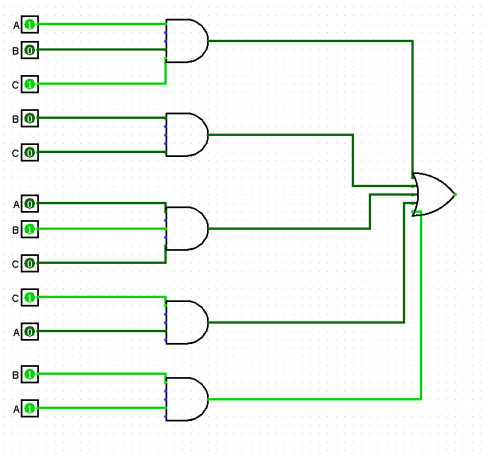


COSC 250

$$F(A,B,C) = A\bar{B}C + \bar{B}\bar{C} + \bar{A}C + \bar{A}B\bar{C} + AB$$

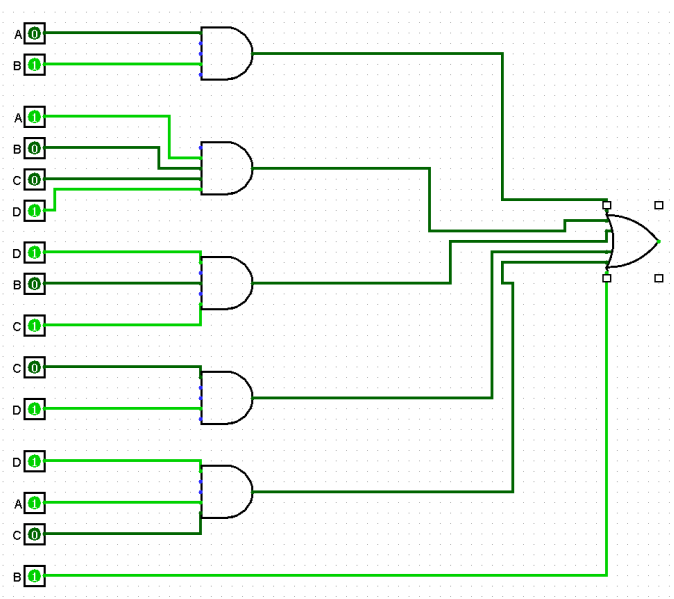
A	B	C	D	F
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1



Simplified =1



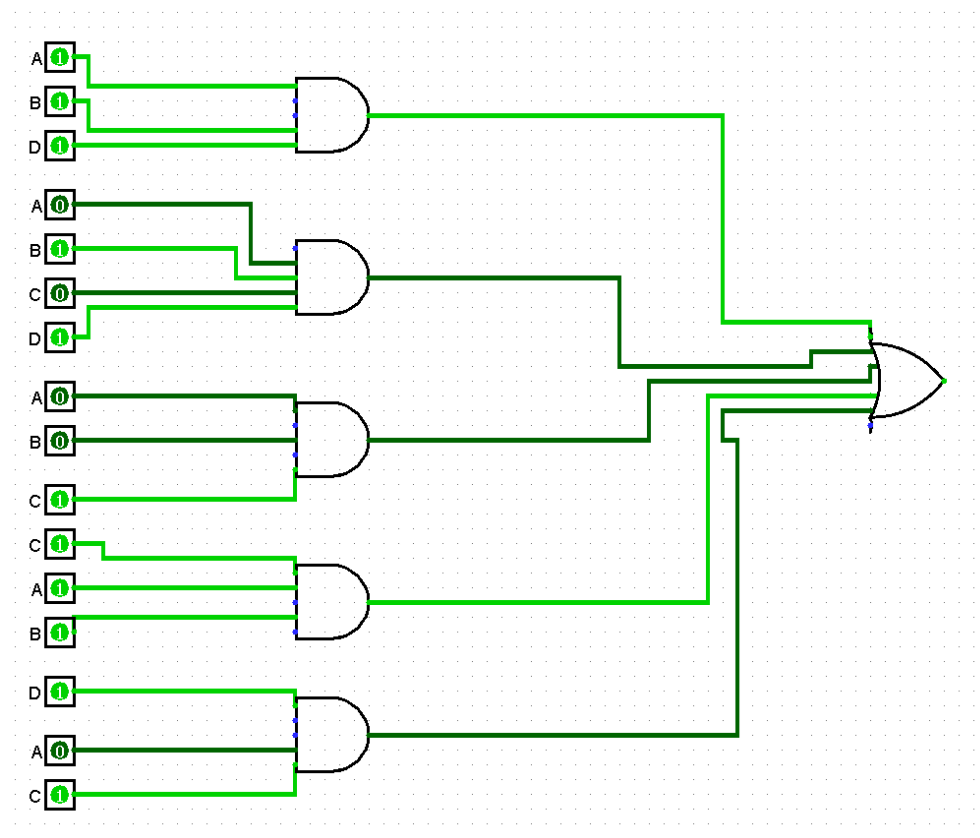
$$F(A,B,C,D) = \overline{A}B + A\overline{B}\overline{C}D + \overline{B}CD + \overline{C}D + \overline{B} + A\overline{C}D$$



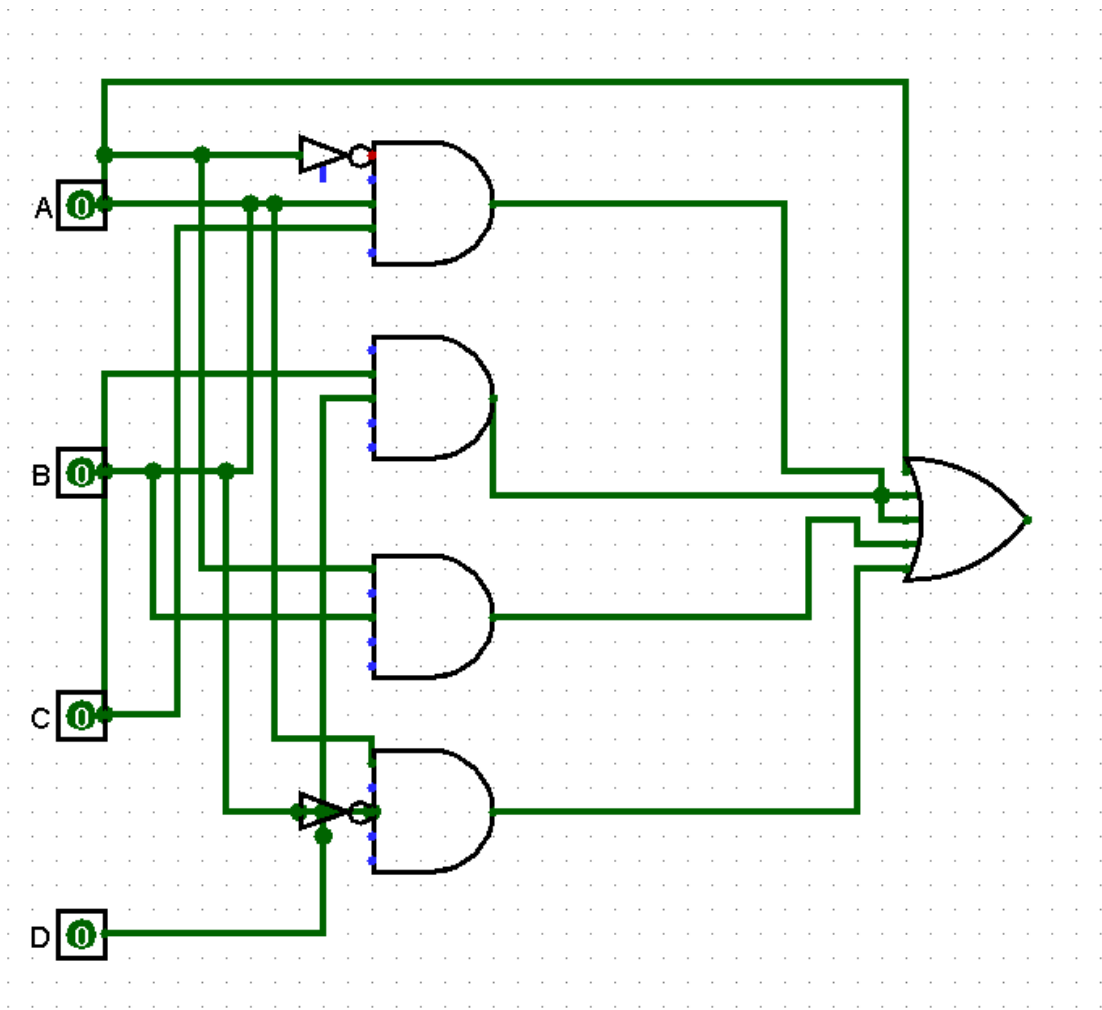
Simplified= $D+B$



$$F = A'BC'D + A'B'D + A'CD + ABD + ABC$$



Simplified= $DB+DA'+ABC$



3.

A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

$$\bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + \bar{A}B\bar{C} + A\bar{B}\bar{C}$$

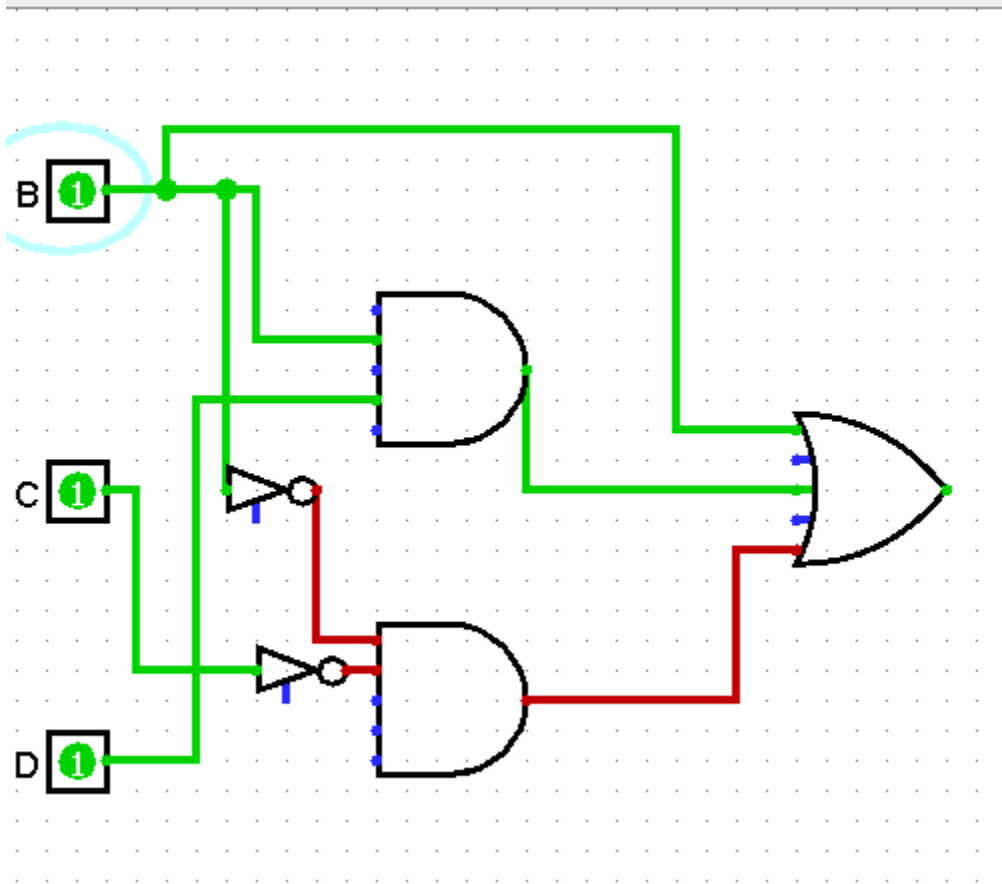
\bar{A}	\bar{B}	\bar{C}	$\bar{A}\bar{B}\bar{C}$	$\bar{A}\bar{B}C$	$\bar{A}B\bar{C}$	$A\bar{B}\bar{C}$
0	0	0	1	0	0	0
0	0	1	0	1	0	0
0	1	0	0	0	1	0
0	1	1	0	0	0	1
1	0	0	0	0	0	1
1	0	1	0	0	0	0
1	1	0	0	0	0	0
1	1	1	0	0	0	0

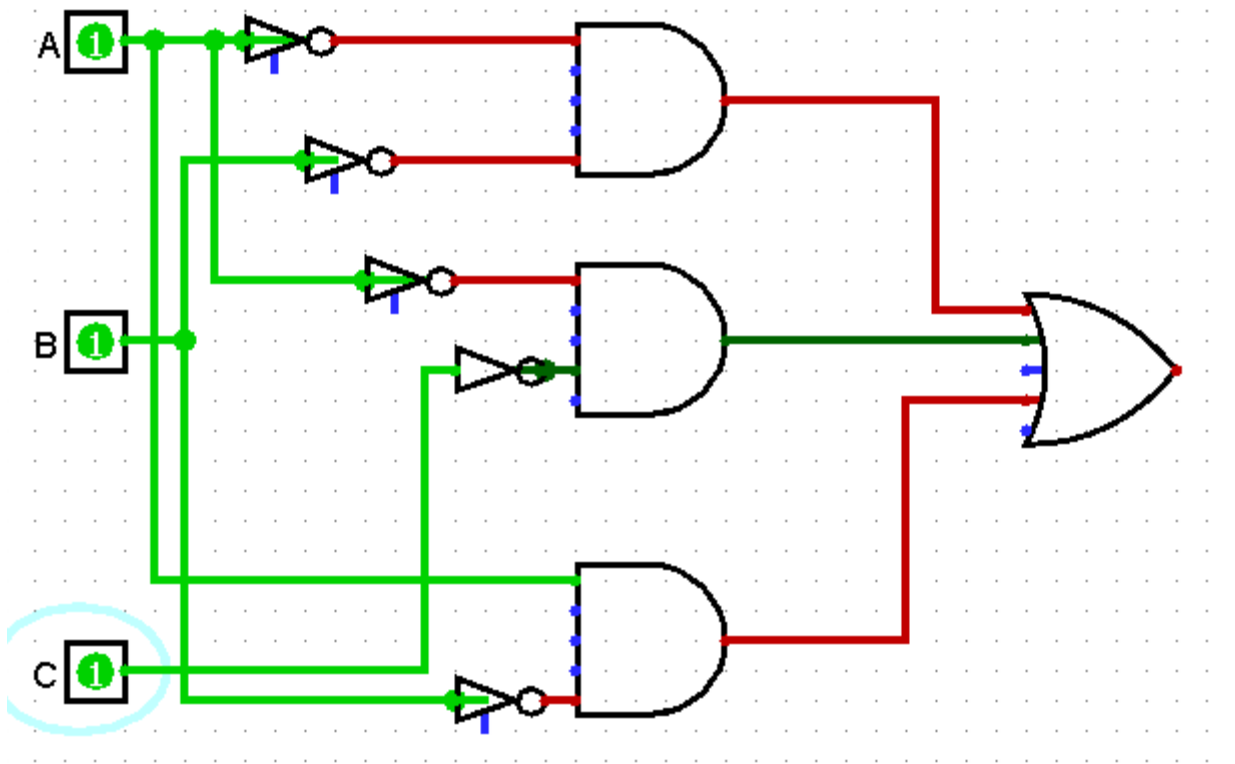
$$F = \overline{A}\overline{B} + A\overline{C} + A\overline{B}$$

$A \backslash B$	$\overline{A}\overline{B}$	$\overline{A}B$	AB	$A\overline{B}$
$\overline{C}D$	1	0	0	1
$\overline{C}\overline{D}$	1	1	1	1
$C\overline{D}$	0	0	1	0
CD	0	1	0	0

$$F = \overline{A}\overline{B}CD + \overline{A}B\overline{C}D + \overline{A}B\overline{C}D + \overline{A}B\overline{C}D$$

4.





5.

$B + B_0 + B_1C$

A	B	C	D	F
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1

$\begin{matrix} & \backslash A \downarrow B \\ C \downarrow D & \begin{array}{|c|c|c|c|} \hline 0 & 0 & 1 & 1 \\ \hline 0 & 0 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 \\ \hline \end{array} \end{matrix}$

$AB + B = A$ $A = \text{Switch}$
 $ACD + ACD = CD$ $B = \text{Sensor 1}$
 $\bar{A}BC + B\bar{C} = BC$ $C = \text{Sensor 2}$
 $F = A + BC + CD$ $D = \text{Sensor 3}$

a. .

