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Seongwoo Choi
scho29@ucsc.edu
CMPE - 012
M/W 2:00PM - 4:00PM
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Title:
Silly Game

Purpose:
The purpose of the laboratory assignment 2 is to use MultiMedia Logic to create a Tic Tac Toe game.

Procedure:
The methodology of using MultiMedia Logic software to build a tic tac toe game. First, scheme through the lab 2 document and then find out how a tic tac toe game works. Second, draw a tic tac toe game on a piece of paper and then translate it to the MultiMedia Logic layout. Third, on MultiMedia Logic software, test the logic circuit and make sure the result works with corresponding to the design that was created before translation.

Algorithm and Other Data:
In order to create a Tic Tac Toe game, it was important to understand how a Tic Tac Toe game works. A tic tac toe game is when there are three O's in a row vertically, diagonally or horizontally, three O's should be there to win the game. This works as same as when there are three X's. First, draw a Tic Tac Toe game on a piece of paper like how people usually draw tic tac toe game on the board or a piece of paper and write down the first column as A and the next column as B and then C. Underneath A, there is D and on the next column where there is B draw E on underneath B. In total, there are A to I alphabets.

| A	B	C
D	E	F
G	H	I

The lab problem was the algorithm behind the tic tac toe. Because the tic tac toe game works very different from the lab 1, it was necessary to design the logic circuit for every circumstance. For instance, it took one page to draw logic circuit if O wins and another page when X wins. It was hard to put everything in one page. In order to make those separate pages to work as one logic circuit board, it was necessary to use sender functions and receiver functions. The sender

function sends information of one logic circuit or data from one page to the other. The receiver function receives the data that sender function sent.

Every time when O wins there are in total of 8 possibilities. It is important to consider all the all the cases in which each player could win.Those possibilities are when ABC, DEF, GHI, ADG, BEH, and CFI. When there are three O's on these sections, O wins and X wins vice versa. On a page, it was necessary to draw these possibilities into logic circuit. For 'X' nodes and 'O' nodes each were given either 1 or 2. This means that A has either A1 or A2. A1 is for when X wins and A2 is for when A2 wins. Every alphabetical letter has two numbers, each represents O and X.

Revision:
To put the logic circuit to run properly, it was necessary to connect all the possibilities into one and then put those possibilities into a logic circuit. For instance, A1, B1, and C1 will be one group and D1, E1, and F1 will be other group and G1, H1, and I1 will be another. Those groups, then, joined by AND gates.
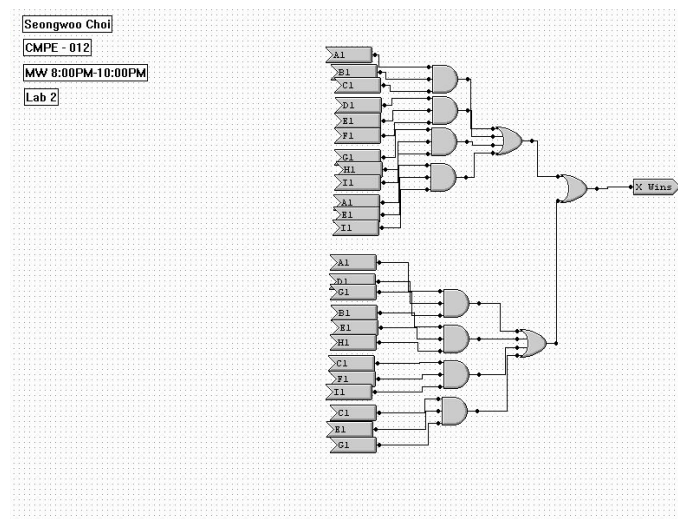
Moreover, there are in total of 8 cases that the user can win. There should be 3 receivers in 8 groups. Those possibilities are joined with AND gates and then they are connected to OR gates and another OR gate. This creates a truth table when there are at least one row that has made X to win. OR gate tells if any of those cases meets a 'X wins' possibility.

What did you learn from the lab?
It was easy to create a logic circuit in this lab. However, it was very hard to figure out how to do that in the beginning. Figuring out how to connect those circuits into one was confusing. Later, this lab made it easy to figure out how to put those circuits into one.

Draw some conclusions you came to from building a basic game using logic.

In the beginning, it was hard to understand how this logic circuit works. Moreover, the logic circuit was very complicated since the logic circuit was divided into segmented and it was necessary to design each case where an user can win. In addition to that, adding some transitions, for example, adding sound effect each time when an user wins was very hard. However, it was actually simple to do. Creating a basic game using MultiMedia Logic was pretty easy.