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CLASS: 215-A

UID: 21BCS2062

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EXP NO: 1.3

AIM:

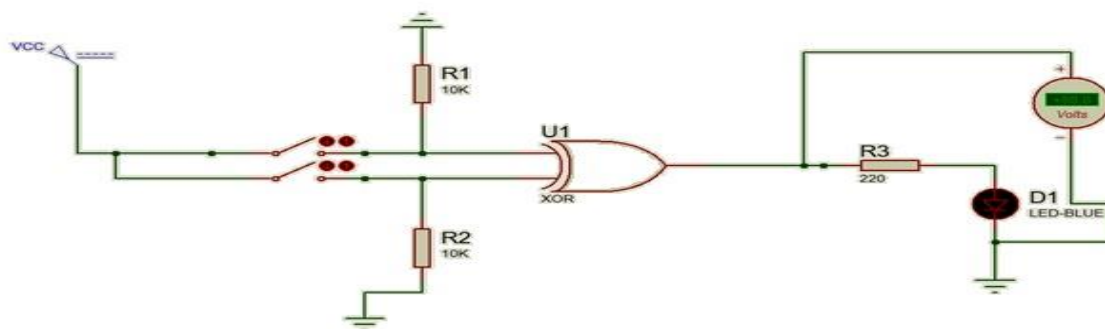
- 1. Design a two-way switch for room light (XOR).**
- 2. Design a multiplayer game trigger mechanism (NOR).**

PRACT:1

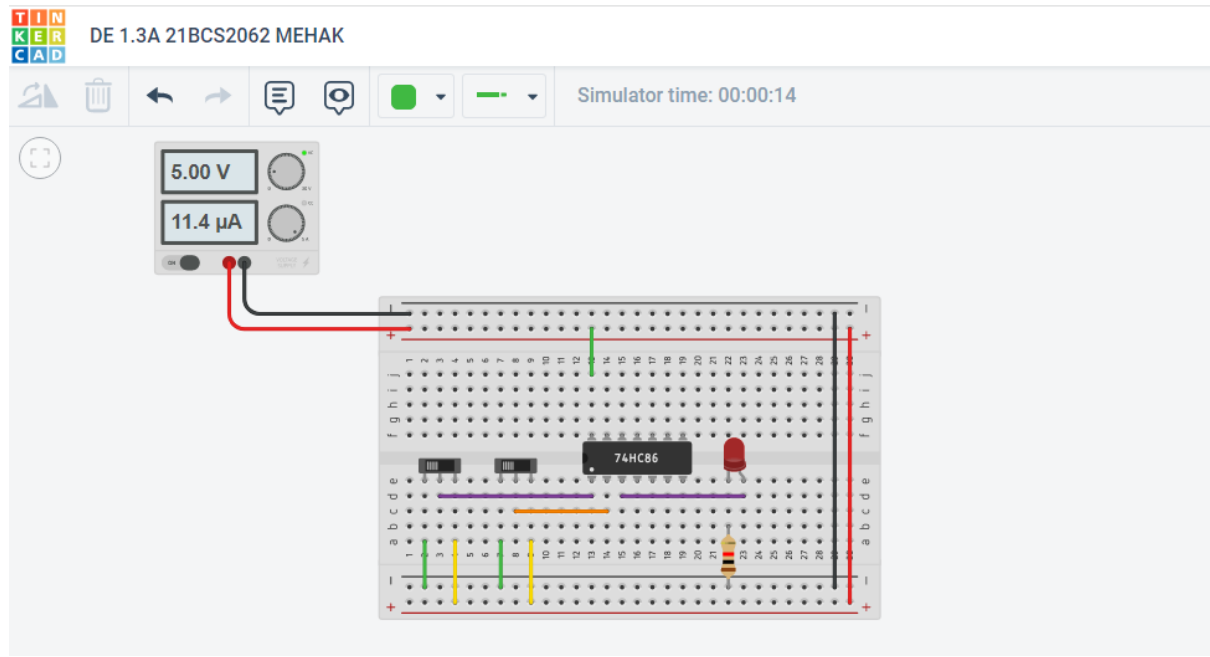
TASK TO BE DONE: A two-way switch for room light.

REQUIREMENTS: 7486 (XOR) IC, 5V Power Supply, Breadboard, Connecting wires, Simulation software, Windows 10 PC.

CIRCUIT DIAGRAM:



SIMULATION RESULTS:



CONCEPT USED: The Exclusive-OR logic function is a very useful circuit that can be used in many different types of computational circuits. There are two other types of digital logic gates which although they are not a basic gate in their own right as they are constructed by combining together other logic gates, their output Boolean function is important enough to be considered as complete logic gates. These two “hybrid” logic gates are called the Exclusive-OR (Ex-OR) Gate and its complement the Exclusive-NOR (Ex-NOR) Gate. The output of an Exclusive-OR gate ONLY goes “HIGH” when its two input terminals are at “DIFFERENT” logic levels with respect to each other. An odd number of logic “1’s” on its inputs gives a logic “1” at the output. These two inputs can be at logic level “1” or at logic level “0” giving us the Boolean expression of:

Input A	Input B	Output
0	0	0
0	1	1
1	0	1

DIGITAL ELECTRONICS LAB WORKSHEET

1	1	0
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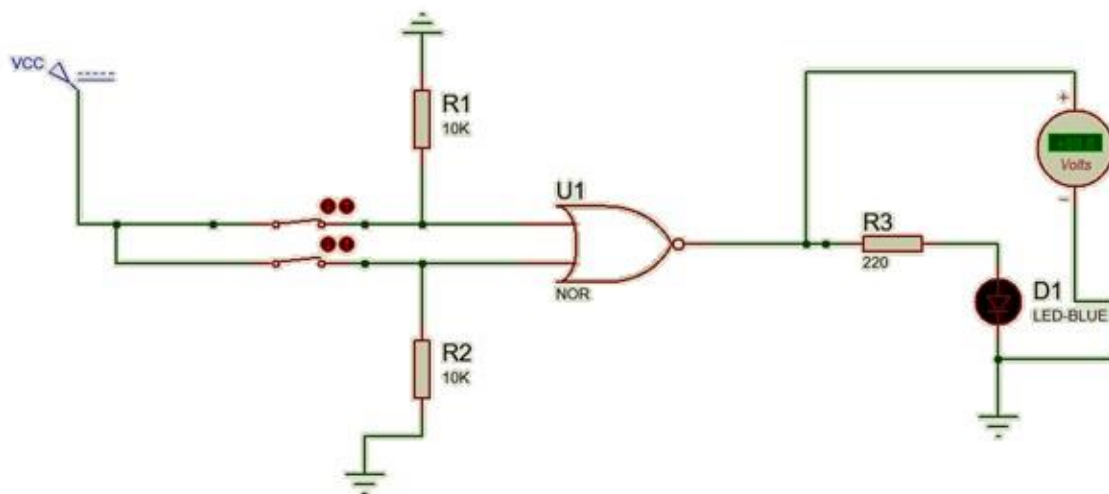
LEARNING/ OBSERVATION: I learned how to make a two-way switch for room light using XOR gate.

PRACT 2:

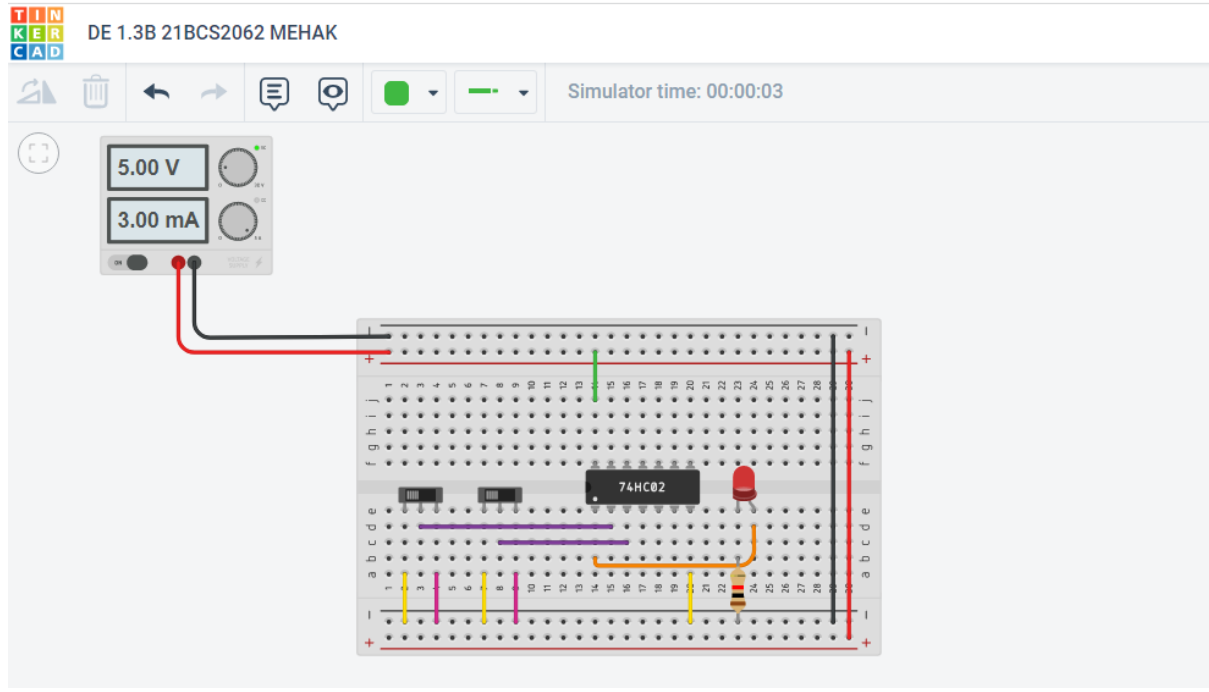
TASK TO BE DONE: A multiplayer game trigger mechanism.

REQUIREMENTS: 7402 (NOR) IC, 5V Power Supply, Breadboard, Connecting wires, Simulation software, Windows 10 PC.

CIRCUIT DIAGRAM/ BLOCK DIAGRAM:



SIMULATION RESULTS:



CONCEPT USED: The Logic NOR Gate is a combination of the digital logic OR gate and an inverter or NOT gate connected together in series. The inclusive NOR (Not-OR) gate has an output that is normally at logic level “1” and only goes “LOW” to a logic level “0” when ANY of its inputs are at logic level “1”. The Logic NOR Gate is the reverse or “Complementary” form of the inclusive OR gate. The NOR gate can also be classed as a “Universal” type gate. NOR gates can be used to produce any other type of logic gate function just like the NAND gate and by connecting them together in various combinations the three basic gate types of AND, OR, and NOT function can be formed using only NOR gates. When both player is active then led glow and buzzer start. When one player is there on game, do not get start both players should be inside the game.

Input A	Input B	Output
0	0	1

DIGITAL ELECTRONICS LAB WORKSHEET

0	1	0
1	0	0
1	1	0

LEARNING/ OBSERVATION: I learned how to make a multiplayer game trigger mechanism using NOR gate.