

In this assignment, you're going to design the control circuit for a soda vending machine. The machine using a coin receptacle with the ability to accept nickels and dimes, but nothing else. This receptacle has two wires that will provide the controller with two input signals with the following meaning:

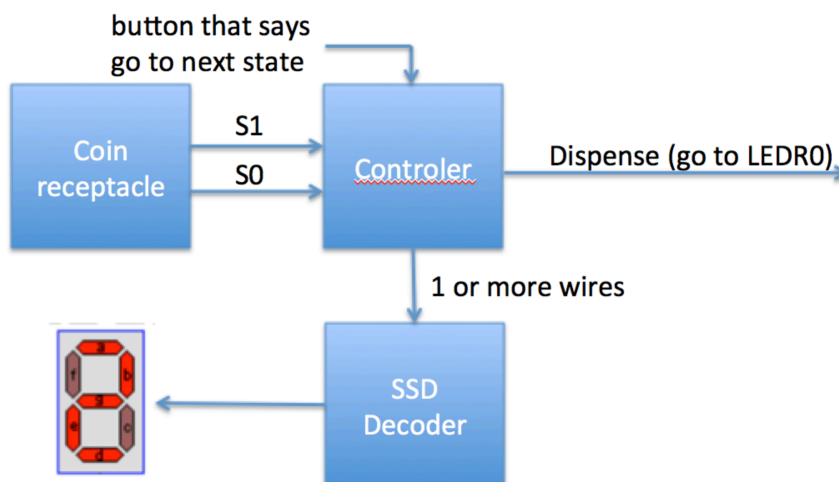
S1	S0	Meaning
0	0	no coin inserted
0	1	nickel inserted
1	0	dime inserted
1	1	reset / return your money

There is also a separate button on the machine that would need to be pressed to allow the control unit to accept each coin. So the machine would work like this, you put in a coin, and then push the button, put in the next coin, and then push the button ... if that makes sense. (this is a limitation because of how we are doing this on the FPGA, and to keep the complexity lower)

A soda costs 15 cents (there is only one type of soda in the machine). The coins can be entered in any order, and also, if you don't put in exact change, that is ok, it will still dispense the soda once it receives at least 15 cents, but it will not return the overage.

Finally, the controller has an output signal that indicates "dispense" that is fed into the rest of the machine. Your job is to build the controller that will take as inputs two control signals from the coin receptacle (which you can implement as SW1 and SW0 for S1 and S0, respectively). Also KEY0 (which is a push button switch), is the button that would be pressed to cause the controller to change states after each coin is inserted. And there is a single output from the controller, dispense (or D) that would be fed into LEDR0.

You must use a seven segment display and decoder for displaying the state of your state machines on HEX0, so that you can more easily debug it.



**Submission: (no late work accepted, under any circumstances)**

Also, prior to the due date and time (see the date specified on Moodle), **upload your project into Moodle**. This will be a zip file that contains the **entire project directory structure**. It will be named userid-210-HW03.zip, where userid is your userid. **Make sure you check two things afterwards:**

1. That the file was actually uploaded correctly to Moodle.
2. **That when you download your submission from Moodle, that you can save it in a temporary location on your laptop, and actually unzip, load, and execute it on the Altera DE0-CV board. (if I can't do this with the zip file you submit for ANY reason, you will lose significant credit for the assignment.)**