Implementation of 8 Input comparator

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Contents

Abstract

Design a sequential circuit that take(A3 A2 A1 A0) and (B3 B2 B1 B0) compares both A and B.The output should be 1.A<B, 2.A>B, 3.A=B on seven segment display.

1 Introduction

A comparator is an electronic circuit, which compares the two inputs that are applied to it and produces an output. The output value of the comparator indicates which of the inputs is greater or lesser. Please note that comparator falls under non-linear applications of ICs.

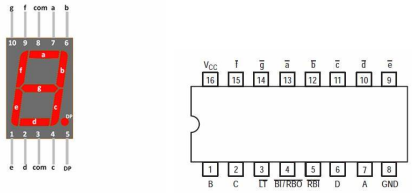
2 Components

Component	value	quantity
Resistor	220 ohm	1
Arduino	UNO	1
decoder	7447	1
Jumper wires	M-M	20
sevensegment display		1
Bread board		1

Table 1:

3 Hardware

3.1 Connection between the sevensegment display and 7447 IC in Figure 1 using Table 2.



7447	a'	b'	c'	d'	e'	f'	g'
Display	a	b	c	d	e	f	g

Table 2:

Figure 1:Sevensegment and 7447 IC.

3.2 connection of lower pins of 7447 IC to the Arduino according to Table 3 and connecting VCC,GND of IC to 5V,GND of Arduino respectively.

7447	D	C	B	A
Arduino	10	11	12	13

Table 3:

3.3 Finally, give connections to the arduino and inputs based on table 4.

Input	A0	A1	A2	A3	B0	B1	B2	B3
Arduino	2	3	4	5	6	7	8	9

Table 4:

4 Implementation

4.1 By making Logic circuit based on comparator logic we get the circuit as in figure 2.

4.2 The code below realizes the 8 input comparator.

https://github.com/hari1847/hari/tree/main/assembly/codes

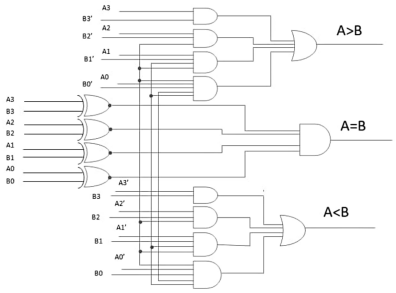


Figure 2