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Boolean Expression to its simplest form using K-map

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IITH - Future Wireless Communication-(FWC22032)

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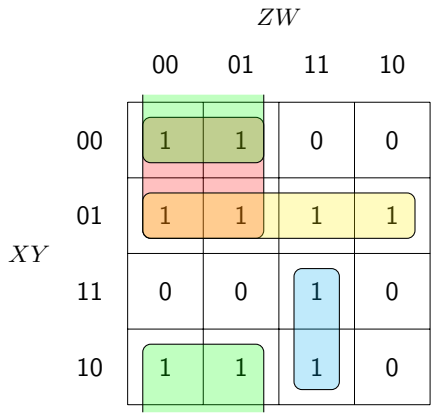
1 Introduction

K maps are used to Simplify Boolean Expressions the given Expression to solve F(X,Y,Z,W)=(0,1,4,5,6,7,8,9,11,15)

2 karnaugh-map



F=X'Z'+Y'Z'+X'Y+XZW

3 Components

Component	value	quantity
Resistor	220 ohm	1
Vaman	Esp32	1
LED		1
Bread board		1
Jumper wires	M-M	10

Table 1:

4 Truth table for given expression

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

Table 2:

5 Connections and results

Vaman	8	9	10	11	2	gnd
Input	X	Y	Z	W		
led					+	-

Table 3:

Sample input	X	Y	Z	W	LED
1	0	0	0	0	ON
2	0	0	1	0	OFF

Table 4: