

CS224: Assignment 2

Weightage: 8%

Date of Demonstration: 28th January 2025 (3PM-6PM) in H/W Lab.

Problem Statement: Design Gray code to Binary code conversion circuit.

Decimal number	Gray				Binary			
	g_3	g_2	g_1	g_0	b_3	b_2	b_1	b_0
0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	1
2	0	0	1	1	0	0	1	0
3	0	0	1	0	0	0	1	1
4	0	1	1	0	0	1	0	0
5	0	1	1	1	0	1	0	1
6	0	1	0	1	0	1	1	0
7	0	1	0	0	0	1	1	1
8	1	1	0	0	1	0	0	0
9	1	1	0	1	1	0	0	1
10	1	1	1	1	1	0	1	0
11	1	1	1	0	1	0	1	1
12	1	0	1	0	1	1	0	0
13	1	0	1	1	1	1	0	1
14	1	0	0	1	1	1	1	0
15	1	0	0	0	1	1	1	1

Implementation using Breadboard and ICs

Consider the above Gray code to Binary code conversion where input is a 4 bits Gray code and output is a 4-bit Binary code. Implement and Demonstrate this code conversion. You are only allowed to use 2 inputs gates like (AND, OR, NOR, NAND gates).

Use the corresponding ICs. For a variable (a), either produce its complement (a') using some gates or assume both are available at the input. Use whatever is convenient to you.

Guidelines:

- All the member of the group need to be present at the time of Demonstration of the assignment. All the absent members will be awarded 0 marks for the assignment. Please show your ID card at the time of demonstration.

- the grading will be based on (a) Correctness, (b) Quality of design, (c) Wire optimization, (d) Optimum number of chip used, (e) Cleanliness in design (Wire and Chips should be organized to look good), (f) Use of proper Comment/Naming/Labeling of the wires and (g) Questionnaire and explanation.
- In the report, draw a clear diagram of your code conversion circuit. Explain the steps followed to obtain the optimized design. Credit will be given to optimized design. Clearly mentioned the IC used in your experiment.
- Read the topic from Kohavi's book before implementing the same.
 - Z. Kohavi and N. Jha, Switching and Finite Automata Theory, 3rd Ed., Cambridge University Press, 2010.