PROJECT REPORT

DD LAB

Digital Design lab report

BACHELOR OF TECHNOLOGY

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

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LED CHASER CIRCUIT

Aim : Led chaser Electronic circuit using 555 timer IC and 4017 IC

Components Required :

1. 555 timer ic – 1
2. LED lights - 10
3. CD 4017 IC - 1
4. 1k (2) and 47k (1) resistors
5. 1uF capacitor – 1
6. Bread Board - 1
7. Connecting wires – 1
8. 9V power supply – 1

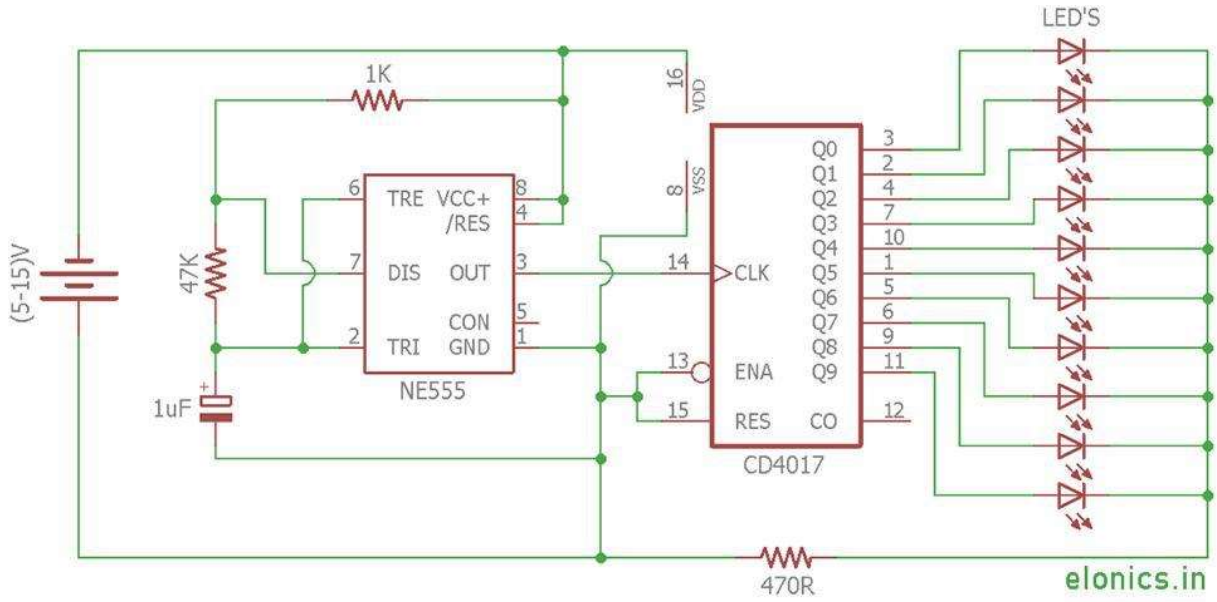
Introduction :

The LED chaser circuits are the most commonly used integrated electronic circuits. They are immensely used in various applications like in Signals, Words Formation system, display systems etc. the 555 timer IC is con!gured in astable state mode. The output of circuit changes continuously from its decoding and encoding phases. By that way the LED chaser circuit makes transition from one stable state to the other and vice versa. So let’s make our project and understand how our circuit is working.

Working Principle :

The rise and fall of the current across the LED is regulated by the proper terminology of 555 Timer IC. By default the !rst output of the circuit LED is at the rest or OFF. Whenever the clock is applied and trigger is simulated externally the shifting and transition of LED blink and *ash takes place, this swapping of output is termed as the chaser circuit. Let's make our project and understand its functioning practically.

Circuit Diagram :



LED CHASER SCHEMATIC

Procedure :

1. Place the 555 Timer IC on the Bread Board With Its Notch Facing Up.
2. Now Connect Pin 16 of 555 Timer IC to the Negative Rail and Pin 8 to the Positive Rail of the Bread Board
3. Now Place the Bread Board Connectors Between Pin 2 and 6 of the IC and Another One to the Pin 4 and 8
4. Now Place 1uF Capacitor With Its Negative Terminal Connected to the Pin of the IC and Positive Terminal to the Pin 2 of the IC.
5. Place 1k Ohm Resistor on the Bread Board With Its Terminal Connected to the Pin 7 and 8 of the IC.
6. Now Place 47K Ohm Resistor Between Pin 6 and 7 of the 555 Timer IC
7. Place 4017 IC on the Bread Board With Its Notch Facing Parallel to the 555 Timer IC
8. Connect Pin 16 of the 4017 IC to the Positive Rail of the Bread Board and Pin 8 to the Negative Rail
9. Connect Bread Board Connectors Between Pin 8 and 13 of 4017 IC and Another Between Pin 8 and 15.
10. Place 1k Ohm Resistor on the Bread Board With One of Its End Connected to the Positive Rail and Other End to Parallel.
11. Now Connect Pin 3 of the 4017 IC to the First LED, Pin 2 to Second LED, , Pin 4 to the 3rd LED, Pin 7 to the 4th LED,
12. Further Connect 5th, 6th, 7th, 8th, 9th and 10^{th}.
13. Now Connect the Power Supply As Shown in the Figure Below to the Respected Rails of the Bread Board.
14. Now Our LED Chaser Circuit Is Ready

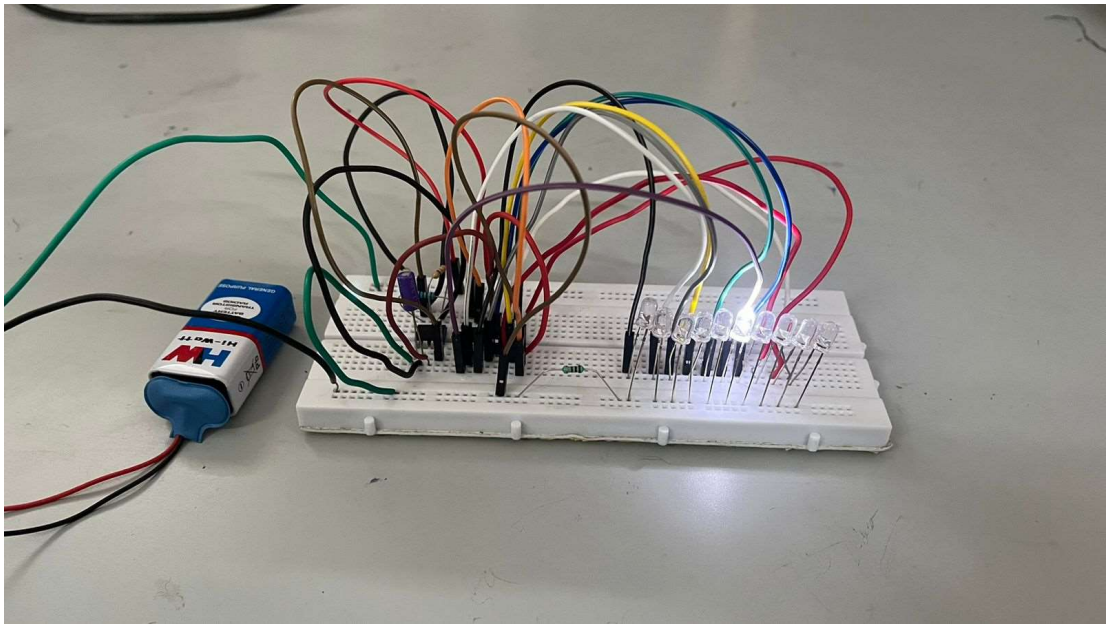


Fig. Led Chaser Circuit

Advantages of LED Chaser Circuit :

Advantages of LED Chaser Circuit are Low energy consumption, Long lifespan, Easy to customize, Visually appealing, Simple to construct.

Disadvantages of LED Chaser Circuit :

Disadvantages of LED Chaser Circuit are Limited brightness range,Possible flickering issues, Limited color options.

Result : The State of the LED Will Shift From One to Other With the Applied Trigger at the Input Side of the IC.

Conclusion : In conclusion, the LED chaser circuit is a simple and effective way to create beautiful lighting effects. The circuit requires a few basic components and can be easily built on a Bread Borad or PCB. The LED chaser circuit can be used for various applications such as decorative lighting, advertising, and entertainment.