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EECE 2060/Lab 2
Sept. 10, 2017

Report Due:
Sept. 11, 2017

Tire Pressure Indicator

Project Design Report

Start time: 6:00 pm

Requirements:

- Summary - Three inputs (A, B, and C) must generate three different outputs (L, M, H) based on inputs.

- Inputs: A, B, C

- Outputs: L, M, H

- Output Possibilities
  - L is logic 1 (H and M are Ø) when ABC <= 2 (i.e. ABC = 000, 001, 010)
  - M generates logic 1 (L and H are Ø) when 2 < ABC < 5 (i.e. ABC = 011, 100)
  - H is logic 1 (L and M are Ø) when ABC > 4 (i.e. ABC = 101, 110, 111)

- A, B, C are switches while L, M, H are LEDs

Design:

- Truth Table -

A	B	C	L	M	H
0	0	0	1	0	0
0	0	1	1	0	0
0	1	0	1	0	0
0	1	1	0	1	0
1	0	0	0	1	0
1	0	1	0	0	0
1	1	0	0	0	1
1	1	1	0	0	1

- Boolean Expressions -

- $A'B'C' + A'B'C + A'BC' = L$

$A'(B'C' + B'C + BC') = L$

$A'[B'(C'+C) + BC'] = L$

$A'(B' + BC') = L$

$A'(B' + C') = L$

- $AB'C + ABC' + ABC = H$

$AC(B' + B) + ABC' = H$

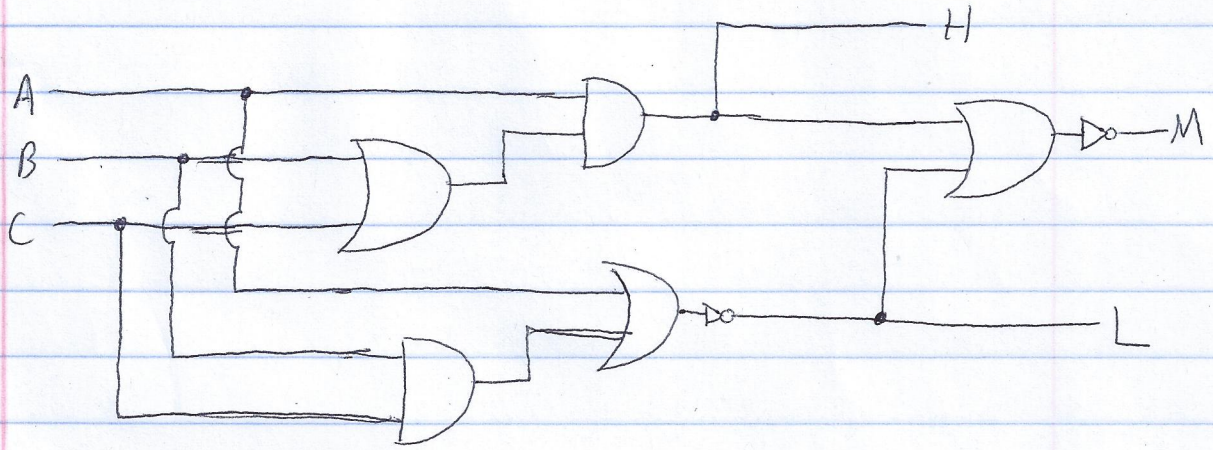
$AC + ABC' = H$

$A(C + C'B) = H$

$A(C + B) = H$

- $M = (L + H)'$

- Gate Design -



- Test Procedure:

Test #	A	B	C	Expected L	Expected M	Expected H	Actual L	Actual M	Actual H
1	0	0	0	1	0	0			
2	0	0	1	1	0	0			
3	0	1	0	1	0	0			
4	0	1	1	0	1	0			
5	1	0	0	0	0	0			
6	1	0	1	0	0	1			
7	1	1	0	0	0	1			
8	1	1	1	0	0	1			

End Time: 9:22 pm

Total Duration: 1 hr 21 min.