ASSIGNMENT-1

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Contents

Abstract

This manual explains about a logic circiut by taking two inputs A=WX and B=YZ so we comapring these two inputs and if A¿B then the function F=1 if not F=0 so for that we are deriving minimized sum of product for F:

1 Components

Component	Values	Quantity
Arduino	UNO	1
JumperWires	M-M	10
Breadboard		1
LED		1
Resistor	220ohms	1

Figure.a

2 Truth Table

W	X	Y	Z	F
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	1
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	0
1	0	1	1	0
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

Truth table Boolean Function "F"

3 K-map Implementation

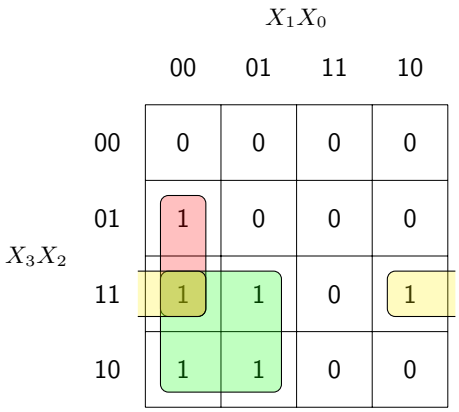
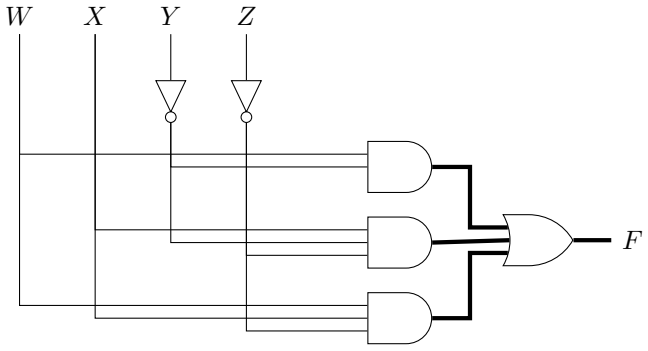


Figure.a

Reducing the boolean Function :
F=wxy'z'+wxy'z+wxy'z'+w'xy'z'+wxy'z'+wxy'z+wx'y'z'+wx'y'z
F=wxy'(z+z') + xy'z'(w+w')+ wxy'(z+z')+wx'y'(z+z')
F=wxy'+xy'z'+wy'(x+x')
Reduced expression using K-maps is
F=wxy'+xy'z'+wy'

4 logical Diagram



5 Implementation

Arduino PIN	INPUT	OUTPUT
2	W	
3	X	
4	Y	
5	Z	
8		F

Connections

Procedure :
1. Connect the circuit as per the above table.
2. Connect the output pin to LED
3. Connect inputs to Vcc for logic 1, ground for logic 0
4. Execute the circuit using the below code.

https://github.com/vaibhavapraneeth/FWC/blob/main/assignments/ide/src/assign1.cpp

Problem-2 :
1. Change the values of W,X,Y,Z in the code and verify the Truth Table