

**Due to Prof. Walker by 5pm on Friday 26 September 2003**  
*this project counts as 10% of your course grade*

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1. Do **Lab Exercise 4 on page 25** of *Rapid Prototyping of Digital Systems, Second Edition*. Use the FLEX 10K chip, the FLEX pushbuttons, and the decimal point between the two digits of the FLEX 7-segment display.

Turn in:

- a) a printout of the schematic
- b) a printout of the test inputs and simulation output that shows that that the circuit works as expected, annotated to explain the operation of the circuit
- c) a printout of the timing analysis showing the input to output delay matrix
- d) a signature on the statement below (print out this page) by Prof. Walker, by the TA (Ping Xu), or by two other students in the class:

I certify that \_\_\_\_\_ has successfully downloaded this design to a UP1 board and the design works correctly.

\_\_\_\_\_ Name \_\_\_\_\_ Date

\_\_\_\_\_ Name \_\_\_\_\_ Date

2. The XOR gate is sometimes called the “odd function” since it can be used to determine whether or not there are an odd number of 1’s on its input. Use the FLEX chip, XOR gates, and whatever inputs and outputs that you feel appropriate to test this “odd function” for up to 4 inputs.

Turn in:

- a) a printout of the schematic
- b) a printout of the test inputs and simulation output that shows that that the circuit works as expected, annotated to explain the operation of the circuit
- c) a printout of the timing analysis showing the input to output delay matrix
- d) a signature on the statement below (print out this page) by Prof. Walker, by the TA (Ping Xu), or by two other students in the class:

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