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# silly circuits

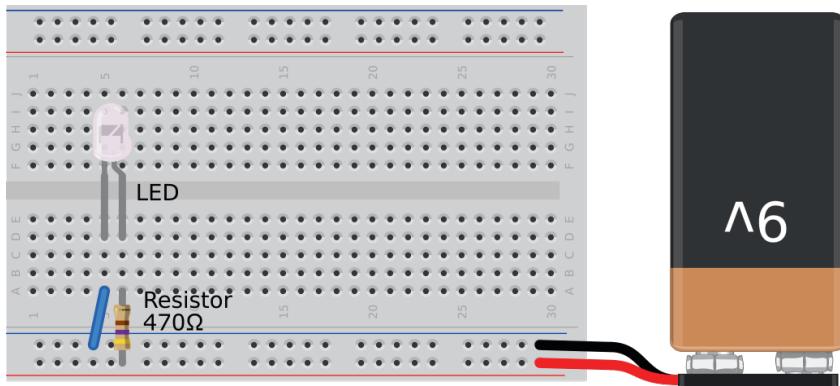
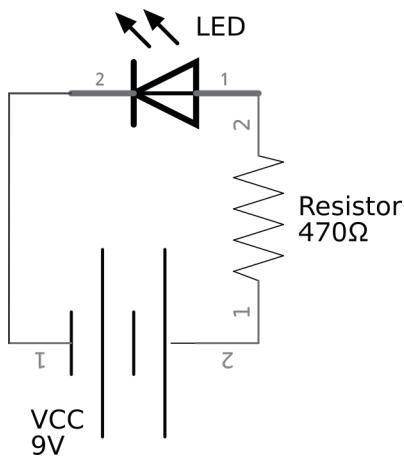
learn electronics for fun and mischief



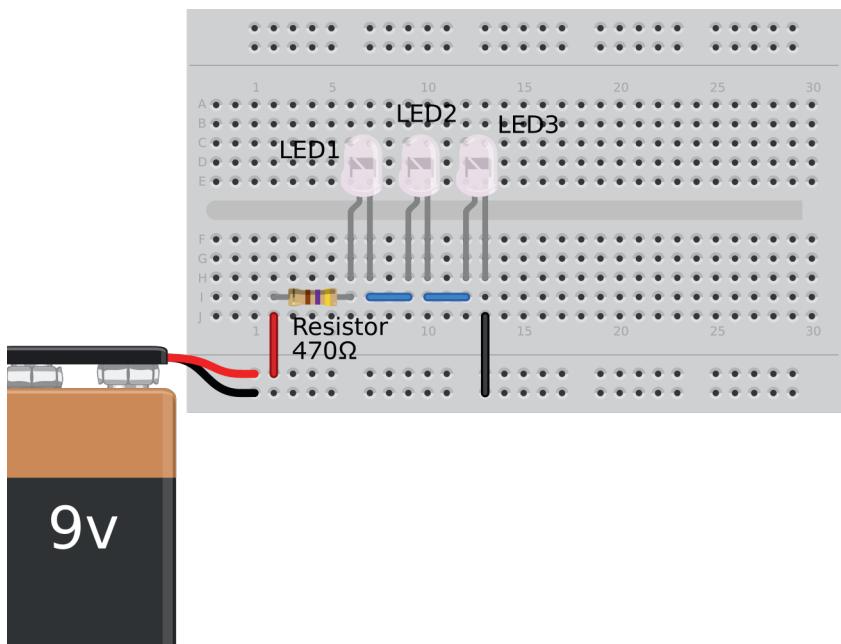
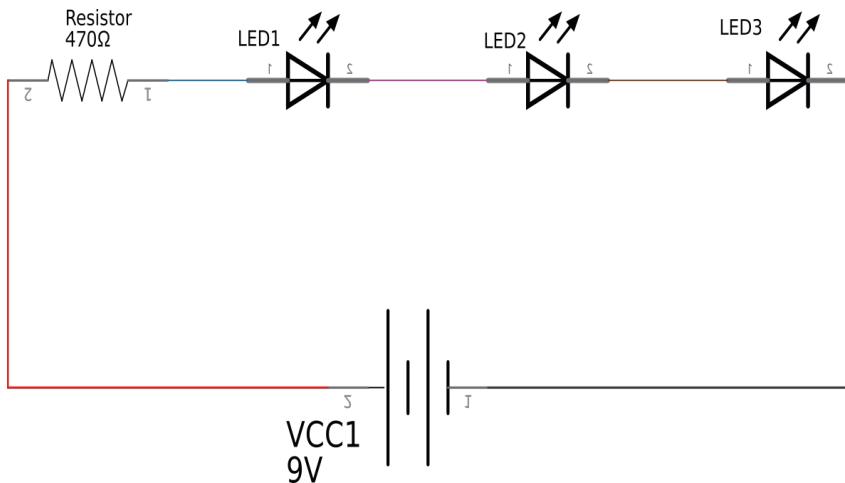
# SECTION 1

## SILLY CIRCUITS

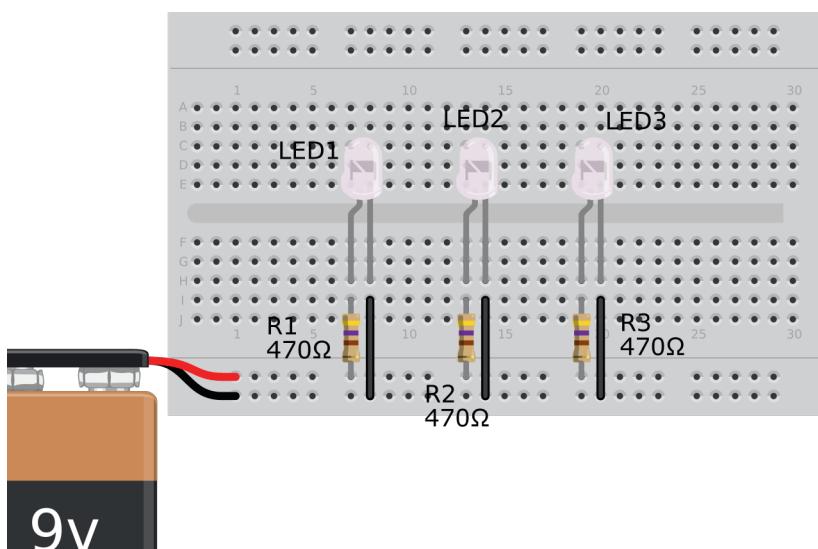
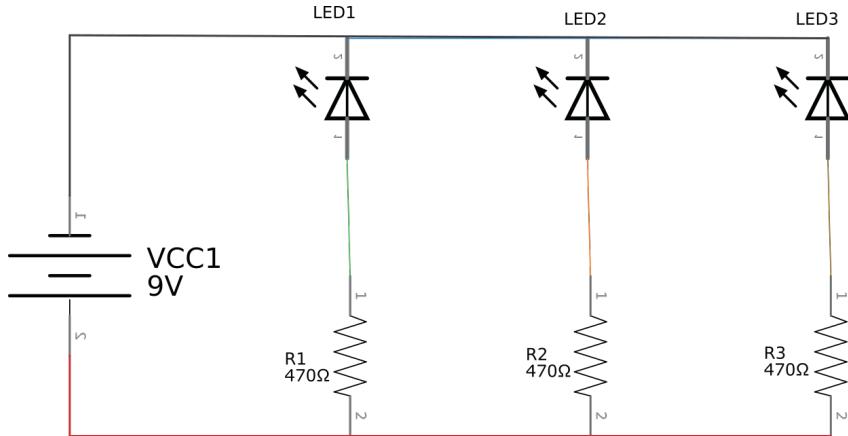
Circuit 1  
Join the resistance  
A simple circuit



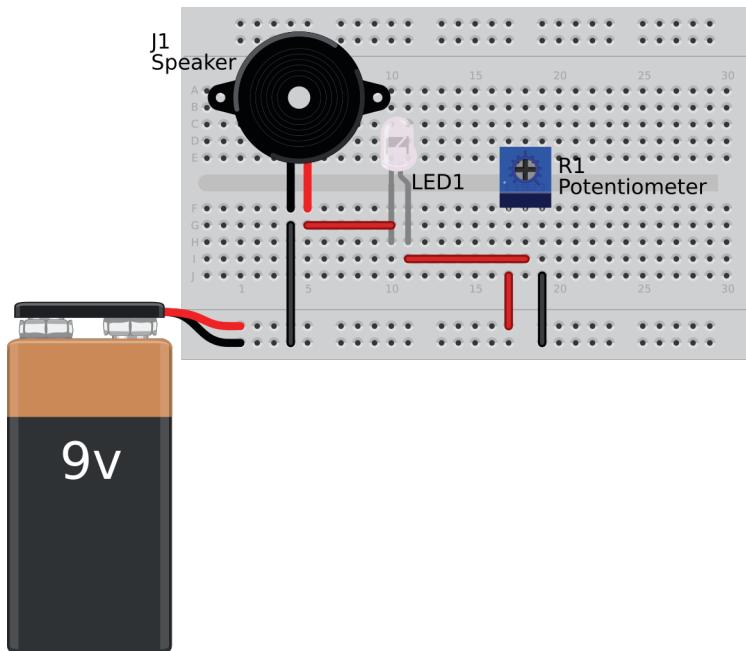
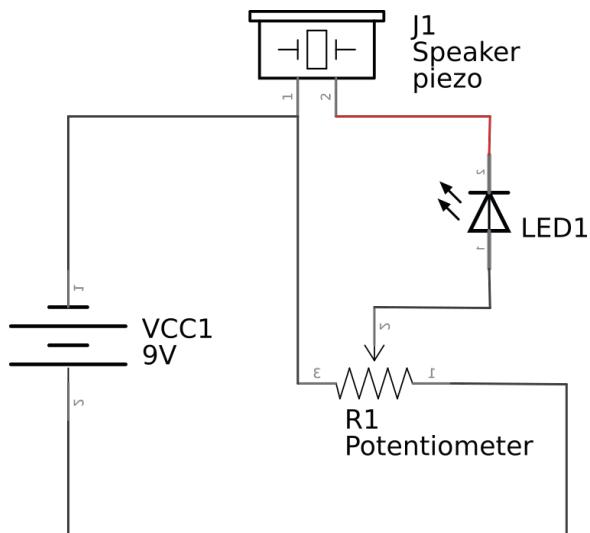
Circuit 2  
Let's get series  
LEDs in series



**Circuit 3**  
**Parallelized by fear**  
**LEDs in parallel**



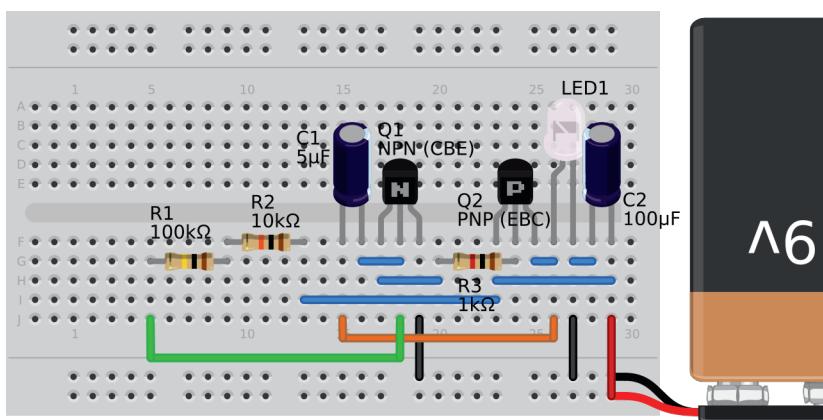
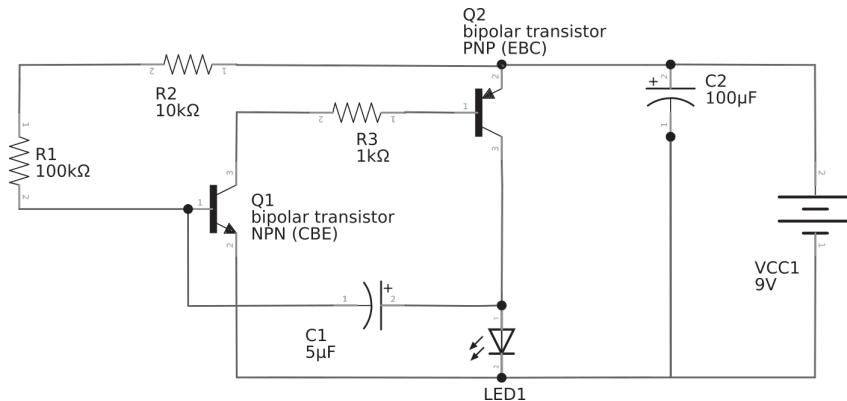
Circuit 4  
Get buzzy  
Buzzer circuit



## Circuit 5

### Blink it to me

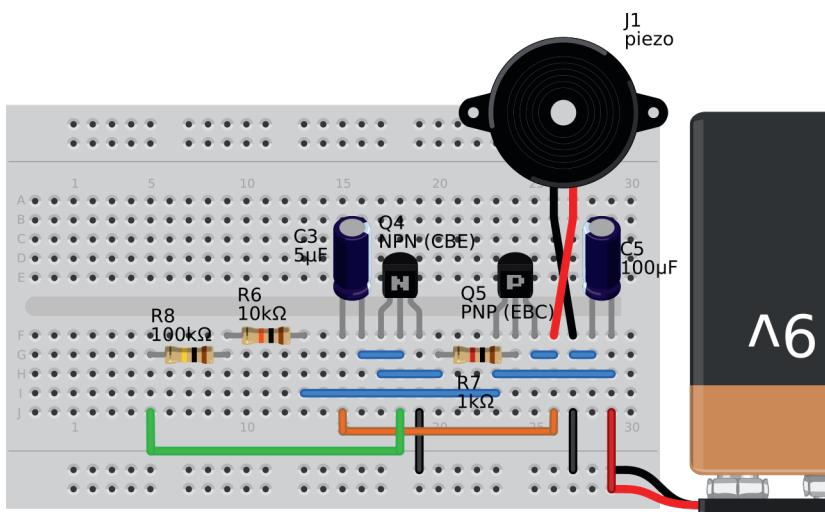
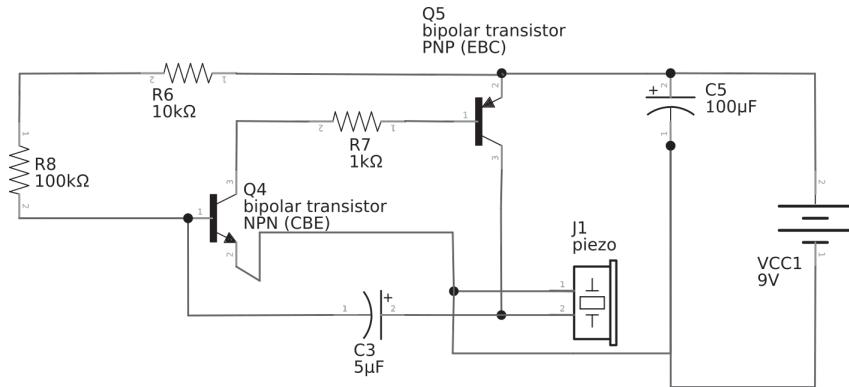
### Blink circuit



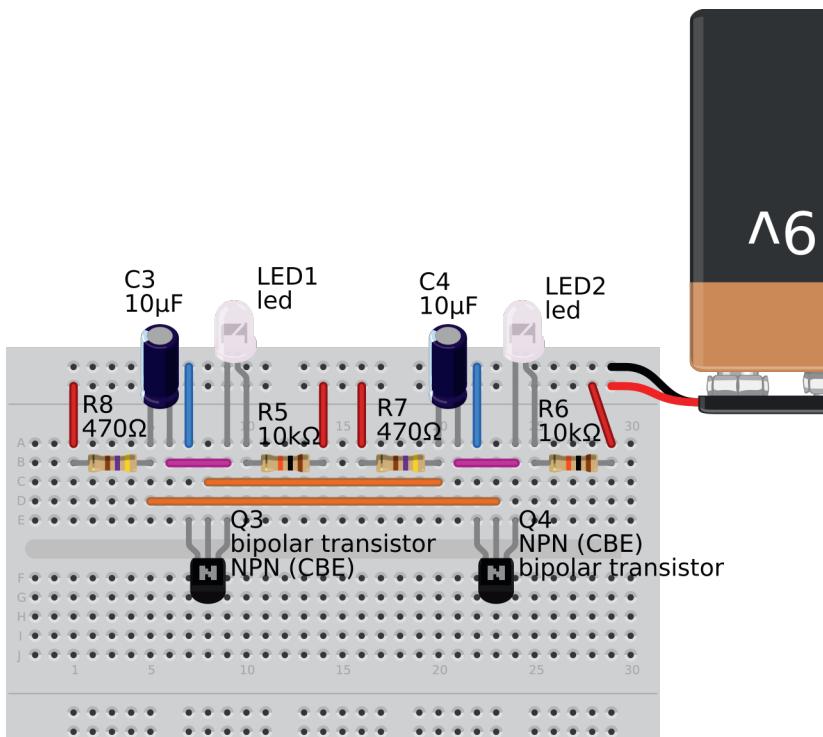
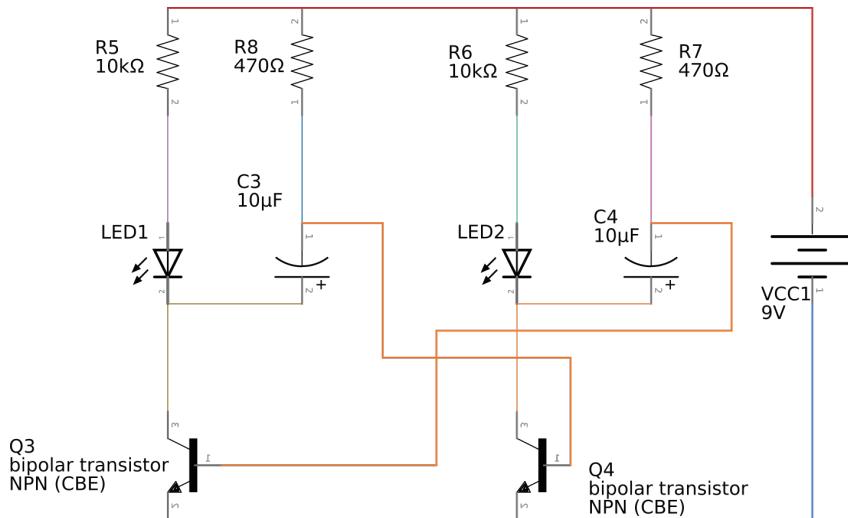
## Circuit 6

### A tick of the zombie electrons

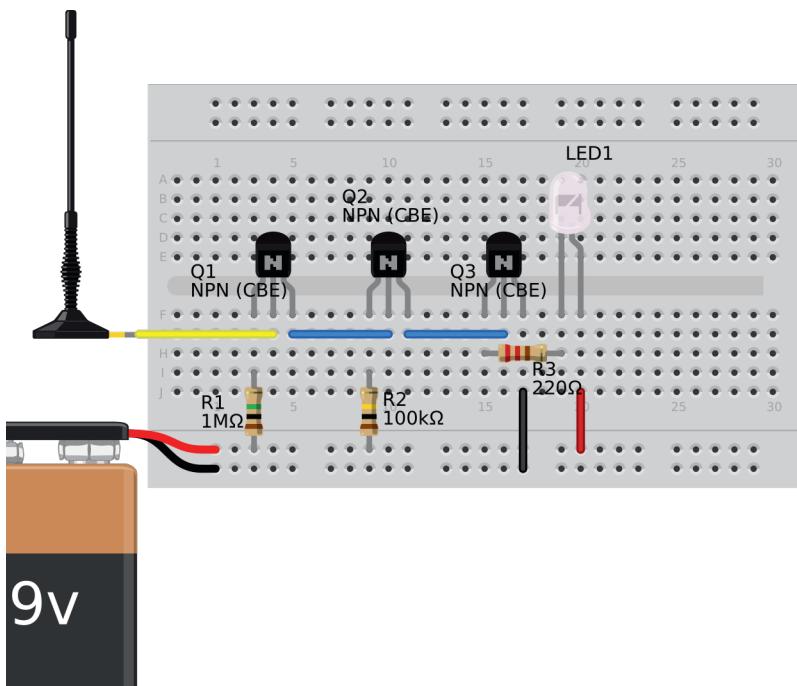
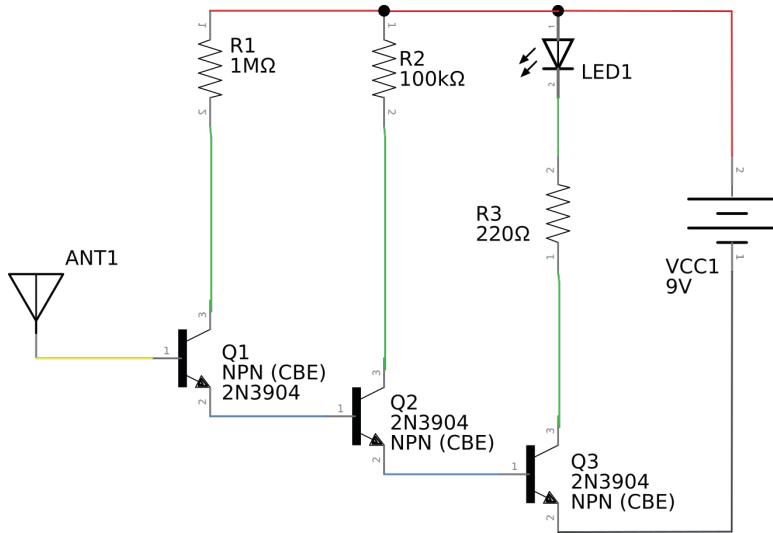
#### Tick circuit



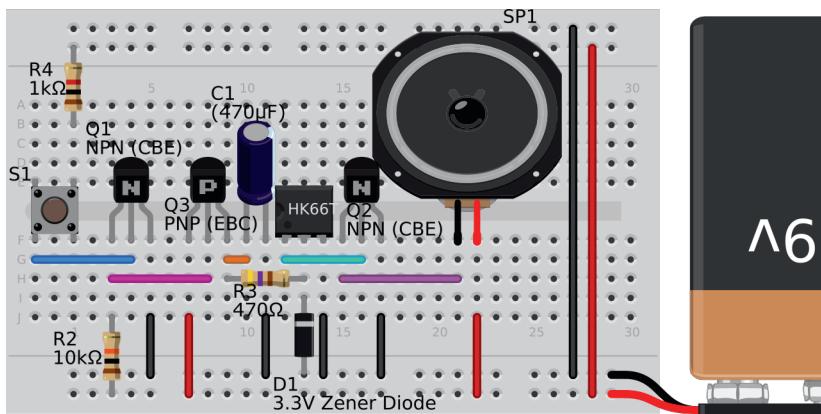
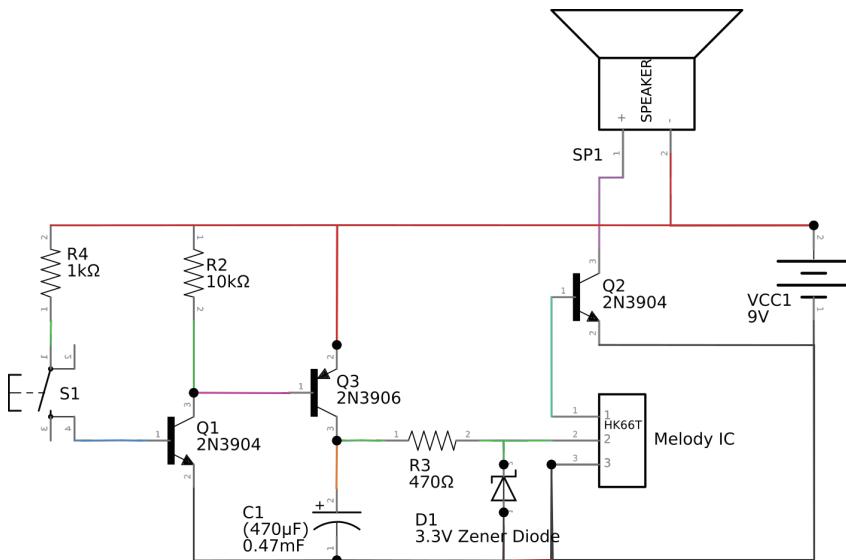
**Circuit 7**  
**The flip flop circuit**  
**Multivibrator**



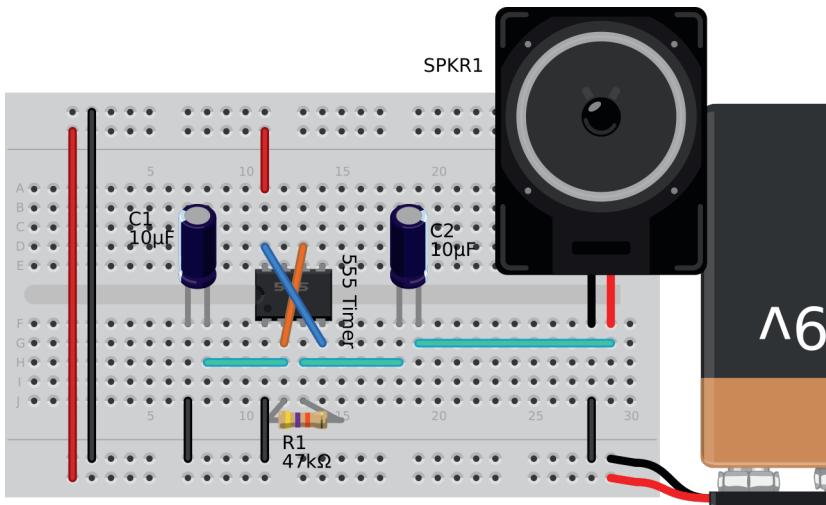
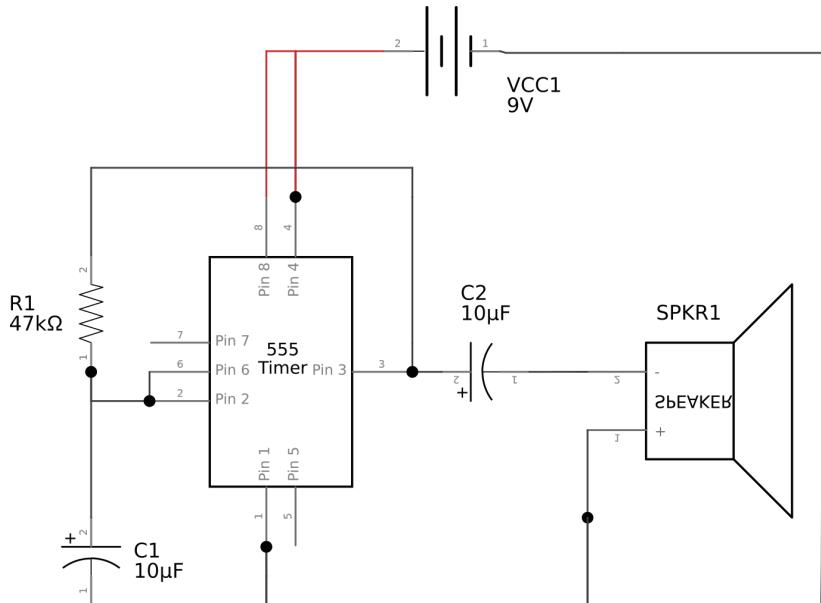
**Circuit 8**  
**Sense a disturbance in the force**  
**Electric Field sensor**



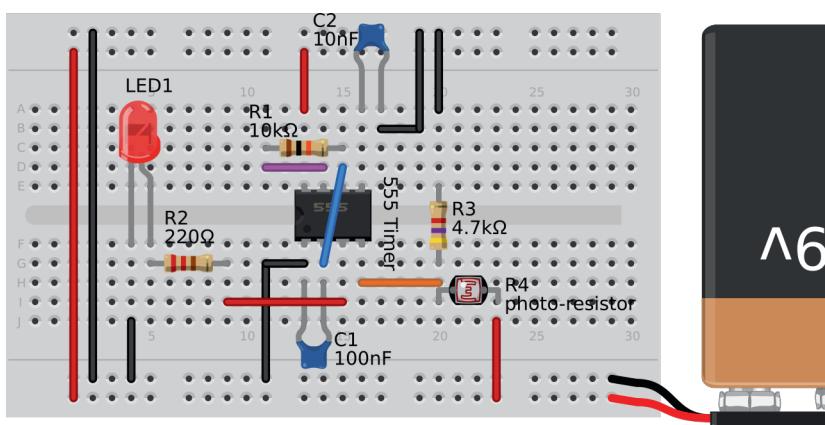
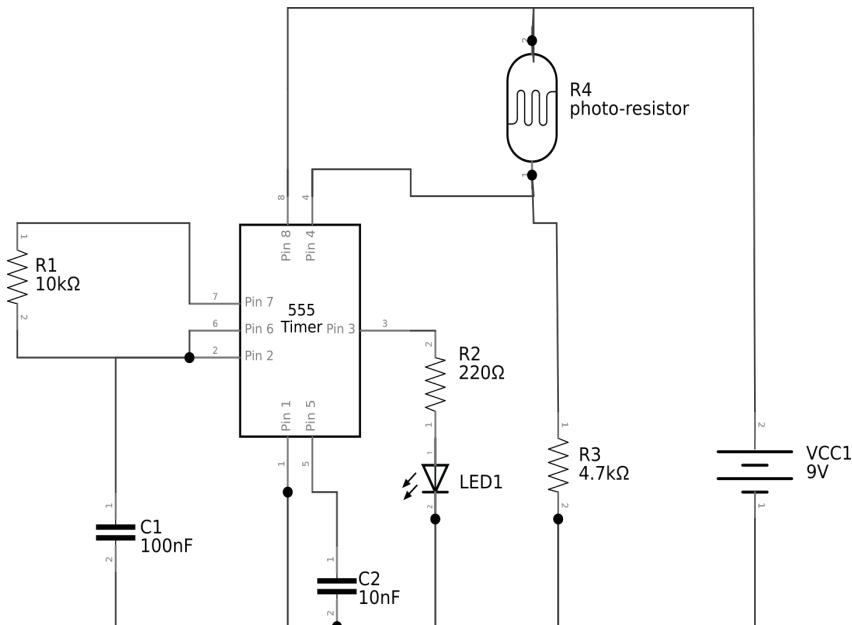
## Circuit 9 Get musical Doorbell



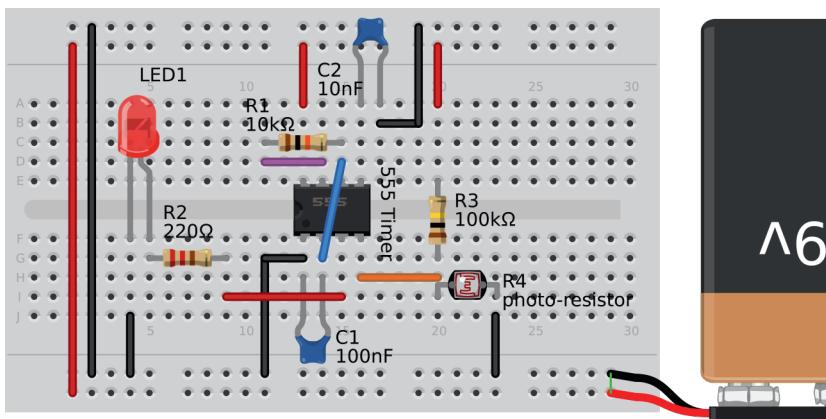
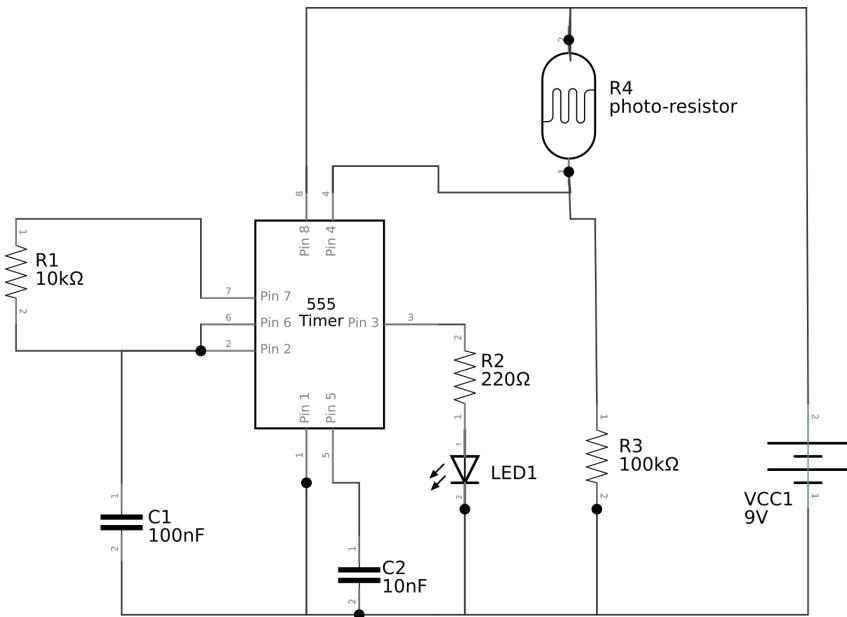
**Circuit 10**  
**555 Timer circuit**  
**Ticking clock**



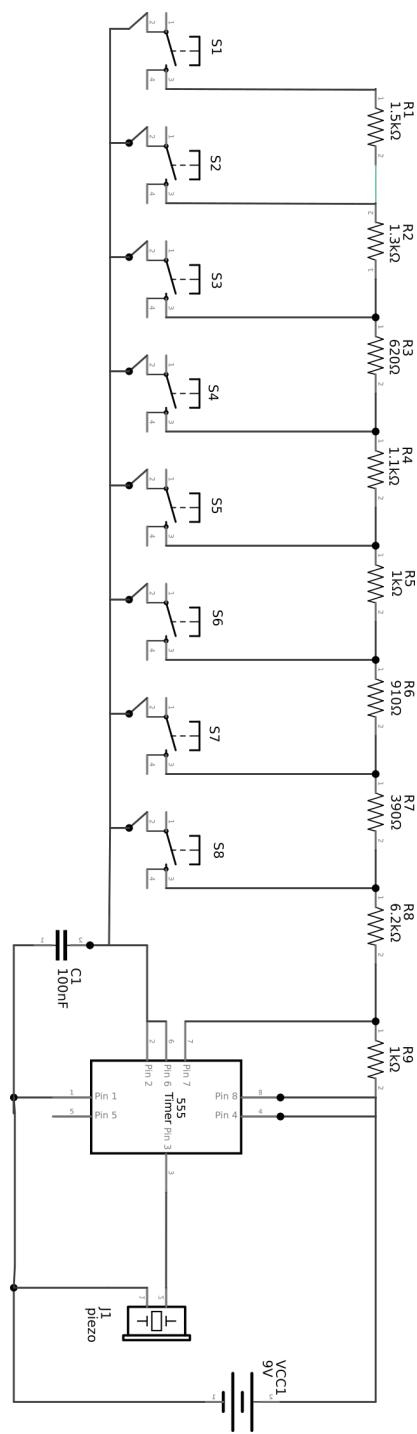
**Circuit 11**  
**555 Timer circuit**  
**Light-activated LED**



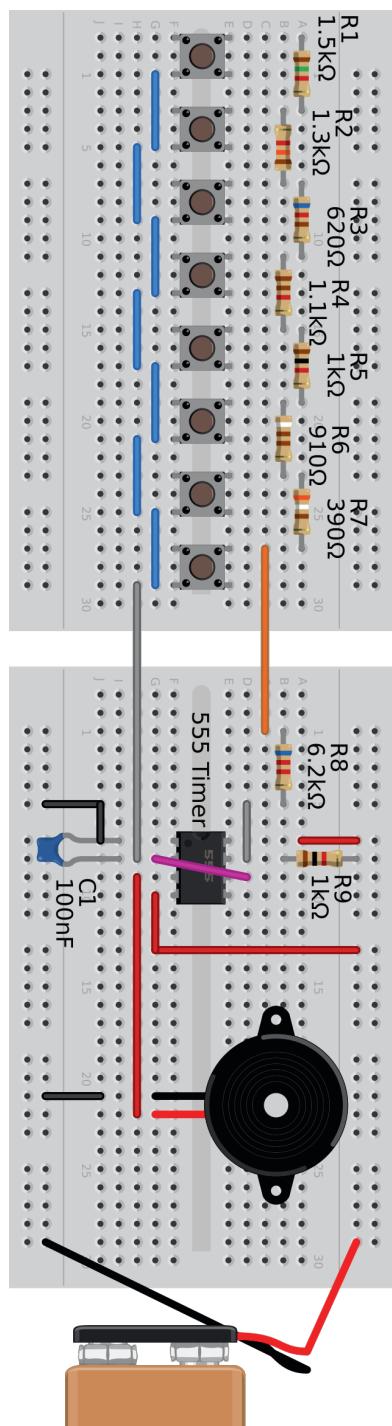
**Circuit 12**  
**555 Timer circuit**  
**Dark-activated LED**



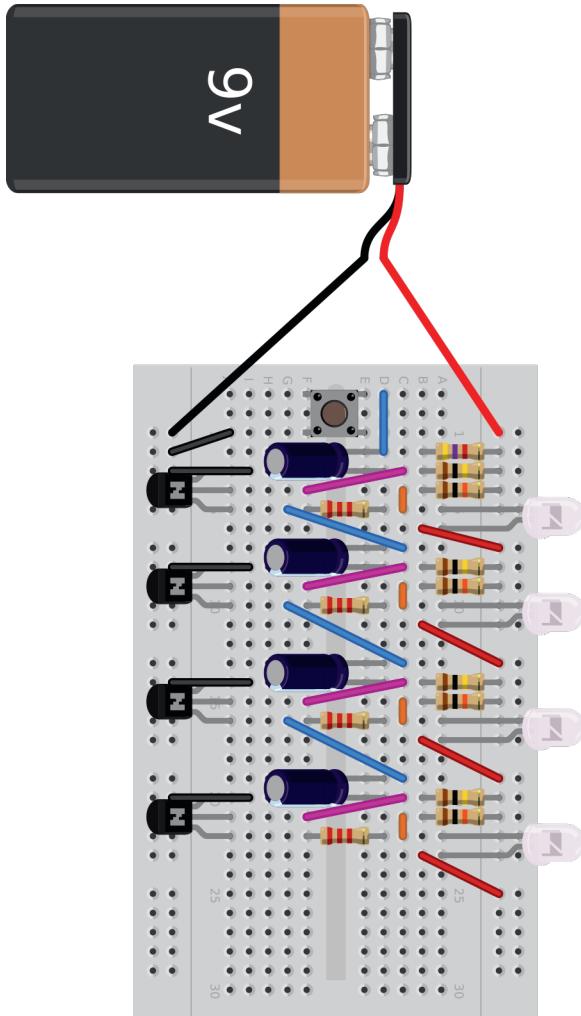
## Circuit 13 555 Timer circuit Electric piano



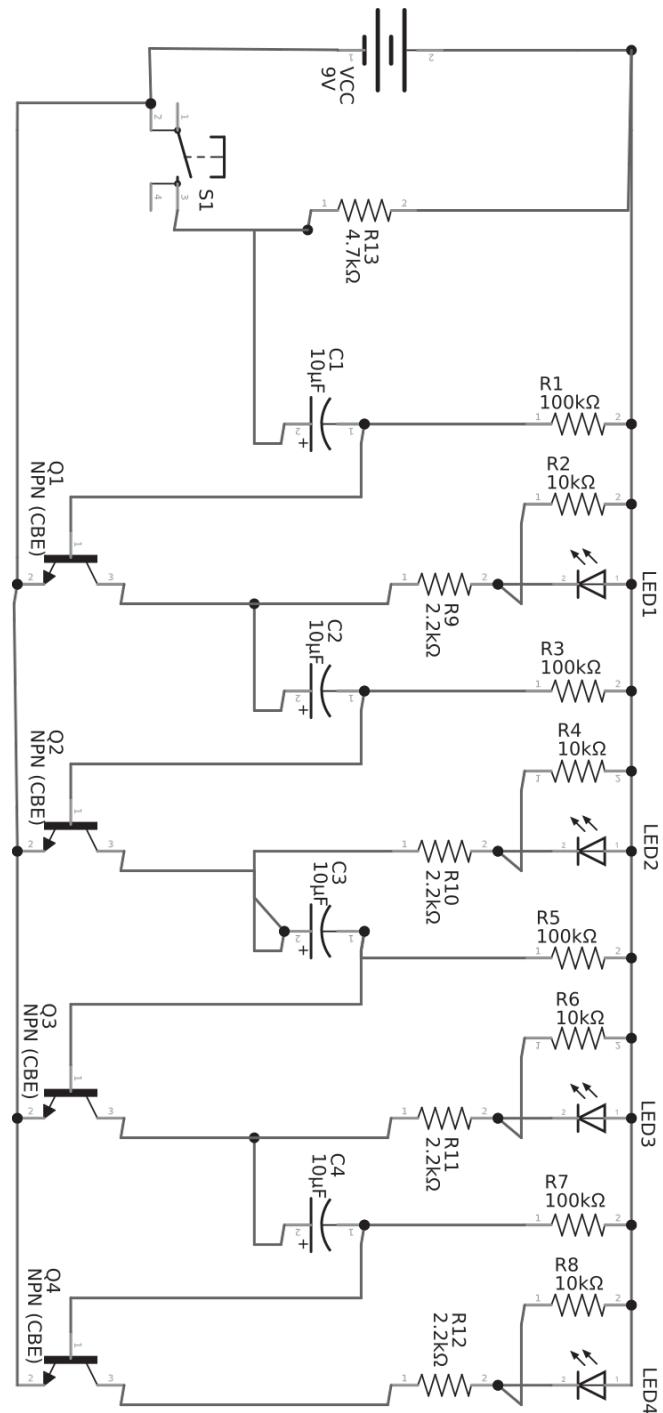
Circuit 13  
555 Timer circuit  
Electric piano



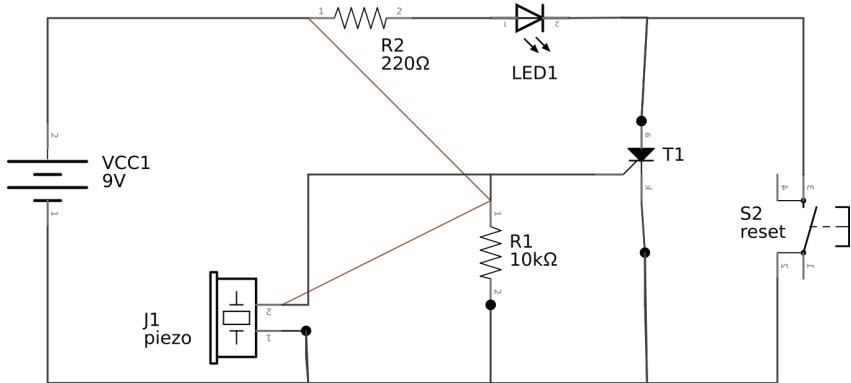
Circuit 14  
Cascading lights



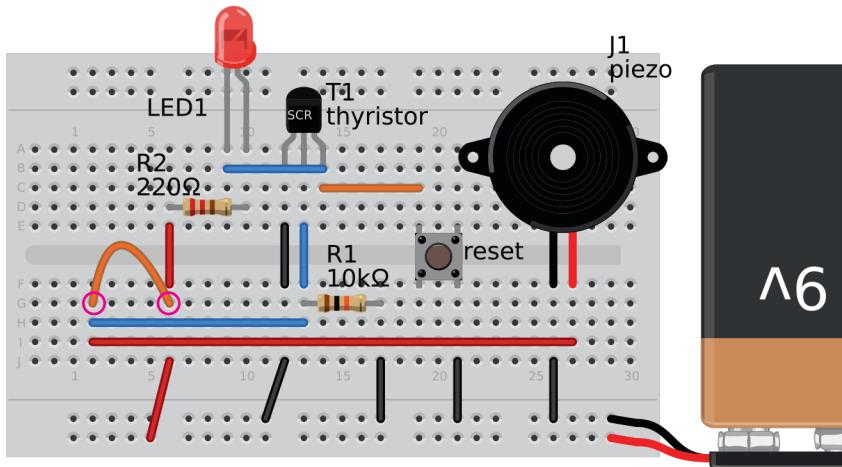
## Circuit 14 Cascading lights



## Circuit 15 Wire loop game

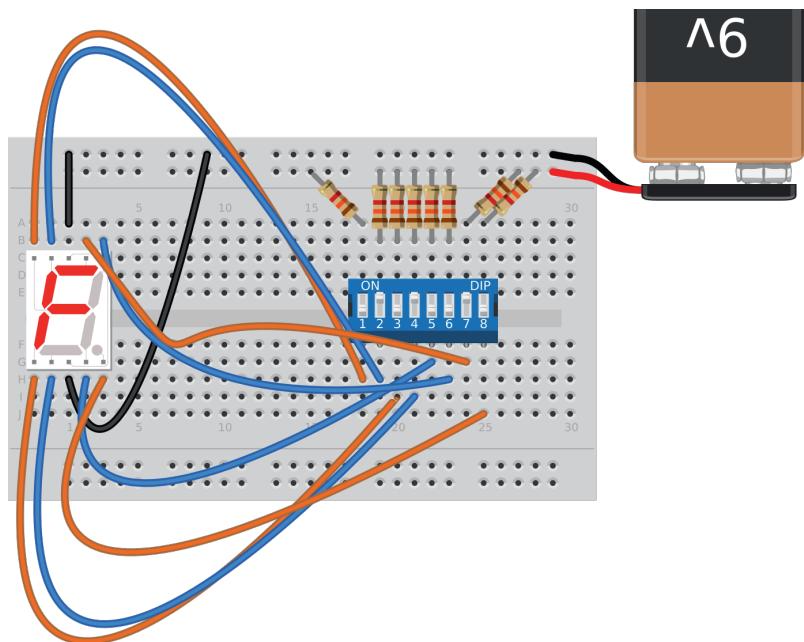
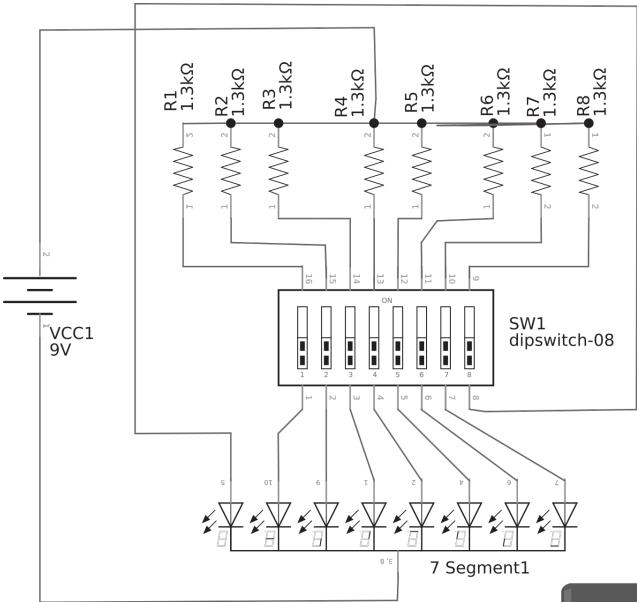


The wire and the loop go into the circled holes used by the orange wire below

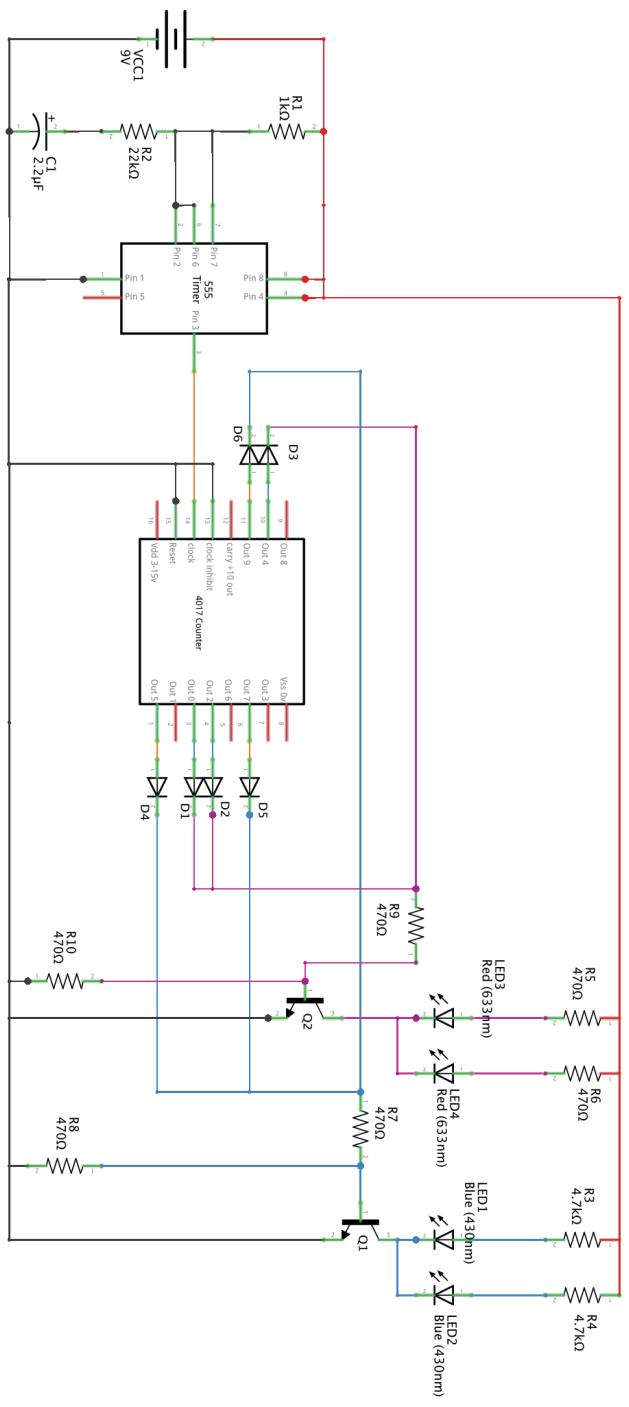


## Circuit 16

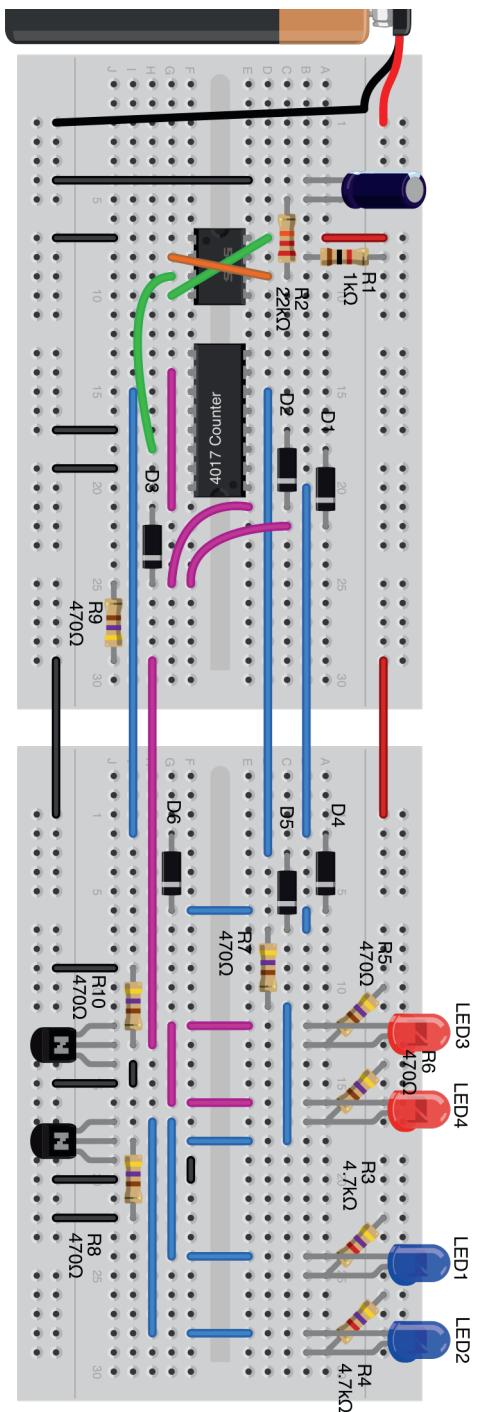
### 7-segment LED display



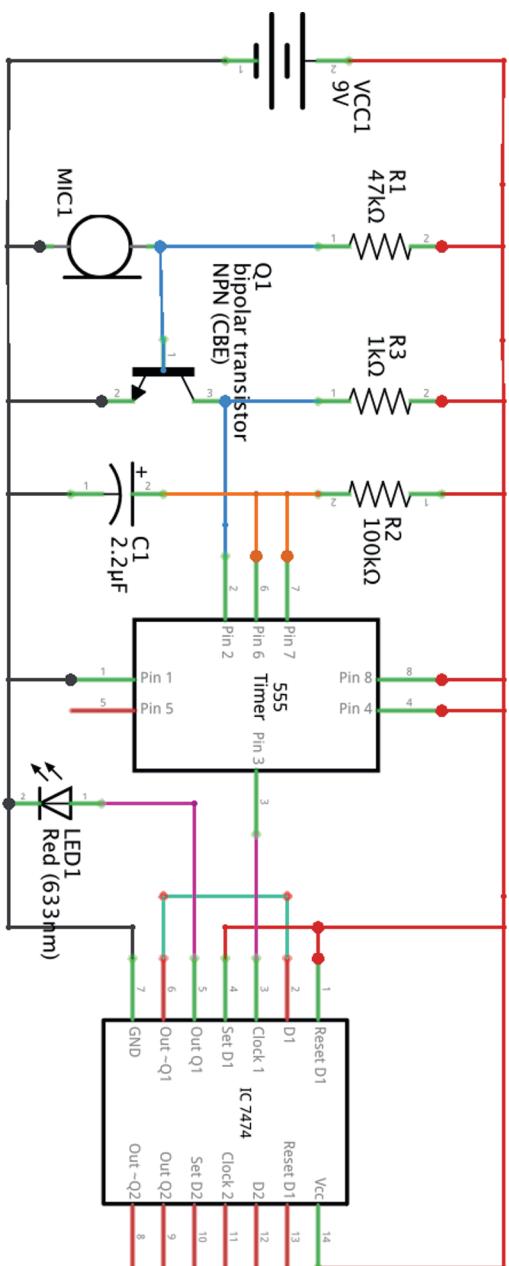
## Circuit 17 555 Timer circuit Police Lights



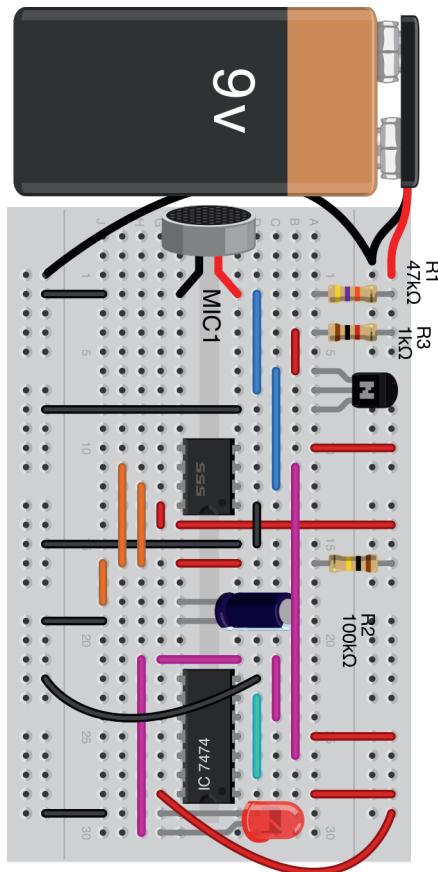
## Circuit 17 555 Timer circuit Police lights



Circuit 18  
 555 Timer circuit  
 Clap-on clap-off



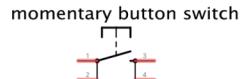
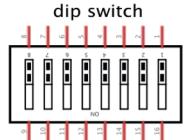
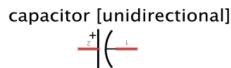
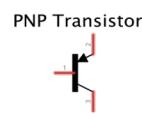
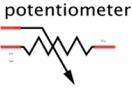
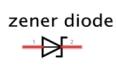
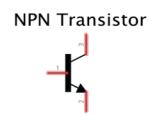
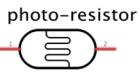
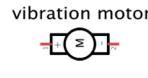
Circuit 18  
555 Timer circuit  
Clap-on clap-off



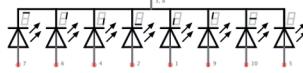
# SECTION 2

# REFERENCE

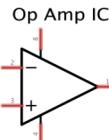
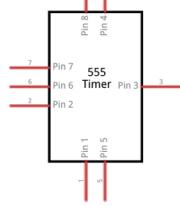
## Electronic symbols used in this book



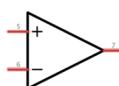
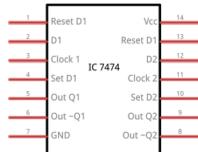
7 segment character display



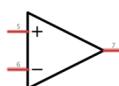
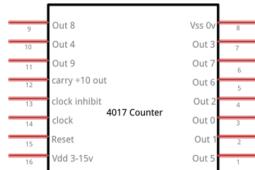
555 Timer IC



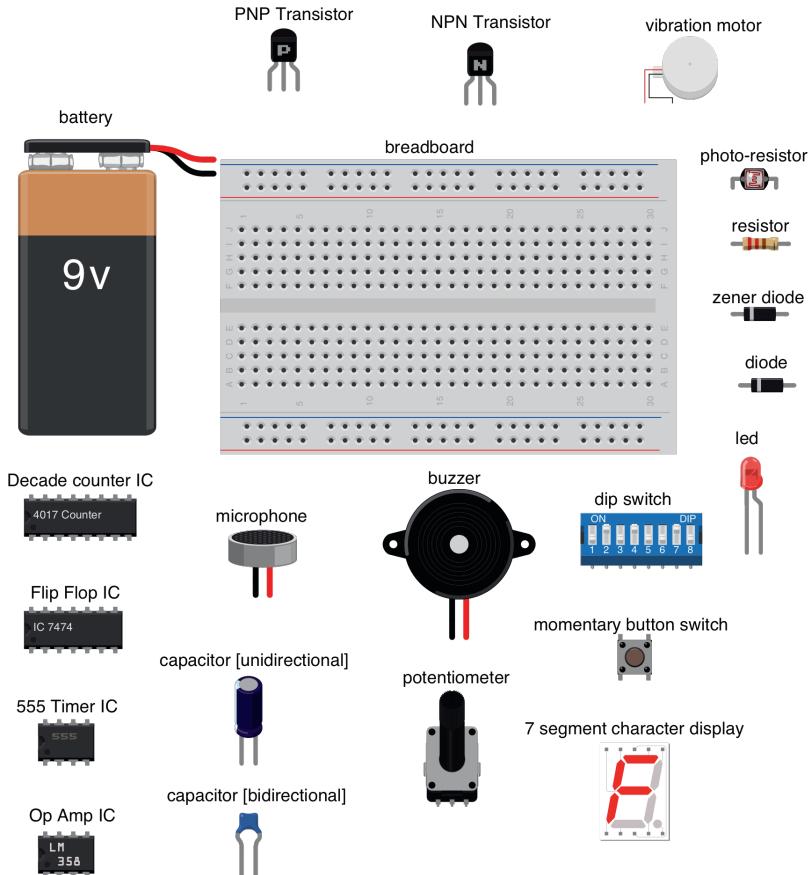
Flip Flop IC



Decade counter IC



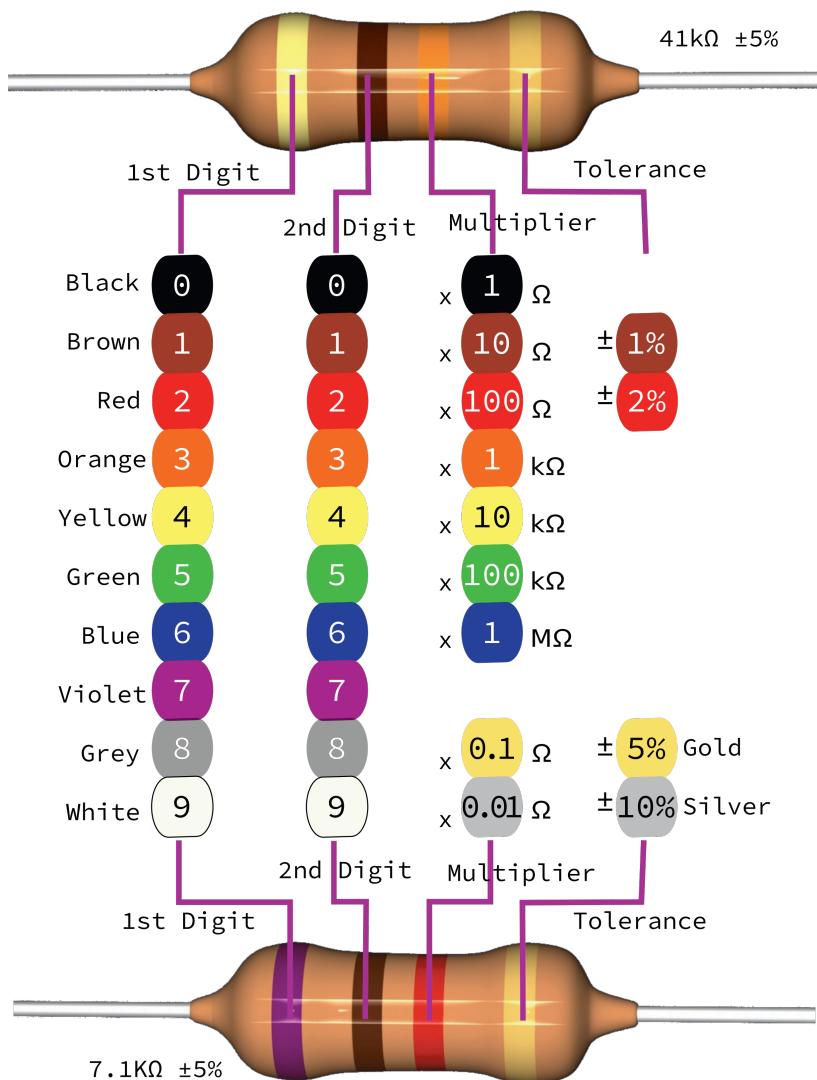
## Electronic components used in this book



Resistors used in this book

	$220\Omega$
	$390\Omega$
	$470\Omega$
	$560\Omega$
	$1.1k\Omega$
	$1.3k\Omega$
	$2.2k\Omega$
	$4.7k\Omega$
	$10k\Omega$
	$22k\Omega$
	$47k\Omega$
	$100k\Omega$
	$2.2M\Omega$
	$910\Omega$
	$4.7k\Omega$
	$1M\Omega$
	$6.2k\Omega$

## Resistor reference chart



### Red LED

Emitting color: Red

Diameter: 5mm

Lens color: Water Clear

Forward voltage(V): 2.0-2.2

Current(mA): 20

View angle: 25

Luminous intensity(MCD): 8,000 - 12,000

### Green LED

Emitting color: Green

Diameter: 5mm

Lens color: Water Clear

Forward voltage(V): 3.2-3.4

Current(mA): 20

View angle: 30

Luminous intensity(MCD): 8,000 - 10,000

### White LED

Emitting color: White

Diameter: 5mm

Lens color: Water clear

Forward Voltage(V): 3.2-3.4

Current(MA): 20

View angle: 25

Luminous intensity(MCD): 16,000 - 20,000

### Blue LED

Emitting color: Blue

Diameter: 5mm

Lens color: Water clear

Forward Voltage(V): 3.2-3.4

Current(MA): 20

View angle: 20

Luminous intensity(MCD): 12,000 - 14,000

Yellow LED

Emitting color: Yellow

Diameter: 5mm

Lens color: Water Clear

Wavelength: 587-590nm

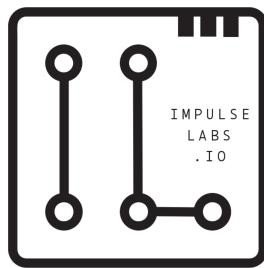
Forward voltage(V): 1.9-2.1

Current(mA): 20

View angle: 30

Luminous intensity(MCD): 2,000 - 3,000





# IMPULSE LABS

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