Digital Logic Driver part 2

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1   Abstract

This is a continuation of the digital logic driver project. In this part, I will focus on the second part of the project, which involves using the clock signal generated from the first part to drive a counter IC CD74HC163E, and analyze its performance.

To feed this signal into a LED driver and to observe the output on a picoscope and watch the LED do a 4 bit count.

2   AIM

1. To use the clock signal generated from the schmitt trigger SN74HC14 to drive the counter IC CD74HC163E.
2. To get the waves which are divided by 2, 4, 8, and 16.

3   APPARATUS

1. Schmitt Trigger SN74HC14
2. Counter IC CD74HC163E
3. some resistors
4. Capacitor (100nF)
5. LED driver
6. Picoscope
7. Breadboard
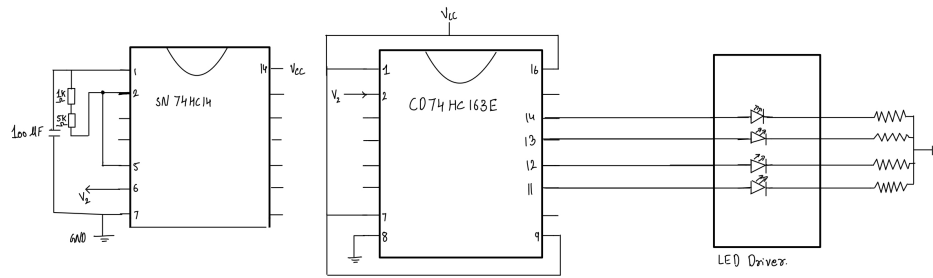8. And other basic electronic components.

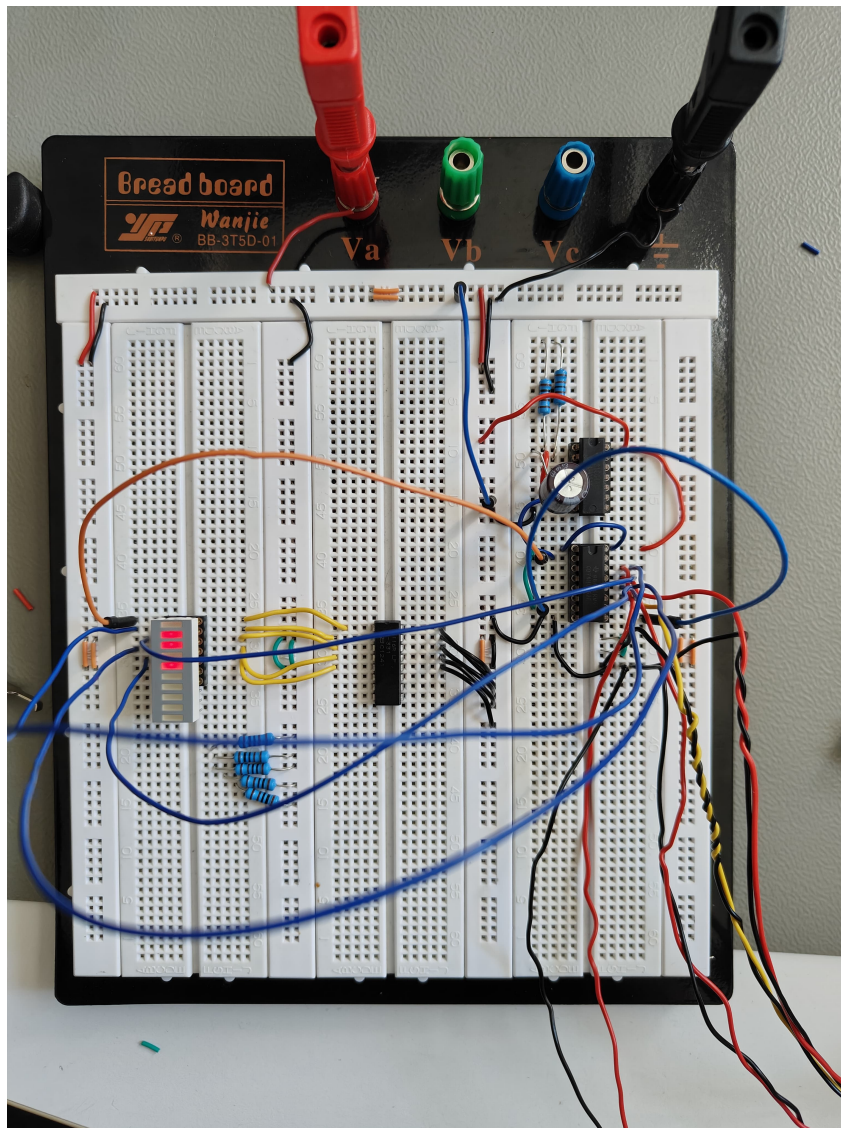# 4   Circuit Diagram

Figure 1: Digital Logic Driver Circuit

Figure 2: Digital Logic Driver Circuit

5   observations

1.The signals from the schmitt trigger are fed into the counter IC CD74HC163E.
The output of the counter IC is then connected to a LED driver, which drives the LED.
The output of the LED driver helps us visualize the counter.
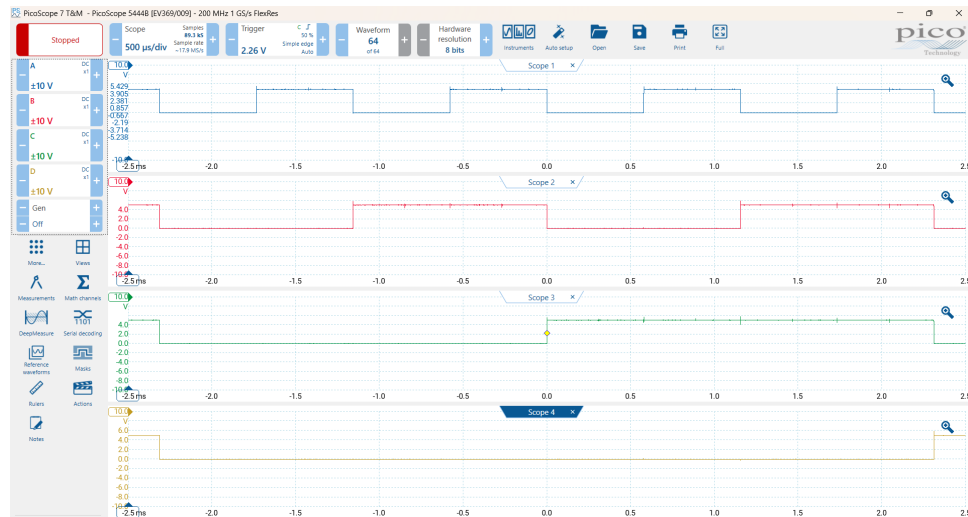we can observe the output on a picoscope.

Figure 3: Digital Logic Driver Circuit

Here it can be seen that the output is a 4 bit count.
The output is divided by 2, 4, 8, and 16.

2. The output of the counter IC is connected to a LED driver, which drives the LED.
The output of the LED driver helps us visualize the counter.
and the LED drivers are connected to to grounf through 333ohm resistance to prevent
the LED from burning out.

3. Increasing or decreasing the value of resistance or capacitance affects the time and
frequency of the output signal and the intensity of the LED and the time per count cycle.
hence, I have decided to use a higher value of the capacitance than the part one of this
project so to get a better result and better visuals of the LED.