Report for Project #2

BASYS 2 Board Project #2 :Guessing Game

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I. ABSTRACT

The main objective of this project was to implement guessing game of four 4-bit numbers using Verilog on the FPGA board. The project had four main parts:

1. Providing four 4-bit inputs (number to be guessed) to the board by using sliding switches and a button.
2. Storing the number , and then comparing the every guess against that number.
3. Giving appropriate feedback to the player based on whether the guess is smaller or larger than the original number.
4. Displaying the number of guesses required to guess the number and blinking the led's when the number is correctly guessed.

Design:

1. Input is implemented using the slider switches and buttons. Player-1 can enters the input using the switches and buttons and then all switches are turned 0, and switch 5 is turned on indicating player-2 s turn.
2. Player-2 can enters the input using the switches and buttons and move switch 4 to compare the number with the original number. The number entered by player-2 is compared against the original number and appropriate output is displayed, if the number entered is smaller then "2LO" is displayed, if it is higher "2HI" is displayed.
3. if the number is matched with the original number , number of guesses are displayed on the seven segment display 0,and all led's start blinking.

Instructions:

Guide to use the Project:

1) Start FPGA Board

2) Install the program on the Board and set all the Slider Switches=0

3) 7 Segments displays = "PL 1"

4) Select Slider Switches 0-3 and push buttons to set the corrsponding anodes.

5) Set Seven Segment to "8500"

6) set all the Slider Switches=0

6) Push the Slider Switch 5 = 1

7) "PL 2" displayed on 7 Segment

8) Player 2's turn

9) Set 7 Segment to "8400"

10) Put Slider switch 4 = 1 to compare with the player 1 input

11) It will show the " 2LO" on the 7 Segment display

12) Put the Slider Switch 4 = 0

13) Change the Slider 0-3 and Button 0-3 according to new input

14) Set the Slider Switch to "8600"

15) Put Slider switch 4 = 1 to compare with the player 1 input

16) It will show the " 2HI" on the 7 Segment display

17) Put the Slider Switch 4 = 0

18) Change the Slider 0-3 and Button 0-3 according to new input

19) Make the new input to "8500" (Correct input)

20) Put Slider switch 4 = 1 to compare with the player 1 input

21) Leds Blink. Seven segments displays " 3" (Total number of guesses)