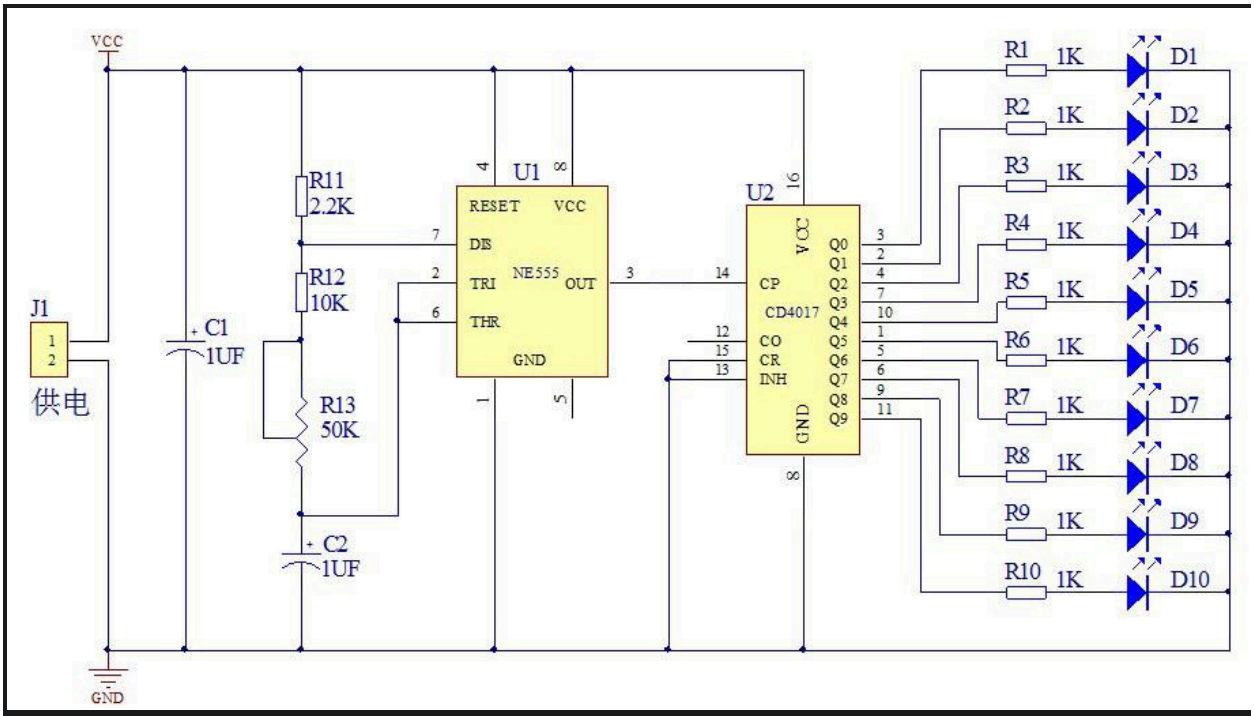
Features:

After power on, the 10 LEDs will light up sequentially from left to right, showing the state of running lights. This kit can display the NE555 timing and CD4017 counting functions intuitively. It is a starter kit for learning timers, counters, frequency dividers, and lantern controllers. At the same time, the kit has good effects, is very interesting and practical, and is also the preferred material for beginners to get started.

Circuit principle:

This kit is mainly composed of a clock generation circuit and a decimal counter circuit. It is a self-excited multivibrator with NE555 as the core. The power supply charges capacitor C2 through R11, R12, and R13. When C2 just starts to charge, pin 2 of NE555 is still in Low level, so the output pin 3 is high. When the power is charged to 2/3 of the power supply voltage to C2 through R11, R12, R13, the level of the output pin 3 changes from high to low, and the internal discharge tube of NE555 turns on , Capacitor C2 is discharged through R13, R12, NE555 pin 7 until the voltage across C2 is lower than 1/3 of the power supply voltage, NE555 pin 3 level changes from low to high again. C2 is charged again, This cycle forms an oscillation. The charging time is: 0.695(R11+R12+R13)C2, and the discharging time is: 0.695(R13+R12)C2. Adjusting R13 can control the output frequency of the oscillator. The clock oscillation signal of NE555 is constantly added to pin 14 of CD4017. There are 10 LEDs connected to the 10 output terminals of the CD4017. When the 10 output terminals of the CD4017 generate high levels in turn under the action of the clock signal, D1--D10 will be lit in turn to form a water lamp effect. Adjust R13 to adjust the flow speed of LED lights.



MHT10-NE555+CD4017 water lamp DIY kit						
	Device	**Model**	**Package**	**Special description**	**Qty**	**Position**
1	1/4w Resistance	1K	AXIAL-0.3	4 rings: brown black red gold 5 rings: brown black black brown brown	12	R1-R10+2
2	1/4w Resistance	2.2K	AXIAL-0.3	4 rings: red red red gold 5 rings: red red black brown brown	2	R11+1
3	1/4w Resistance	10K	AXIAL-0.3	4 rings: brown black orange gold 5 rings: brown black black red brown	2	R12+1
4	5mm LED	F5	F5	Redness	12	D1-D10+2
5	Electrolytic capacitor	1uF/50V	4x7mm		2	C1/C2
6	Potentiometer	50K	RM065-503		1	R13
7	NE555 Chip	NE555	DIP8		1	NE555
8	IC Block	8P IC Block	DIP8		1	NE555
9	CD4017Chip	CD4017	DIP16		1	CD4017
10	IC Block	16P IC Block	DIP16		1	CD4017
11	Terminal	KF301-2P	Blue		1	3-5V
12	PCB				1	

Common problem:

1. Take care to avoid wrong welding of the positive and negative poles of the LED, and the long leg is the positive pole.
2. Take care to avoid wrong welding of the positive and negative electrodes of the electrolytic capacitor, and the long leg is the positive electrode.
3. Take care to avoid inserting the chip in the opposite direction. The chip notch and the base notch should be in the same direction as the notch on the board.
4. Take care to avoid wrong connection of the positive and negative poles of the power supply. The correct connection method is to connect VCC to the positive pole, GND to the negative pole, and supply a 3-5V DC voltage.

Pay attention to check the welding for short-circuit and virtual welding.

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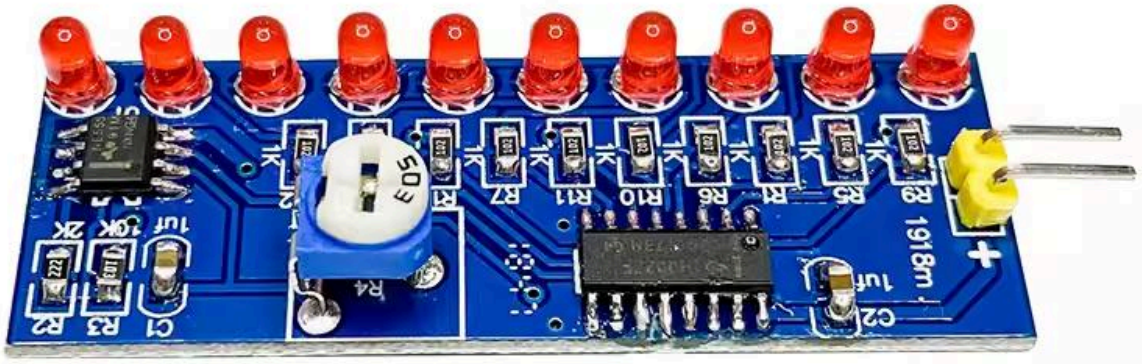

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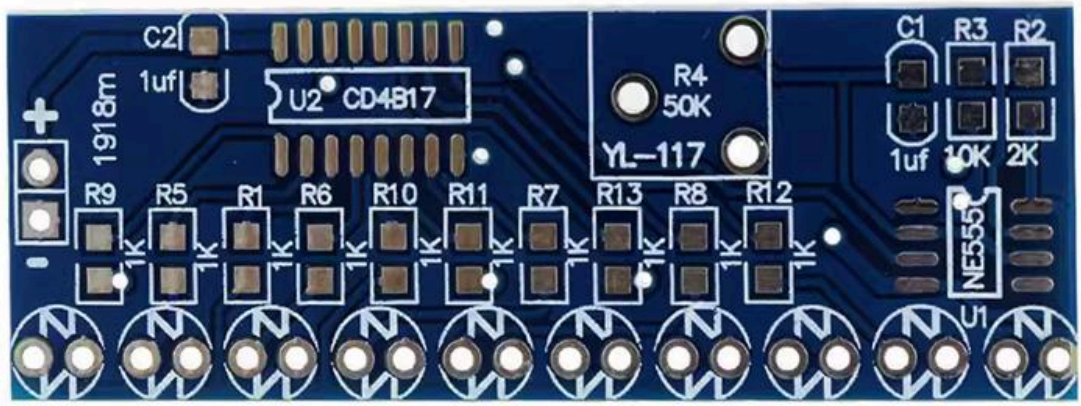

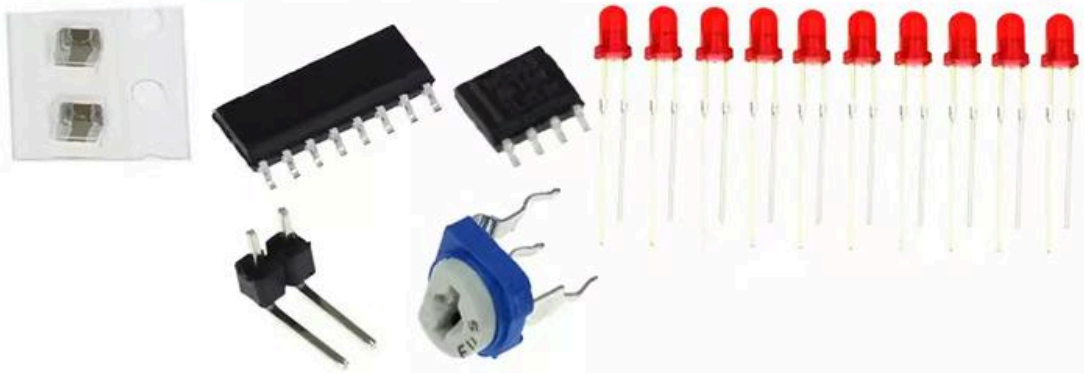

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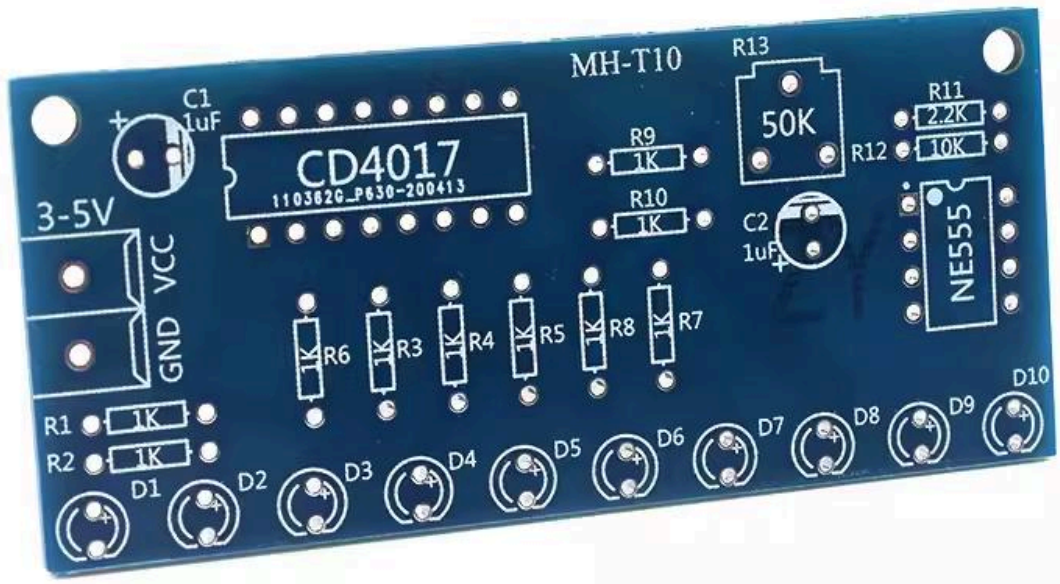

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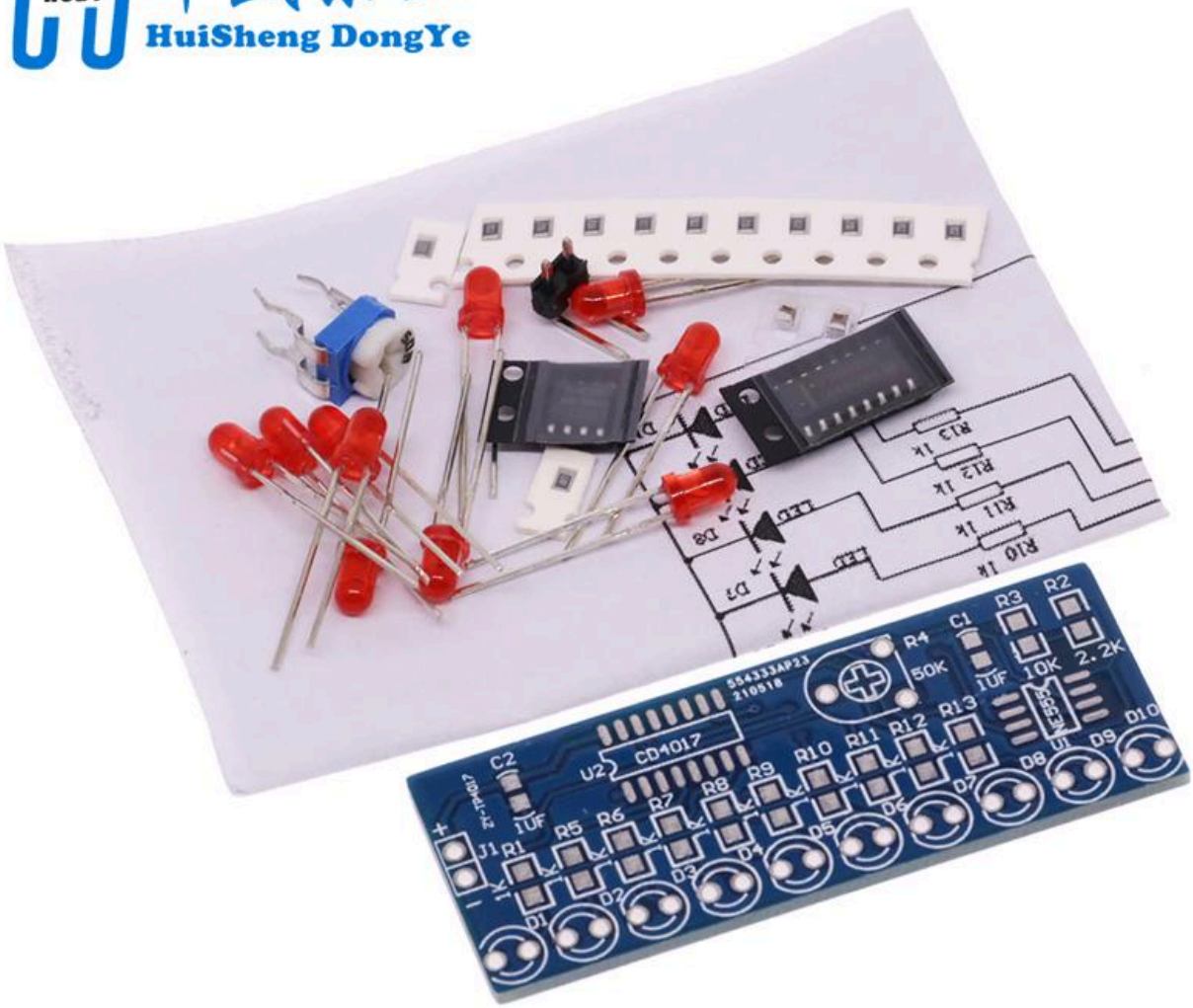

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