CSE260 LAB Report

Experiment Name:- Parity Generator and Checker

Submitted by:

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Section : 10

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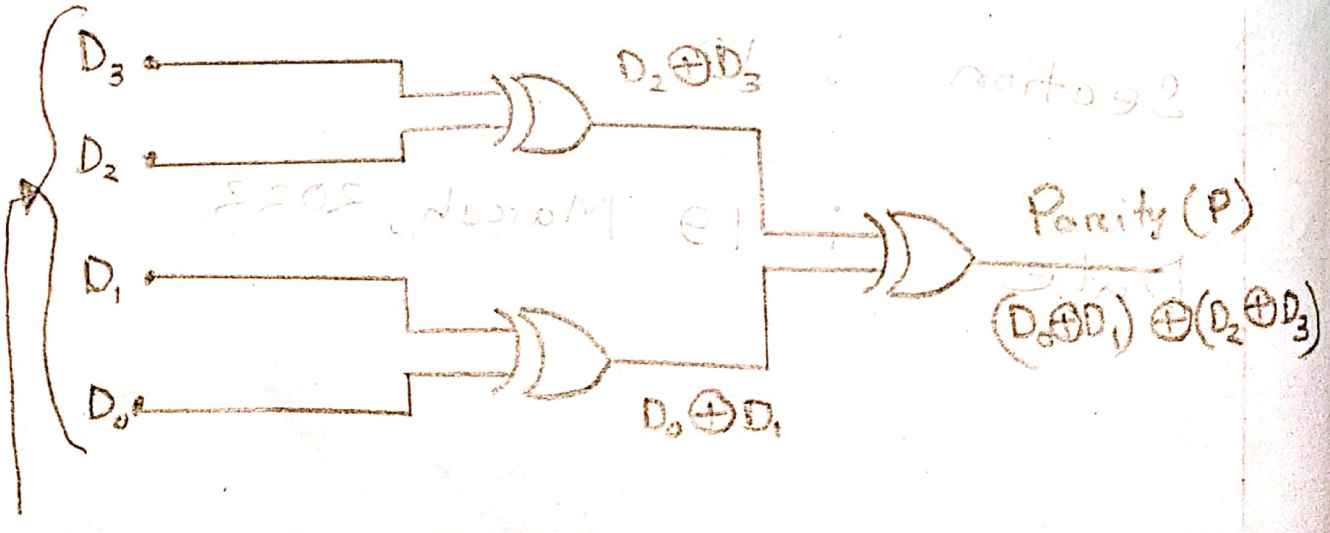
Objective:- To design and implement an Even Parity Generator and Even Parity checker using XOR gates (IC-7486)

Required Components and Equipments:-

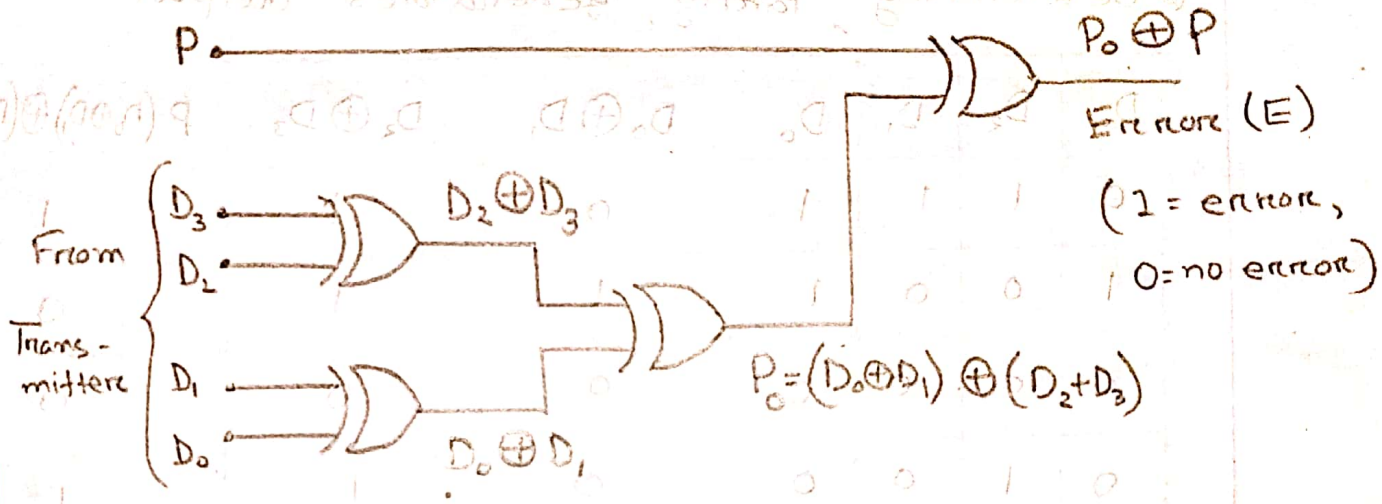
1. AT-700 Portable Analog / Digital Laboratory
2. 7400 × 4
3. Wires

Experimental Setup:-

⊛ Even Parity Generator ⇒



⊛ Even Parity Checker :-



Now, we have to construct the figures on the bread-board of AT-700. We need to remember that, each IC's pin 14 is connected to '+5V' position of DC power supply, of AT-700, and pin 7 is connected to 'GND' position. Now, connecting the inputs to Data Switches and outputs to any position of LED display, we need to generate the parity bit for ⇒

a) 0111 , b) 1001 , c) 0000 , d) 0100

And also check the parity for ⇒

P	D_3	D_2	D_1	D_0
0	1	0	1	0
1	1	1	1	0
1	1	1	1	1
1	0	0	0	0

Result:-

⊛ Determining Even Parity generator's output

D_3	D_2	D_1	D_0	$D_0 \oplus D_1$	$D_2 \oplus D_3$	$P=(D_0 \oplus D_1) \oplus (D_2 \oplus D_3)$
0	1	1	1	0	1	1
1	0	0	1	1	1	0
0	0	0	0	0	0	0
0	1	0	0	0	1	1

⊛ Determining Even Parity checker's output

P	D_3	D_2	D_1	D_0	$D_0 \oplus D_1$	$D_2 \oplus D_3$	$P_0 = (D_0 \oplus D_1) \oplus (D_2 \oplus D_3)$	$E = P_0 \oplus P$
0	1	0	1	0	1	1	0	0
1	1	1	1	0	1	0	1	0
1	1	1	1	1	0	0	0	1
1	0	0	0	0	0	0	0	1

Discussion:-

While determining the Even Parity Generator's output, I have noticed that, whenever I have Even number of 1's in ~~by~~ my data, the Parity Bit is 0. For odd number 1's, the Parity Bit is 1 to make the number of 1's even.

Then, while checking the Even Parity Bit, I firstly generated the Parity for the transmitted data. Then I operated an X-OR operation with my derived Parity and the given Parity bit. Here, if the result is 0, there will be no error, meaning the Parity is correct. And 1 for otherwise. After getting the results, I got to know that for 1010 and 1110 there were no error. But there were errors for 1111 and 0000 in the given data, because their Parity Bits didn't match.