Boolean Logic through 7447

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CONTENTS

***Abstract*—This manual shows how to use the 7447 BCD-Seven Segment Display decoder to learn Boolean logic.**

1 Components

Component	Value	Quantity
Resistor	220 Ohm	1
Arduino	UNO	1
Seven Segment Display		1
Decoder	7447	1
Jumper Wires	M-M	20
Breadboard		1

TABLE 1.0

2 Hardware

Problem 2.1. Make connections between the seven segment display in Fig. 2.1 and the 7447 IC in Fig. 2.2 as shown in Table 2.1

7447	$\bar{a}$	$\bar{b}$	$\bar{c}$	$\bar{d}$	$\bar{e}$	$\bar{f}$	$\bar{g}$
Display	a	b	c	d	e	f	g

TABLE 2.1

Problem 2.2. Make connections to the lower pins of the 7447 according to Table 2.2 and connect V_{CC} = 5V. You should see the number 0 displayed for 0000 and 1 for 0001.

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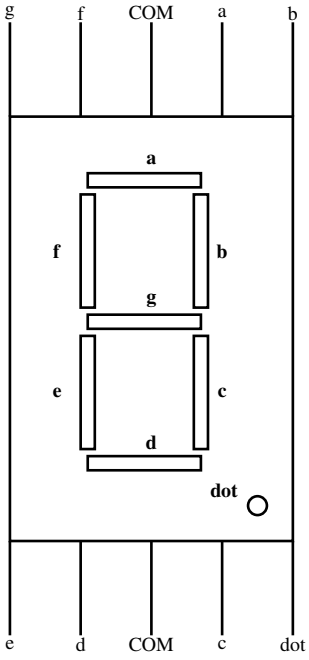

Fig. 2.1

D	C	B	A	Decimal
0	0	0	0	0
0	0	0	1	1

TABLE 2.2

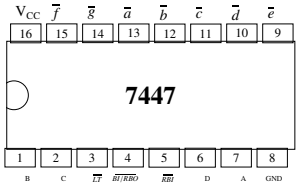

Fig. 2.2

Problem 2.3. Complete Table 2.2 by generating all numbers between 0-9.

3 Software

Problem 3.1. Now make the connections as per Table 3.1 and execute the following program after

downloading

wget

7447	D	C	B	A
Arduino	5	4	3	2

TABLE 3.1