AROR UNIVERSITY
OF ART, ARCHITECTURE,
DESIGN & HERITAGE,
SUKKUR, SINDH

Faculty of Artificial Intelligence & Multimedia Gamming

BS – Multimedia Gamming

Digital Logic Design Lab

Lab # 06: Seven Segment Display

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Submission Profile

Name: Submission date (dd/mm/yy):

Marks obtained:

Comments:

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Instructor

Lab Learning Objectives:

Upon successful completion of this experiment, the student will be able:

- Create a circuit with a BCD to Seven Segment Display Decoder and verify its truth table

Lab Hardware and Software Required:

Platform: NI ELVIS III	✔ View User Manual: http://www.ni.com/en-us/support/model.ni-elvis-iii.html ✔ View Tutorials: https://www.youtube.com/playlist?list=PLvcPIuVaUMIWm8ziaSxv0gwtshBA2dh_M
Software: NI Multisim 14.0.1 Education Version or newer	✔ Install Multisim: http://www.ni.com/gate/gb/GB_ACADEMICEVALMULTISIM/US ✔ View Help: http://www.ni.com/multisim/technical-resources/

Lab Activities:

1. Implement: Building a BCD to Seven Segment Display Decoder

BCD to Seven Segment Display Decoder

Build the following circuit:

- Click the **Misc Digital** button and from the **TTL** Group, select the **7447N Decoder.**
- Click the **Misc Digital** button and from the **Basic** Group, select the **RPACK** Family and then the **7Line_Isolated** resistor.
- Right click on the resistor and view **priorities.** Change the resistance to **220 Ω**
- Click the **Misc Digital** button from the **Indicators** Group, select **HEX_DISPLAY** and then **SEVEN_SEG_COM_A_GREEN.**
- Click the **Misc Digital** button from the **Sources** Group select **POWER_RESOURCES** and then **VCC**. Place one near the bottom of the Decoder and one near the top of the SSD.
- Place four **INTERACTIVE_DIGITAL_CONSTANTS.**
    - Change the keys for toggle to match the ones shown in the figure below.

Write them as shown:

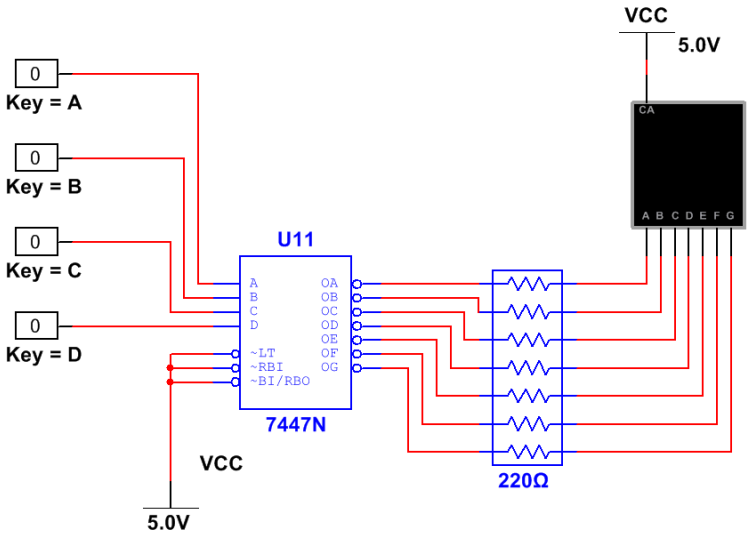

Figure 1-7 Circuit diagram

Testing a BCD to Seven Segment Display Decoder

- Run the Simulation

1-3 Vary the inputs to complete the following truth table of an SSD

D	C	B	A	a	b	c	d	e	f	g	Numeric Output
0	0	0	0	1	1	1	1	1	1	0	0
0	0	0	1								
0	0	1	0								
0	0	1	1								
0	1	0	0								
0	1	0	1								

0	1	1	0								
0	1	1	1								
1	0	0	0								
1	0	0	1								
1	0	1	0	X	X	X	X	X	X	X	none
1	0	1	1	X	X	X	X	X	X	X	none
1	1	0	0	X	X	X	X	X	X	X	none
1	1	0	1	X	X	X	X	X	X	X	none
1	1	1	0	X	X	X	X	X	X	X	none
1	1	1	1	X	X	X	X	X	X	X	none