Thursday attendee's Brady, J. Jones, Satterfield

Page 1 of 4 of lab. We have a 3 bit state machine. Now, this particular state machine has control circuitry going to the LSB JK, in particular, the circuitry goes to the J input. The other inputs on the ff's get their signals from either Vcc, ground, or directly from the outputs of other ff's.

What I want you to do is to figure out on paper, what the count sequence will be for this machine. Start with 000 and follow the signals thru the gates to LSB J input. Figure out what the levels are for the other J and K inputs and then figure out what happens to the ff outputs (Q's) when the clock edge comes long. Then repeat the process. Do this on paper in a logical, methodical method and include the entire process in step and discussion form in your report. This report counts double.

In addition, on this report I want you to use the table making abilities of your word processor. No hand drawn tables. Feel free to put the tables inside of text boxes so that you can place them anywhere in the report the way I do. You need to learn how to use these different abilities so you can have them for later courses where they are required, i.e., the senior project.

Once you have predicted the count sequence (i.e., where does it start to repeat itself from), step two has you connecting the circuit and simulating it. (page 2) Don’t forget to make the default instrument setting changes as always. Also, don't forget to have Vcc and digital ground be the 1st things you place in the circuit.

Step three. This is a design step. At the bottom of the page you will see 9 different count sequences. You will design a state machine to perform one of them. The one that is assigned to you is based on the last digit of your social. My last digit is a 3 so I would do sequence 3. Your design should follow the same exact process as tutorial #1. Your report should read about the same way as the tutorial. If I note that you could have simplified your machine (while staying within the given specs) and you didn’t, you loose points (lab points, not necessarily report points). I will be using your NEATLY DRAWN k-MAPS TO FIGURE THIS OUT.

Please use red to write the min-term numbers in the cells which are illegal states, while black for the min-terms which are legal states.

Formal report required, tables must be computer generated, and counts double. You can still draw k-maps and circuits by hand, but you MUST BE NEAT. Now, Intro # 3 for the project.

I will be posting a new project main document sometime next week. The only things which will change are the things about groups so that everyone will note that the locals are treated the same as the virtual’s.

One other item will change. Every semester, I get several projects without names.

I will formally put everyone on notice that if the project comes in without name and site on it, it is officially mine, and you officially didn't turn in a project. There shouldn't be a big deal about getting a folder sticky and sticking it to the bottom of the project with the necessary info on it.
But every semester, people don't bother.

There aren't any wire-wrap sockets for an LCD, but you should have noted several ways that students have done their LCD's.

One way is to take two 40 pin WW sockets (20 to a side) and then spread them out and use on side of each for the LCD.

Another cheaper way is to take one 40 pin socket and use a hacksaw to cut it in half length wise and then you have two WW strips for the LCD.

Note that your circuit will have 4 wires to the outside world, Vcc, ground, phase a and b. Note that one of the projects used insulated phone wire bundles. The wire is color coded and all but 4 wires on each end were cut down to the insulation so they didn't get in the way. The wires have to be flagged in some manner so that I now which are which. If I can't figure it out, I return the project untested.

Note that in a couple of pictures, a label was placed on the project where the wires left and they were identified there. This is ok as long as the wires are color coded. Note the length of these wires in the pictures. Give me room to connect up to my test bench (see pictures).

Another way is to flag each wire with a masking tape flag/label. Make sure that you protect your circuit from idiot profs who hook Vcc and ground up backwards. As a matter of fact, after I test your circuit I do the following: If the circuit worked, I switch Vcc and ground and see what happens. If your chips blow up or heat up, you BLEW it. pun intended.

Will a diode prevent this?

Yes.

Note the bottom of the projects. Some have plexiglass, some are in boxes, etc. If plexiglass, it must be mounted on posts. I must be able to see the wire-wraps. If in a box, I must be able to see the top of the project and be able to get at the bottom. It must be HINGED. In the past, I have received tupperware containers. Not what I want.

Notice: The BEST WORKING project gets the following offer (one virtual, one local ) in exchange for the donation fo the project, the designer gets a SOLID A for the course. i.e, all other grades are forgiven in 315.

That’s ONE project and it must WORK! If the best turns me down, I don’t go to the second best. We keep these for accreditation.

We will talk about wire-wrap techniques and rules next week.

Remember that the project starts the following Monday.

I believe that except for wire-wrap, I have covered all project items.

Can we get the driver for the LCD from JDR. I think I checked Digi-Key before and the part number didn’t work.

Try the links on the hardware page. They bring up the actual catalog pages of the chips and the lcd as well as the data sheet.