

Guessing Game

Design a two player guessing game. The game starts with the four digit seven segment display illuminated with "PL 1" indicating that player #1 should enter a number between 0x0000 and 0xFFFF. The number is entered as follows. The slider switches select which of the four digits is being entered. Switches 0, 1, 2, and 3 should be used, with switch 0 selecting the least significant digit and switch 3 selecting the most significant digit. When the switch is in the high position, the corresponding digit is selected. When the switch is in the low position, the corresponding digit is not selected. When a switch selects a digit, the initial value on that digit is 0. Buttons 3, 2, 1, and 0 are used to set the value on the selected digits. Each time a button is pressed a button is pressed, 2^{BTN} is added to digit where *BTN* is the button that is pressed. For example, button 0 is pressed three times and button 2 is pressed one, 7 will be entered. As the number is entered, it should be displayed on the seven segment display. Once the value is entered for a digit it should keep displaying that digit until the complete four digit number has been entered. After the number has been entered, player #1 should move switch 4 from the low position (player #1) to the high position (player #2). The seven segment displays are used to indicate this by displaying "PL 2". It is now player #2's turn. Player #2 repeatedly enters four digit numbers until he or she correctly guesses the number entered by player #1. The procedure for entering the four digit number is the same as it was for player #1. When the complete four digit number has been entered, switch 5 can be used to latch or register that value as a guess. Moving switch 5 from the low to the high position will latch the number and then it can be moved back to the low position to allow another four digit number to be entered. When an incorrect number is entered, the display should indicate if the guess was too high ("2 HI") or too low ("2 LO"). When the correct guess is entered the LEDs should blink in celebration, and the number of guesses required should be displayed on the seven segment display. To play the game again, the user should hit any button.