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University of Information Technology & Sciences

Assignment

Course Title: Digital Logic Design

Course Code: CSE0611216

Assignment Name: 7 Segment Display

Submitted To:

Ratri Datta

Lecturer

University of Information Technology and Sciences

Submitted by:

Name: Saha Pradyumna Prasad

ID: 0432410005101159

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Assignment: Design a 7 Segment display .

Objective:

A 7-segment display is an electronic display device used to represent decimal numbers and some letters. In Tinkercad, you can create circuits that utilize 7-segment displays, allowing for visual representation of data through simple coding and circuit design.

Equipment:

1.Bread Board

2.7 segment display(Cathode)

3.Switch(2x)

4.Power Supply Board

Steps:

Set Up the Breadboard:

Place the breadboard on a flat surface. Ensure you have enough space for the 7-segment display and other components.

Insert the 7-Segment Display:

Insert the 7-segment display into the breadboard. Make sure the pins are aligned with the breadboard's rows.

Identify the Pins:

Identify the pins of the 7-segment display. Typically, there are 10 pins: 7 for the segments (labeled a to g), 1 for the common anode or cathode, and 2 for the common connection.

Connect the Power Supply:

Connect the positive terminal of the power supply to the common pin of the 7-segment display (if it's a common anode display) or to the ground (if it's a common cathode display).

Connect the Resistors:

Connect a resistor to each of the segment pins (a to g) of the 7-segment display. The other end of each resistor should be connected to the corresponding digital pins on the Arduino or directly to the power supply if not using an Arduino.

Connect the Switch:

Insert the switch into the breadboard. Connect one terminal of the switch to the power supply (positive terminal) and the other terminal to the common pin of the 7-segment display.

This will allow you to control the power to the display.

Wiring Connections:

If using an Arduino, connect the segment pins (a to g) of the 7-segment display to the digital pins on the Arduino (e.g., pins 2 to 8).

Ensure that the ground of the Arduino is connected to the ground of the power supply.

Testing:

Turn on the power supply using the switch. The 7-segment display should light up according to the programmed instructions or the connections made.

Adjustments:

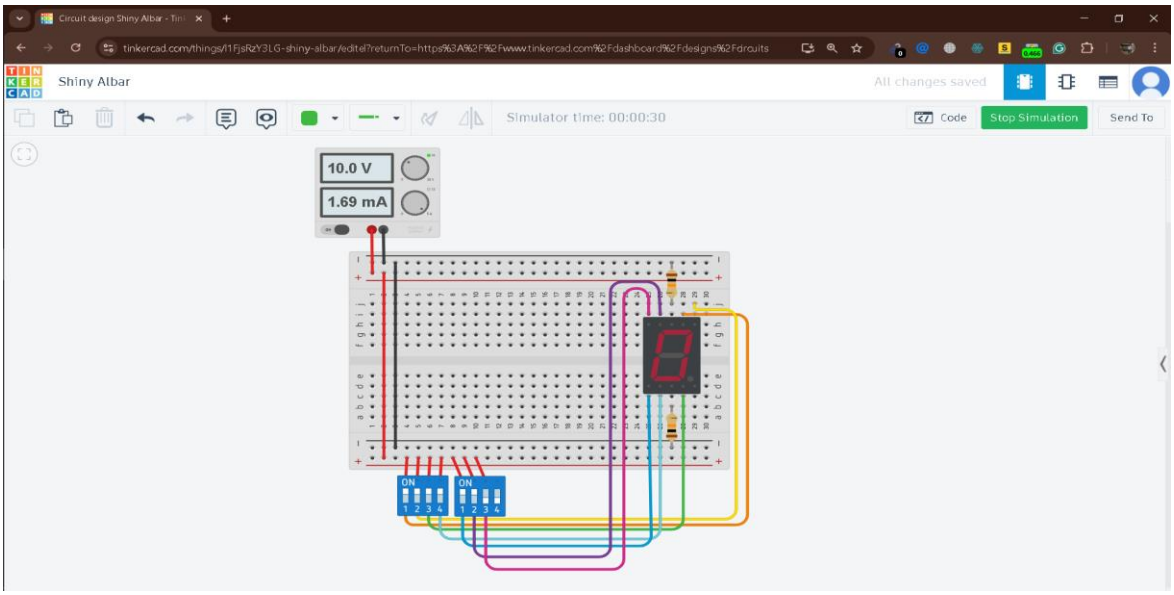
If the display does not work as expected, check all connections, ensure the power supply is functioning.

Truth table:

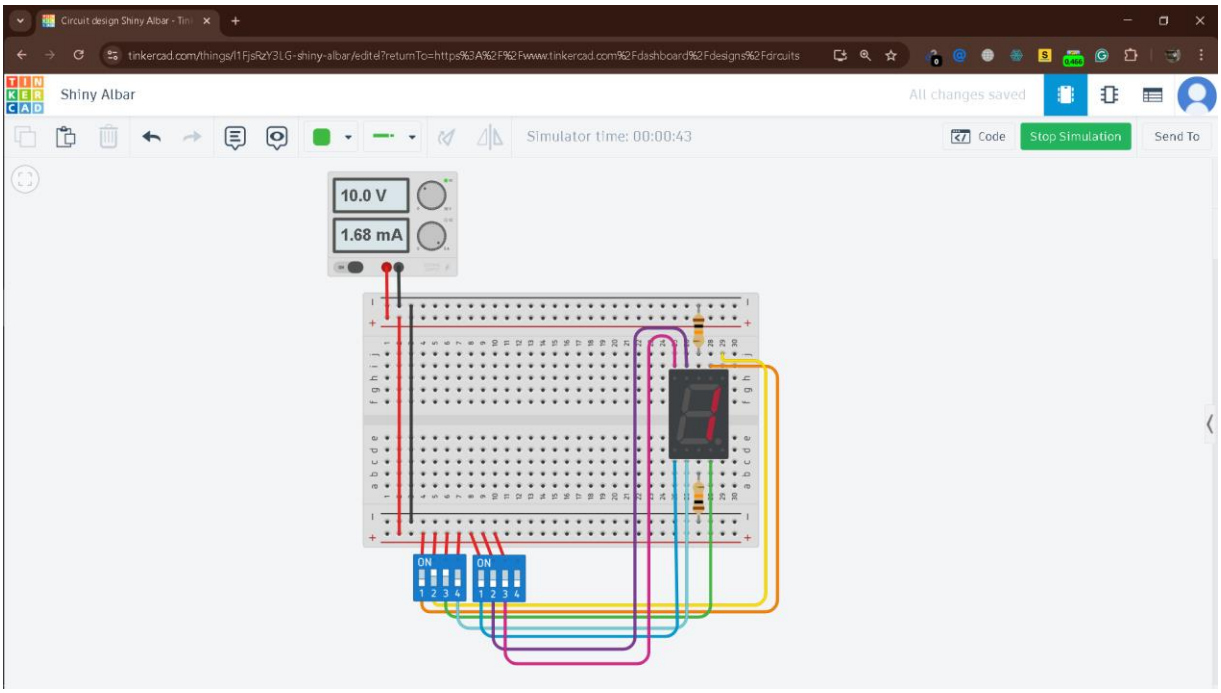
A	B	C	D	a	b	c	d	e	f	g
0	0	0	0	1	1	1	1	1	1	0
0	0	0	1	0	1	1	0	0	0	0
0	0	1	0	1	1	0	1	1	0	1
0	0	1	1	1	1	1	1	0	0	1
0	1	0	0	0	1	1	0	0	1	1
0	1	0	1	1	0	1	1	0	1	1
0	1	1	0	1	0	1	1	1	1	1
0	1	1	1	1	1	1	0	0	0	0
1	0	0	0	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	0	1	1

Tinkercad Result:

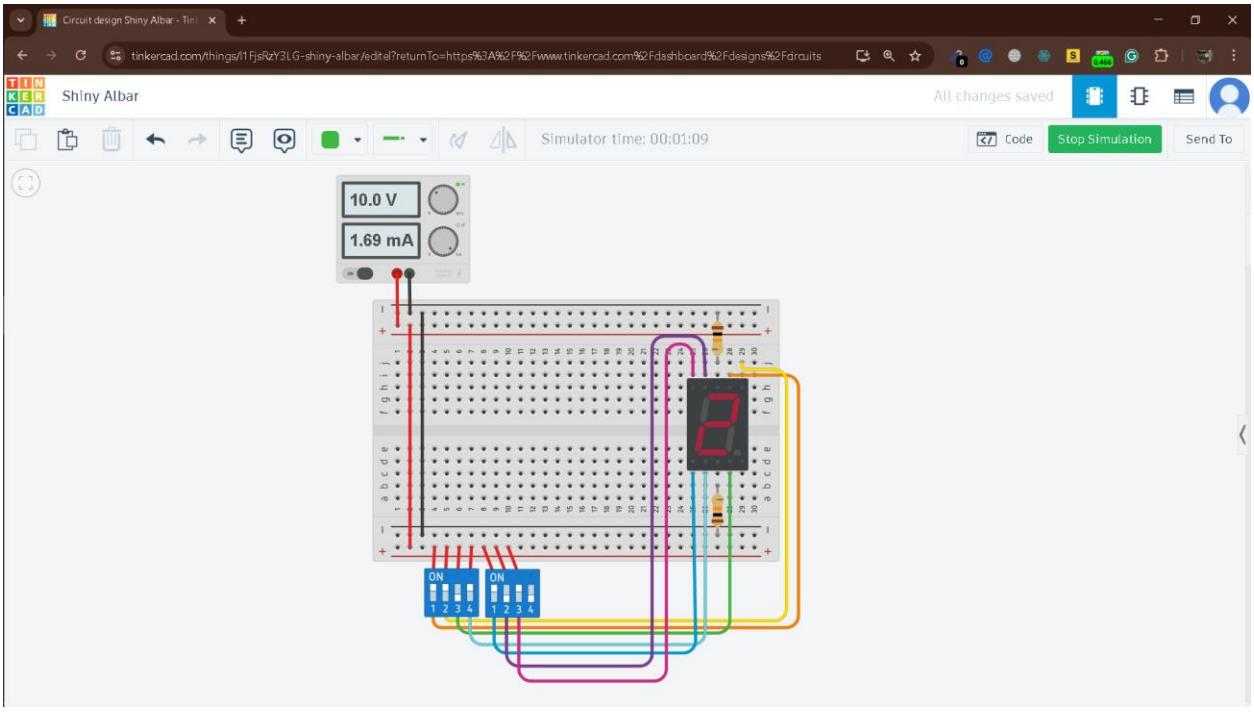
(1)For 0 ; A=1,B=1,C=1,D=1,E=1,F=1,G=0



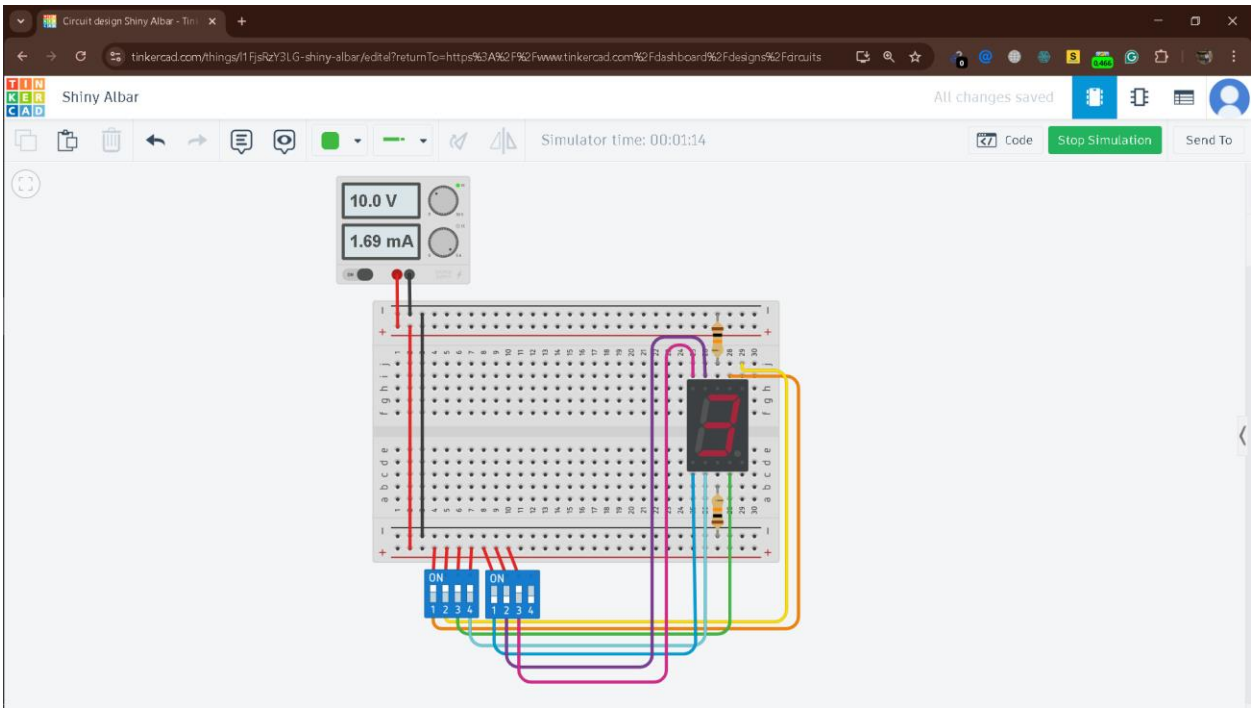
(2) For 1 ; A=0,B=1,C=1,D=0,E=0,F=0,G=0



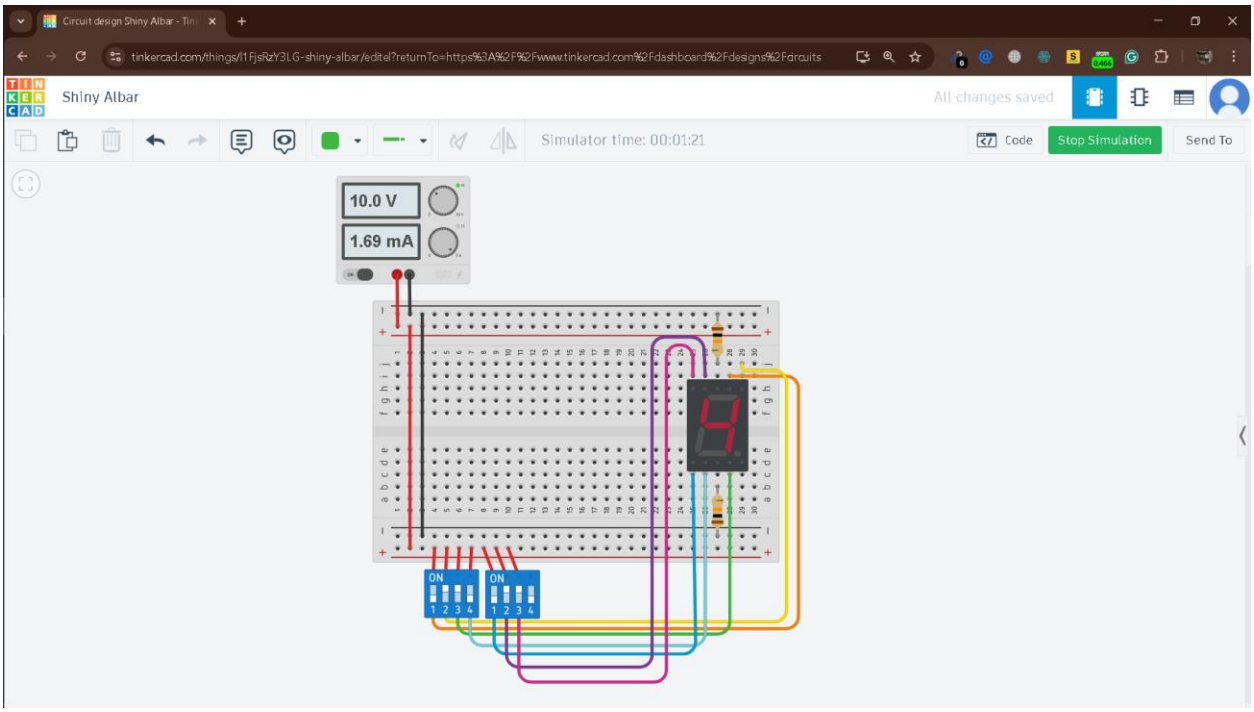
(3) For 2 ; A=1,B=1,C=0,D=1,E=1,F=0,G=1



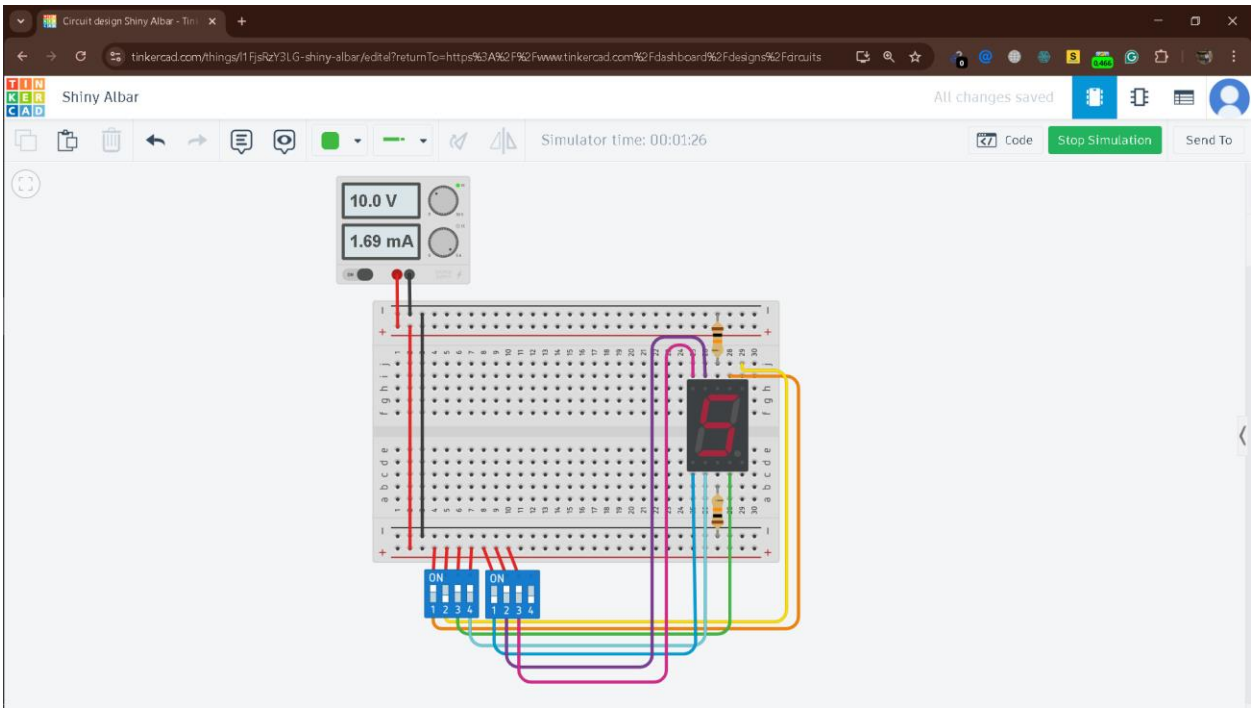
(4) For 3 ; A=1,B=1,C=1,D=1,E=0,F=0,G=1



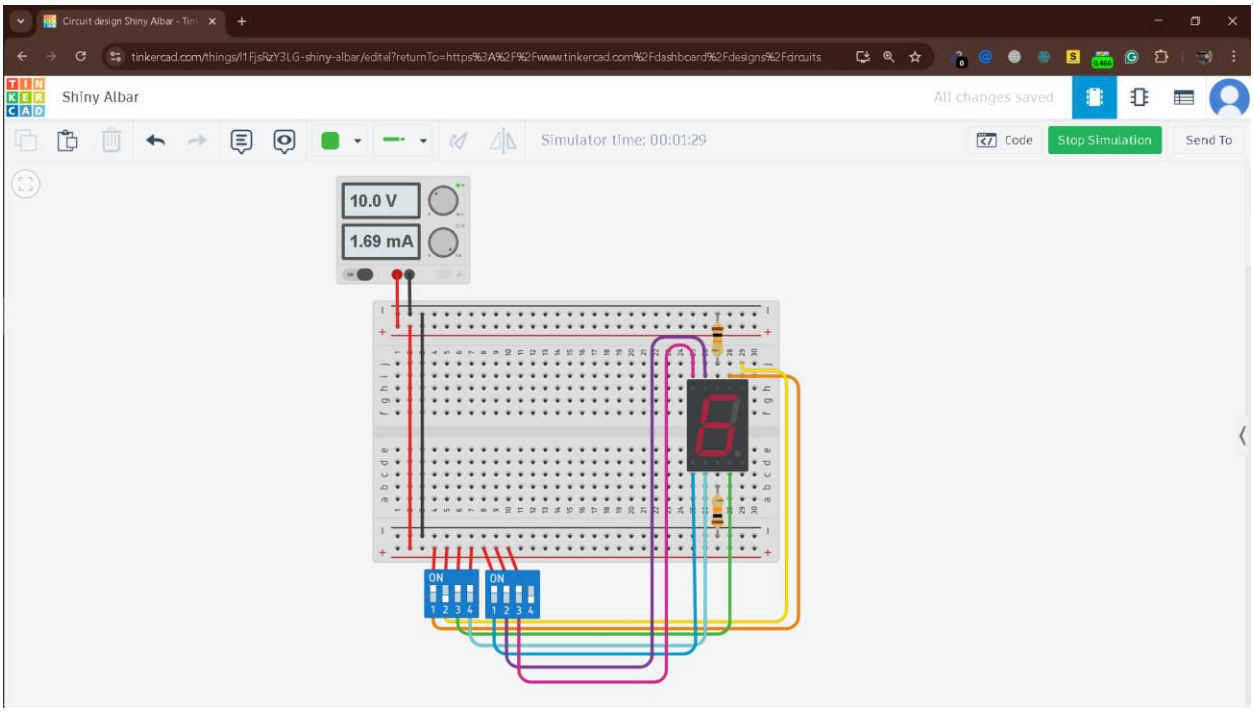
(5) For 4 ; A=0,B=1,C=1,D=0,E=0,F=1,G=1



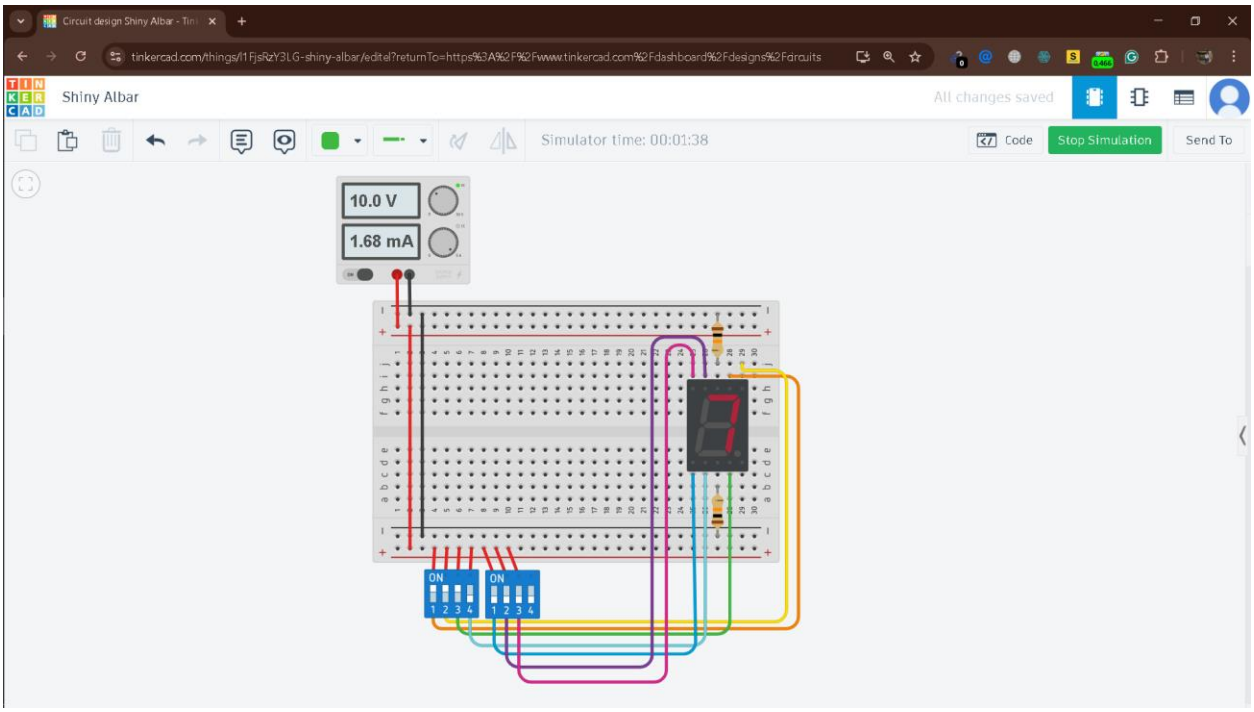
(6) For 5 ; A=1,B=0,C=1,D=1,E=0,F=1,G=1



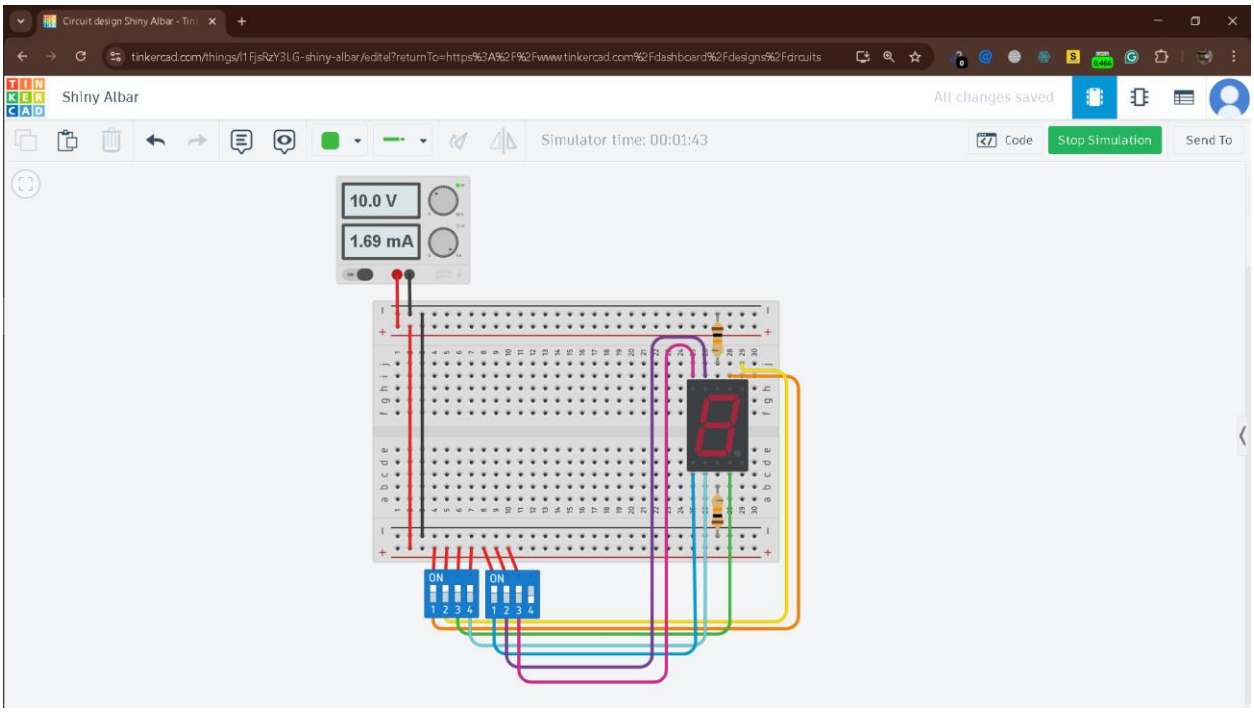
(7) For 6 ; A=1,B=0,C=1,D=1,E=1,F=1,G=1



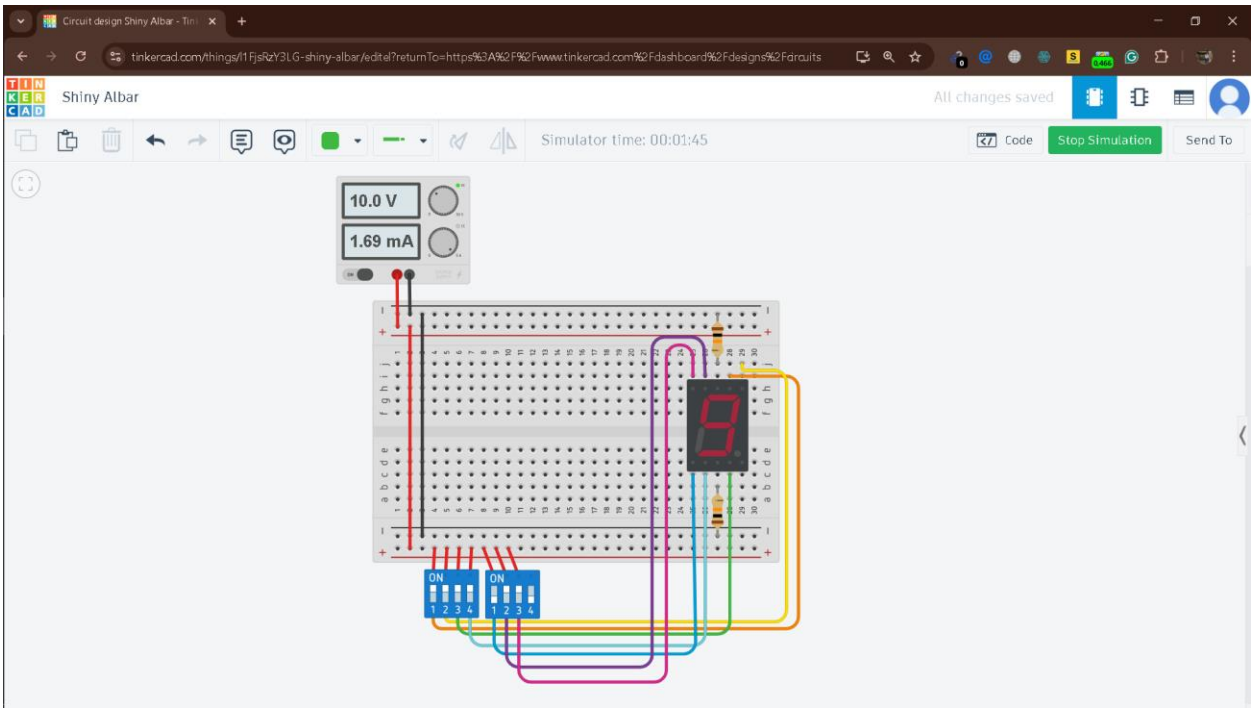
(8) For 7 ; A=1,B=1,C=1,D=0,E=0,F=0,G=0



(9) For 8 ; A=1,B=1,C=1,D=1,E=1,F=1,G=1



(10) For 9 ; A=1,B=1,C=1,D=1,E=0,F=1,G=1



Project link: https://www.tinkercad.com/things/l1FjsRzY3LG-7-segment-display

Conclusion:

This setup is typical for projects where the display data on an 7 segment is successfully displayed .