

Lesson 27 74HC595 And Segment Display

Overview

After learning Lesson 24, 25 and Lesson 26, we will use the 74HC595 shift register to control the segment display. The segment display will show number from 9-0.

Component Required:

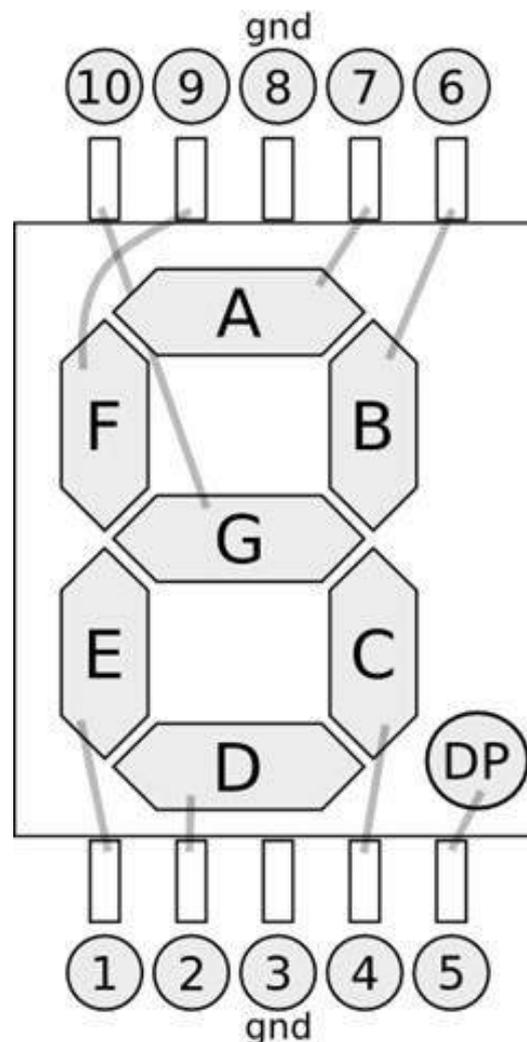
- (1) x Elegoo Uno R3
- (1) x 830 tie-points breadboard
- (1) x 74HC595 IC
- (1) x 1 Digit 7-Segment Display
- (8) x 220 ohm resistors
- (26) x M-M wires (Male to Male jumper wires)



Component Introduction

Seven segment display

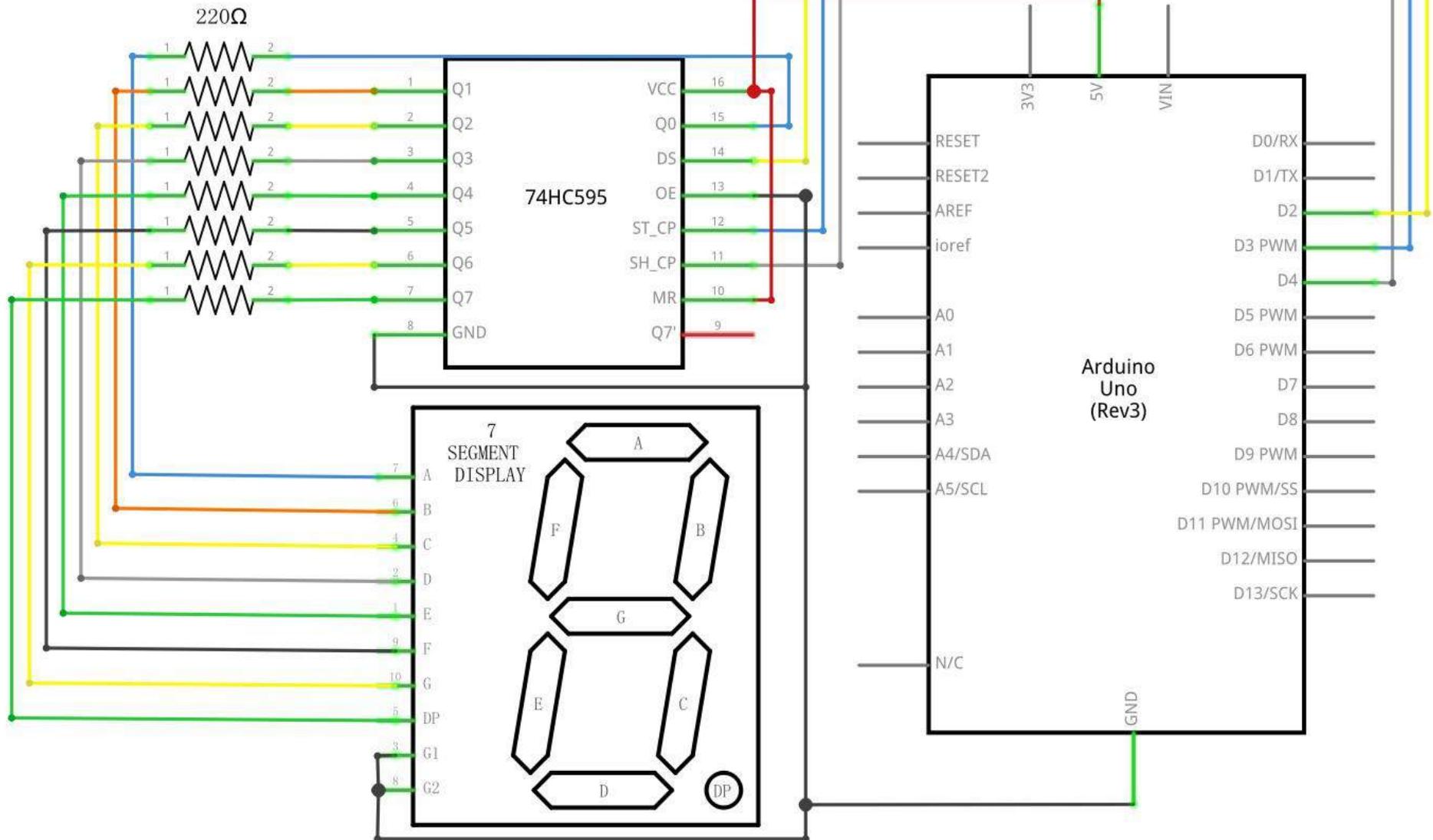
Below is the seven-segment pin diagram.

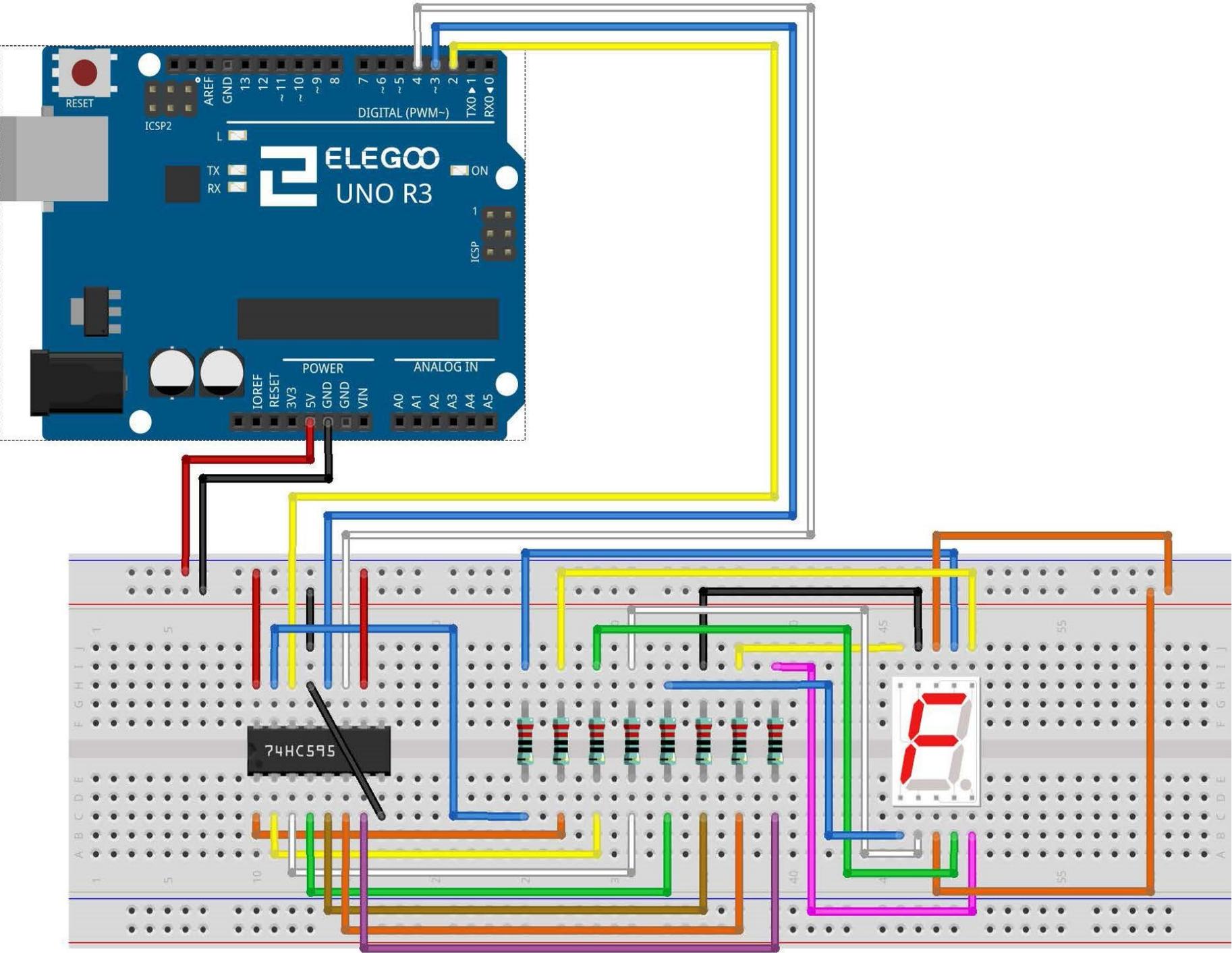


0-9 ten digits correspond with each segment are as follows (the following table applies common cathode seven segment display device, if you are using a common anode, the table should be replaced every 1 0 0 should all replaced by 1):

Display digital	dp	a	b	c	d	e	f	g
0	0	1	1	1	1	1	1	0
1	0	0	1	1	0	0	0	0
2	0	1	1	0	1	1	0	1
3	0	1	1	1	1	0	0	1
4	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1
6	0	1	0	1	1	1	1	1
7	0	1	1	1	0	0	0	0
8	0	1	1	1	1	1	1	1
9	0	1	1	1	1	0	1	1

Connection Schematic





The following table shows the seven-segment display 74HC595 pin correspondence table:

74HC595 pin	Seven shows remarkable control pin (stroke)
Q0	7 (A)
Q1	6 (B)
Q2	4 (C)
Q3	2 (D)
Q4	1 (E)
Q5	9 (F)
Q6	10 (G)
Q7	5 (DP)

Step one: Connect 74HC595

First, the wiring is connected to power and ground:

VCC (pin 16) and **MR** (pin 10) connected to 5V

GND (pin 8) and **OE** (pin 13) to ground

Connection **DS**, **ST_CP** and **SH_CP** pin:

DS (pin 14) connected to UNO R3 board pin 2 (the figure below the yellow line)

ST_CP (pin 12, latch pin) connected to UNO R3 board pin 3 (FIG blue line below)

SH_CP (pin 11, clock pin) connected to UNO R3 board pin 4 (the figure below the white line)

Step two: Connect the seven segment display

The seven-segment display 3, 8 pin to UNO R3 board GND (This example uses the common cathode, if you use the common anode, please connect the 3, 8 pin to UNO R3 board + 5V)

According to the table above, connect the 74HC595 Q0 ~ Q7 to seven-segment display corresponding pin (A ~ G and DP), and then each foot in a 220 ohm resistor in series.

Code

After wiring, please open the program in the code folder- Lesson 27 74HC595 And Segment Display and click UPLOAD to upload the program. See Lesson 2 for details about program uploading if there are any errors.

Example picture

