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 ESP32

(1) x 400 tie-points breadboard

(1) x 74HC595 IC

(1) x 1 Digit 7-Segment Display

(8) x 220 Ω resistors

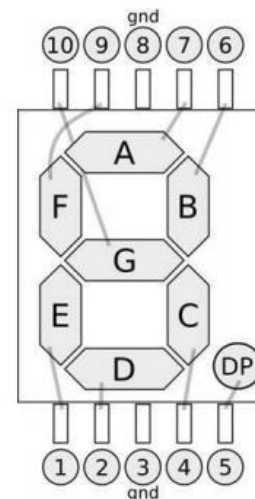(26) x M-M wires (Male to Male jumper wires)

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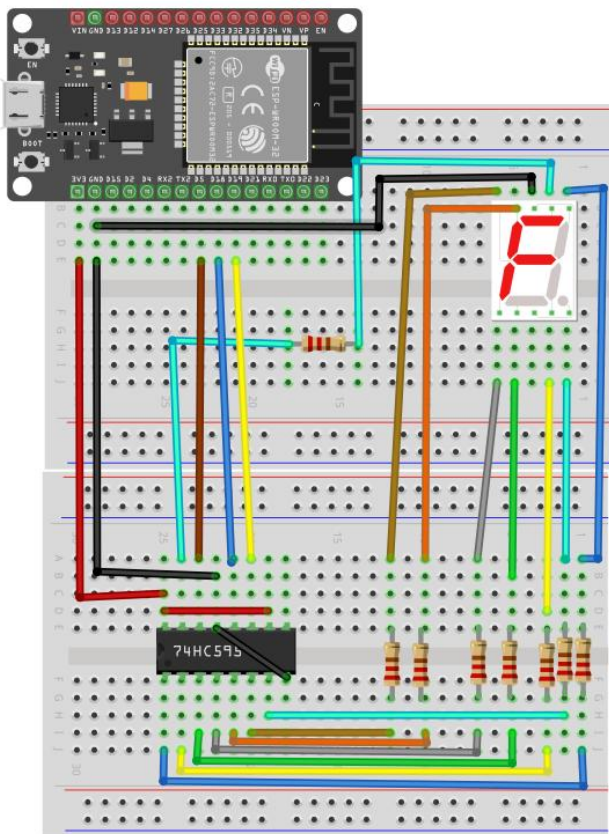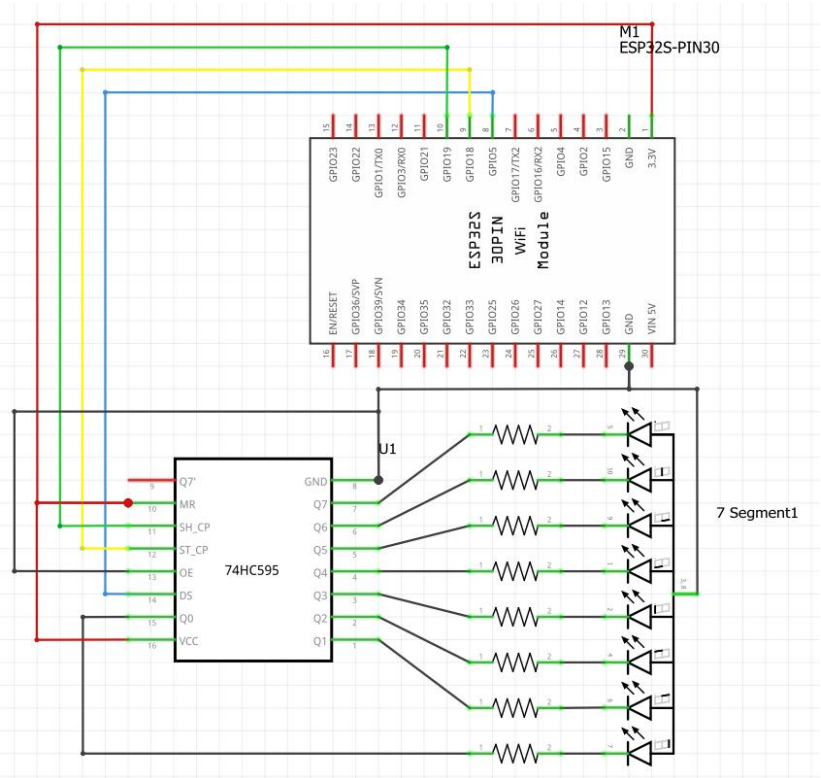should be replaced every 1 0 (1->0,0->1).
  should all replaced by 1
  should all replaced by 0:

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	1
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:

Step one: Connect 74HC595

First, the wiring is connected to power and ground:

VCC (pin 16) and MR (pin 10) connected to 3.3V

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

Connection DS, ST_CP and SH_CP pin:

DS (pin 14) connected to ESP32 board GPIO D5

ST_CP (pin 12, latch pin) connected to ESP32 board GPIO D18

ST_CP (pin 11, clock pin) connected to ESP32 board GPIO D19

Step two: Connect the segment display

The seven-segment display 3 and 8 pins to the ESP32 boards GND. (This example uses the common cathode, if you use the common anode, please connect 3 and 8 pins pin to ESP32 board + 3.3V)

According to the table above, connect the 74HC595 Q0 ~ Q7 to se pin (A ~ G and DP), and then each lead in a 220Ω resistor in series..

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)

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.