ASSIGNMENT-1

Mandava.Gowthami
gowthamimandava999@gmailcom
IITH - Future Wireless Communication(FWC22033)

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Contents

Abstract

The objective of this manual is to find the Truth table and logical diagram for the Boolean Function F=XY'Z+X'Y'Z+W'XY+WX'Y+WXY.

FIGURE 2.1

1 Components

Component	Value	Quantity
Arduino	uno	1
LEd	-	1
Bread Board	-	1
Jumper wires	M-M	20

TABLE 1.0

1.1 Arduino

The Arduino UNO has some ground pins, analog input pins A0-A3 and digital pins D1-D13 that can be used for both input as well as output. It also has two power pins that can generate 3.3V and 5V.In the following exercises, only the GND, 5V and digital pins will be used.

1.2 LED
A light-emitting diode (LED) is a semiconductor light source that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons (Energy packets).

2 Implementation

2.1 Karnaugh Map

F=XY'Z+X'Y'Z+W'XY+WX'Y+WXY
F=Y'Z+YX+YW

TRUTH TABLE

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

3 HARDWARE

1. Connect the Arduino to the computer.

2. Download the following directory

   https://github.com/Gowt-hami/fwc-1-module1/tree

3. The LED beside pin 5 light up according to the input we give.

4 Circuit diagram

$$(F = Y'Z + YX + YW)$$