DLD PROJECT REPORT

Name: Maqsood Ahmed
ID: 38186
Name: Moh Arsalan Zafar
ID: 38033
Dept: BSCS

Title: Password Security System

I. Objective

For this project, individuals will implement a password security system. The "Password Security System" project will give individuals the opportunity to become familiar with using NOR and XOR logic gates within a circuit.

II. Summary

For this project, XNOR, AND and NOT gates, switches, and LEDs are used within this project. The "key code" and "data entry" switches are the two eight position DIP switches. Also, whenever a password in the "enter" switch is pressed in – the light will become either red if the password is incorrect or green if the password is correct. Above it all, individuals can receive alerts directly to his/her mobile devices each time a password has been attempted.

III. Related to Industry

The use of logic gates is critical to industries worldwide. In today's world, copious individuals' input password into his/her security system to secure or to unsecure his/her home and/or business. A company like Ring provides a great number of homes with security systems so that individuals can protect his/her property. For example, individuals can receive alerts and video footage when someone is new his/her home. Individuals can also check the Ring app at all times to make sure there is not anything going on in or outside of his/her property. Above it all, a company like

Ring is great with providing security systems to people's homes thanks to the use of logic gates within each security system.

IV. Project Description

The equipment used in this project will be a 7408 quad AND gate, 7404 quad NOT gate, 7426 quad NXOR gate, two light-emitting diodes, a pushbutton switch (normally open), power supply, breadboard, and wires.

V. Procedure

- Power On: Begin by turning on the power supply to activate the Multisim simulation.
- Master Switch Activation: Toggle the master switch to the "ON" position to enable the entire Password Security System.
- Password Input: Utilize the simulated interface to input a 5-bit password, adjusting the switches accordingly.
- XNOR Comparison: The 5-input XNOR gate compares each bit of the entered password with the corresponding bit of the stored password.
- AND Combination: The system performs a logical AND operation on the outputs of the XNOR gates, ensuring all bits match.
- NOT Operation: The output of the AND gates is inverted using NOT gates, resulting in a signal that indicates whether the password is correct or not.
- LED Feedback: Observe the LEDs; a green light signifies a correct password match, while a red light indicates an incorrect password.
- Access Granted/Denied: Based on the LED feedback, ascertain whether access is granted or denied.
- System Deactivation (Optional): If necessary, toggle the master switch to the "OFF" position to deactivate the entire Password Security System.
- Power Off: Conclude the process by turning off the power supply, completing the simulation of the Password Security System in Multisim.

VI. Photo and Reference

YOUTUBE LINK

https://www.youtube.com/watch?v=kLLBqJD7-KQ&t=15s