ASSIGNMENT-1

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Contents

Abstract

This manual explains about a logic circiut which implements the boolean function F=X'Y+XY'Z', where the input combination X=Y=1 can never occur. Finding the simplified expression of F:

1 Components

Component	Values	Quantity
Arduino	UNO	1
JumperWires	M-M	10
Breadboard		1
LED		2
Resistor	220ohms	1

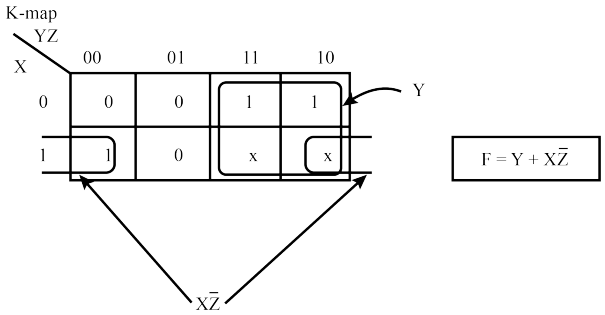
Figure.a

2 Truth Table

X	Y	Z	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	-
1	1	1	-

Truth table Boolean Function "F"

3 K-map Implementation



Reducing the boolean Function :
F=X'Y+XY'Z'
F=X'Y(Z+Z')+XY'Z'
X'YZ+X'YZ'+XY'Z'
Reduced expression using K-maps is
F=Y+XZ'

4 Implementation

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

Connections

Problem-1 :

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/aruniot099/FWC-1/blob/main/IDE/code

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