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10/02/2017

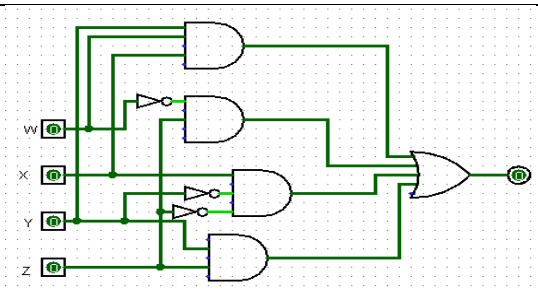
LAB 3 WRITE UP

Title: CS1026 Lab 3

Date: 10/02/2017

Aim: To design a circuit to implement F(W,X,Y,Z) = $\sum_m$ (1,4,5,11,12,14,15) and $\sum_{md}$ (2,3,7,9).

Logic Diagram:



Karnaugh Map:

YZ \ WX	00	01	11	10
00	0	1	-	-
01	1	1	-	0
11	1	0	1	1
10	0	-	1	0

Analysis:

- I began by designing the Karnaugh map above
- Then, I grouped the 1's together in groups of 2^n using the don't cares also
- From this I extracted a Boolean solution to the function using the variables W,X,Y,Z
- Following this I then built a circuit to implement this solution using Logisim
- I then tested it with using the variable inputs W,X,Y,Z to see if it was giving the desired output for each of the stated minterms

Boolean Algebra:

F = (W'Z) + (YZ) + (XY'Z') + (WXY)