**CSE 232 SPRING 2020**

**PROJECT 1**

**Due Date May 20, Wednesday**

You will design an FSM controller using Logisim program. This will be a game implementation. In this game, you use 7 LEDs and two buttons for two players. The game starts with the led in the middle turned on. One user tries to shift the ON led to left while the other tries to push it to right. The one pushing the button faster wins the game. Winning occurs when the turned on led is at the rightmost or at the leftmost position. Do not forget to consider the cases when both players push the buttons at the same time or they do not push at all.

Your FSM controller has two button inputs as B1 and B2. It has 7 outputs one for each led. Also there will be a reset input to start a new game.

1. Decide states and draw the state diagram for your FSM controller.
2. Draw truth table.
3. Derive Boolean expressions from the truth table.
4. Draw the circuit on Logisim.
5. Simulate and see whether it works. If it does not turn back to previous stages and check each carefully.
6. You get low credits if it does not execute in Logisim.
7. Submit your report including all the above stages (from 1 to 5) to the given submission link. Also submit your Logisim .circ file. Please indicate which parts of the project work and which ones do not precisely in your report.
8. It is not a group project. Cheating results in -100.