Part 3

lesson 2

74HC595 And Segment Display

Overview

In this lesson ,we will use the 74HC595 shift register to control the segment display.

The segment display will show number from 0-9.

Component Required:

(1) x Elegoo Uno R3

(1) x 830 tie-points breadboard

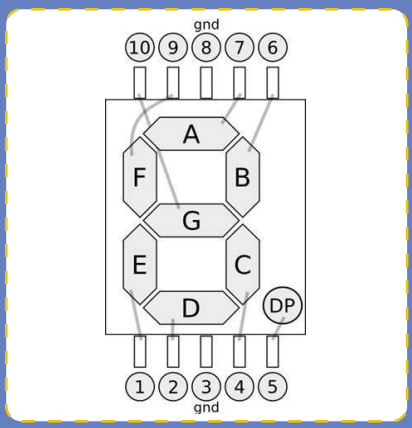
(1) x 74HC595 IC

(1) x 1 Digit 7-Segment Display

(8) x 220 Ωresistors

(26) x M-M wires (Male to Male jumper wires)

Component Introduction

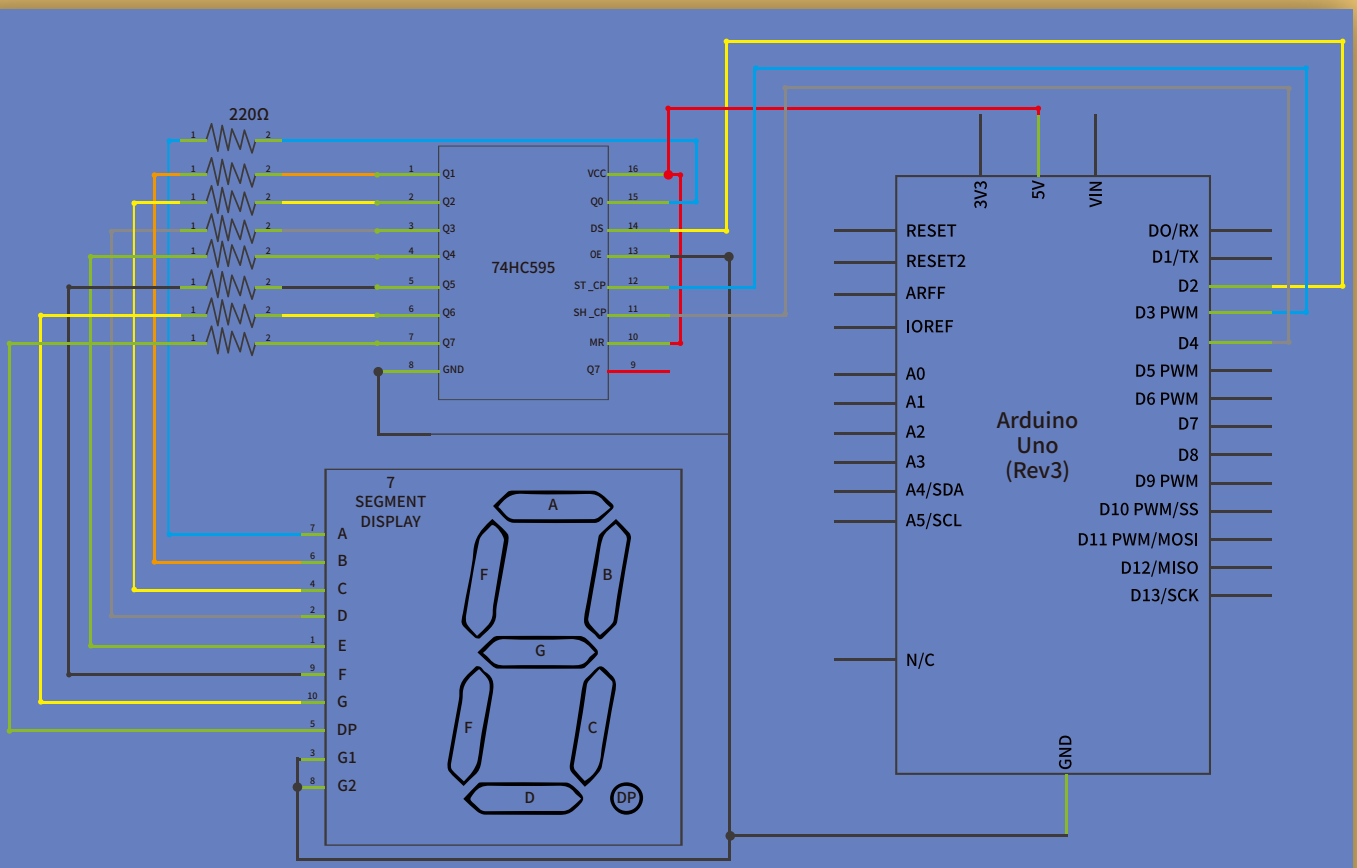


Seven segment display

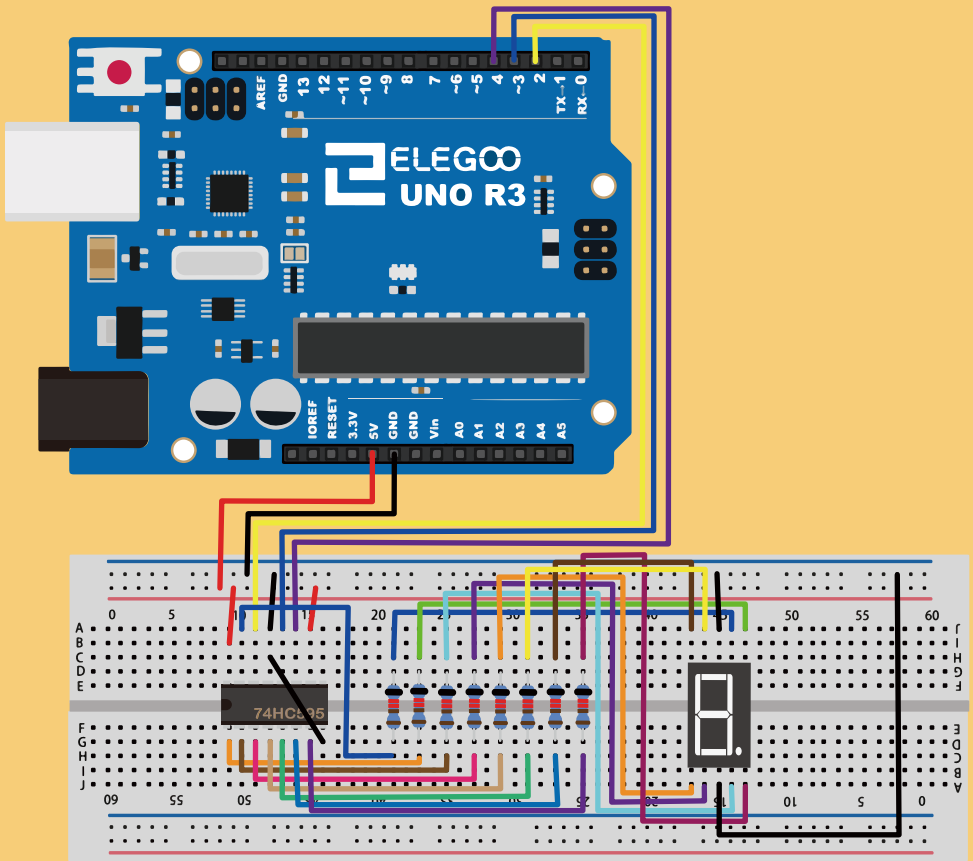
Below is the segment pin diagram.

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 (1->0,0->1).
0 should all replaced by 1
1 should all replaced by 0:

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



Wiring diagram

- 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)
- **ST_CP** (pin 11, clock pin) connected to UNO R3 board pin 4 (the figure below the white line)
- Step two: Connect the segment display
- The seven-segment display 3 and 8 pins to the UNO R3 boards GND. (This example uses the common cathode, if you use the common anode, please connect 3 and 8 pins 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 lead in a 220Ω resistor in series..

Code

- After wiring, please open the program in the code folder- **74HC595_And_Segment_Display** And Segment Display and click UPLOAD to upload the program. See Lesson 5 of part 1 for details about program uploading if there are any errors.