of lock (“I”, “L”, “U”)
- Implements master password register to save password
- Implements check password register to compare to master

Problems Encountered

- Enter button inputs sometimes repeated
    - Solution: Debouncer for enter
- When correct password was inputted, status would flip between “L” and “U”
    - Solution: Reset lock module after each state change
- 7-Segment Display visibly cycled through each anode
    - Solution: Implement second clock divider dedicated to display