Decimal Selector Part 2

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Abstract

In this report, I present a working model of a decimal selector circuit and soder the circuit on a PCB

1 AIM

To design and implement a decimal selector circuit that can select one of the ten decimal digits (0-9) on a PCB.

2 APPARATUS

- CD4518 (4-bit binary counter)

- CD4511 (BCD to 7-segment decoder)

- 7-segment display

- LEDs for output indication

- Resistors(220 ohm) and resistor network(200 ohm) as required

- PCB and connecting wires
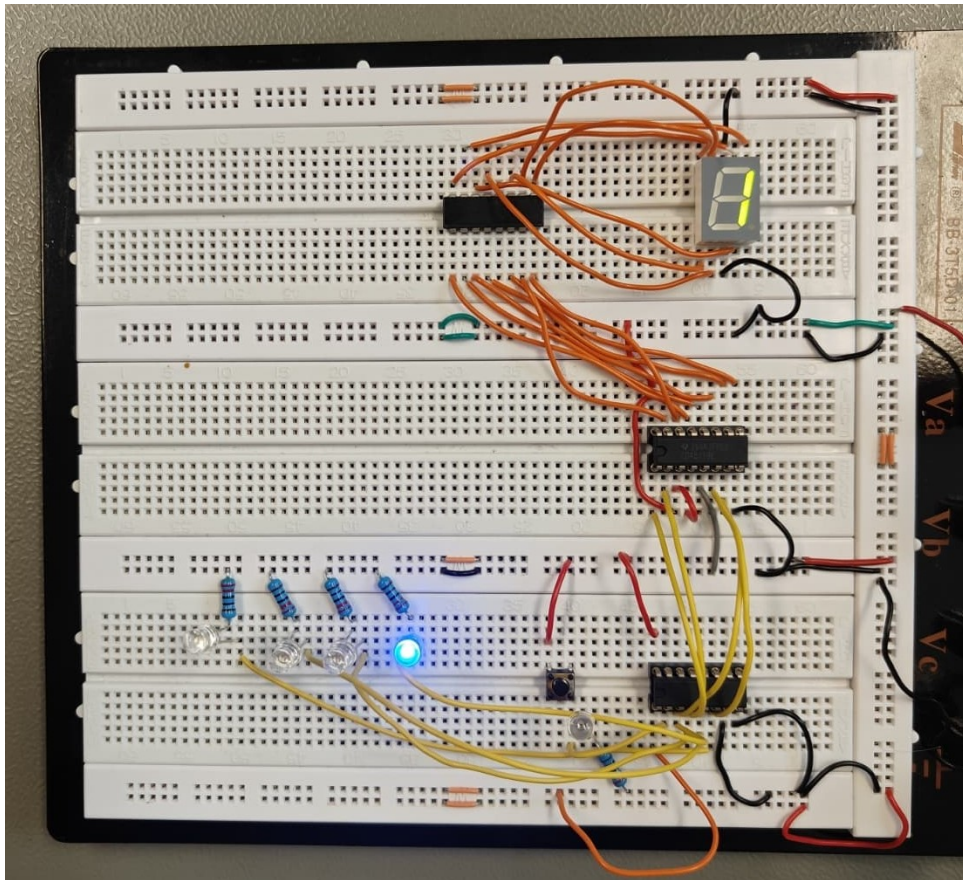
- Soldering iron and solder

3   circuit diagram

Figure 1: Decimal Selector Circuit on a Breadboard
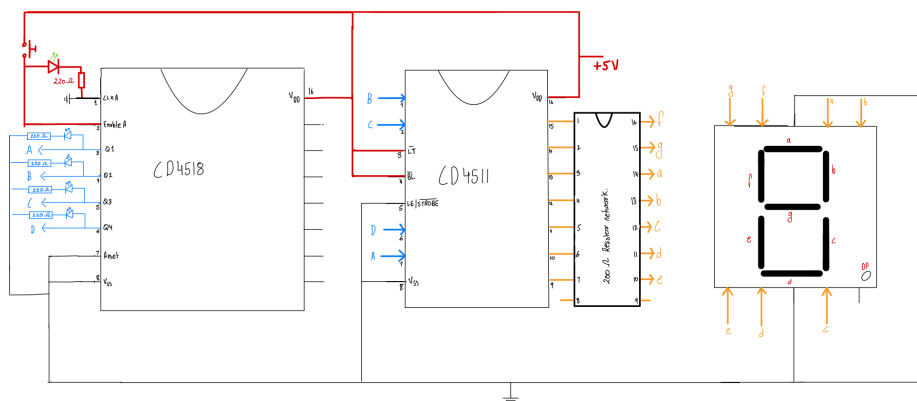
3.1. Decimal Selector.

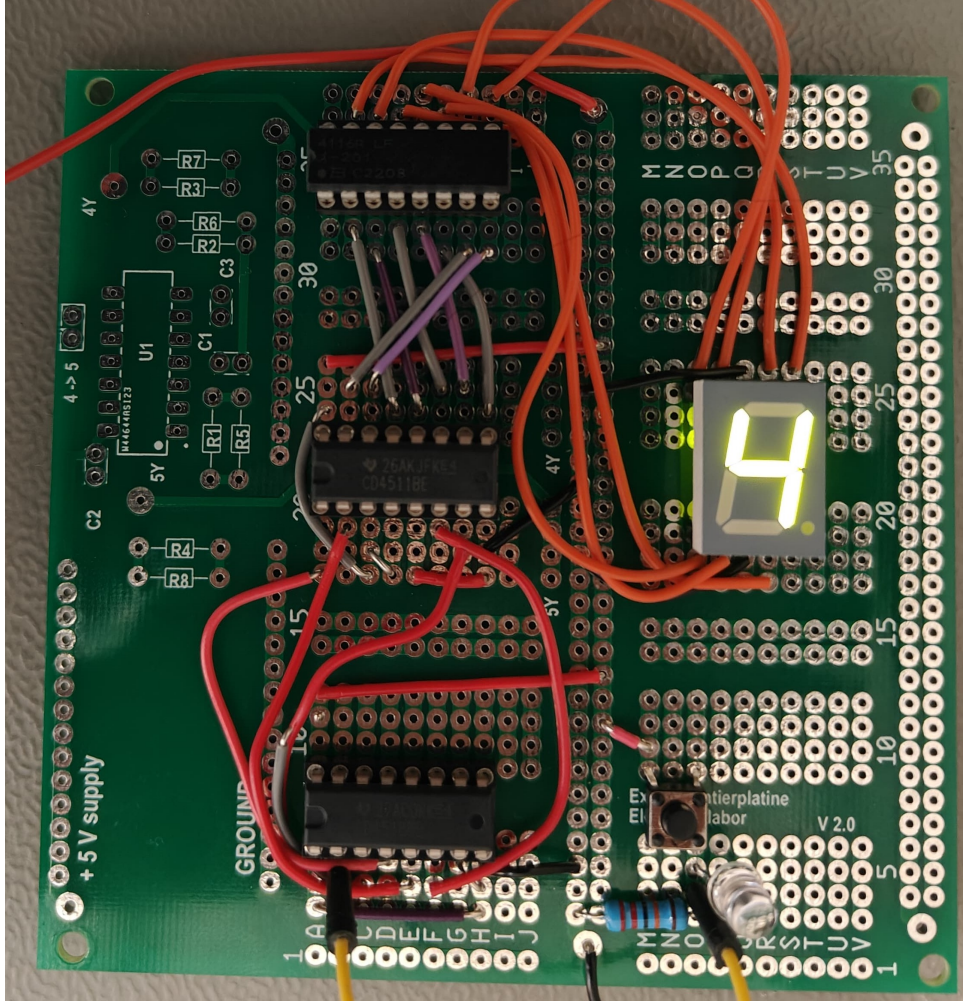Figure 2: Decimal Selector Circuit Diagram (Alternate View)

Figure 3: Decimal Selector Circuit on a PCB

4 Working

Based on the circuit diagram of the pin outs 2, The clock pin is set to ground as we are not using a clock to control the IC but rather using a push button to increment the count. The reset pin is connected to ground.

The tactical button is connected across Enable A (pin 2) and V_{DD}, when the button is pushed it creates a signal and CD4518 increments the count by 1.

The output pins are also connected to the LEDs, which will light up to indicate the current count. The LEDs are connected through a pull down resistors with a value of 220 ohm to limit the current and prevent damage to the LEDs.

The output pins of the CD4518 are connected to the input pins of the CD4511, which decodes the binary count into a format suitable for display on a 7-segment display.

The output of the CD4511 is then connected to the 7-segment display through a resistor network with a value of 200 ohm(this prevents any damage to the leds in 7-segment display), allowing it to show the current count.

5   RESULTS

The decimal selector circuit is based on a binary counter (CD4518) that counts from 0 to 9. The output of the counter is fed into a BCD to 7-segment decoder (CD4511), which converts the binary count into a format suitable for display on a 7-segment display.

6   Conclusion

The decimal selector circuit successfully demonstrates the ability to select and display one of the ten decimal digits (0-9) based on a binary input. The use of CD4518 for counting and CD4511 for decoding allows for a straightforward implementation of the desired functionality. The circuit can be easily modified with a more complex functioning IC to achieve more advanced features.

7 References

- CD4518 Datasheet

- CD4511 Datasheet

- 7-Segment display