

Beep Beep Booper

Building A Lil Analog Piano

With Gracy, Bianca, & Priyanka!

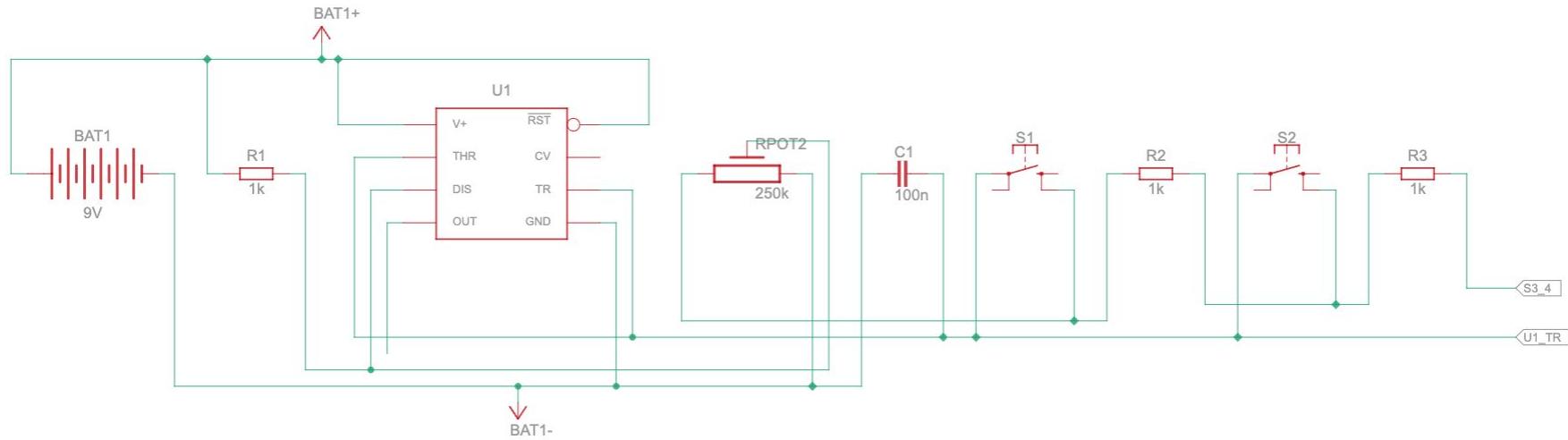
Beep Beep Booper

Part I - The Circuit

Part II - Enclosure

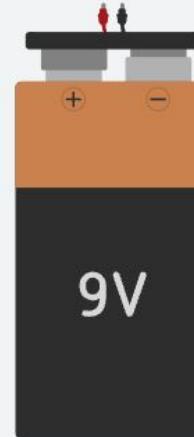
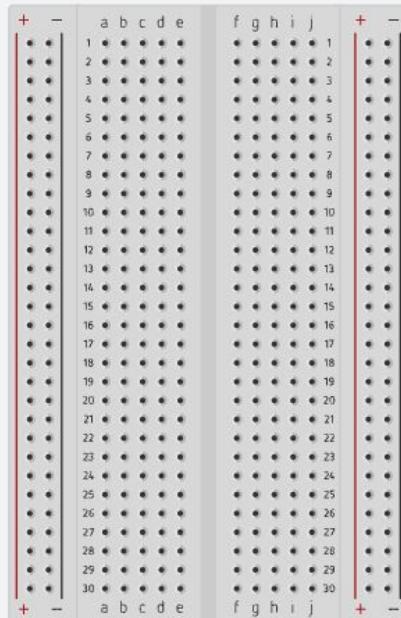
Beep Beep Booper Part I

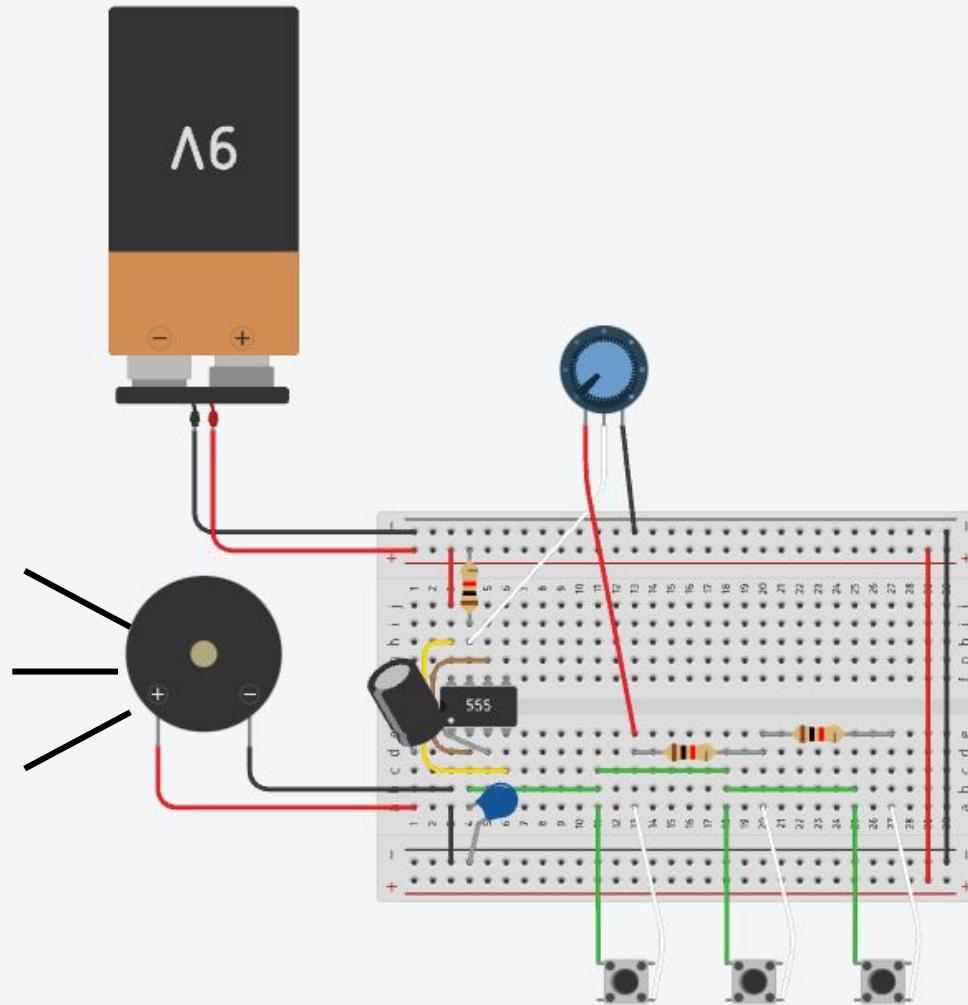
The Circuit



Parts:

- 1 - small breadboard
- 1 - speaker
- 1 - 9V battery (with clip)
- 3 - buttons
- 1 - 555 timer chip
- 3 - $1\text{k}\Omega$ resistors
- 1 - 100nF capacitor
- 1 - 10\mu F capacitor
- 1 - $10\text{k}\Omega$ potentiometer
- Wire





Resistors:

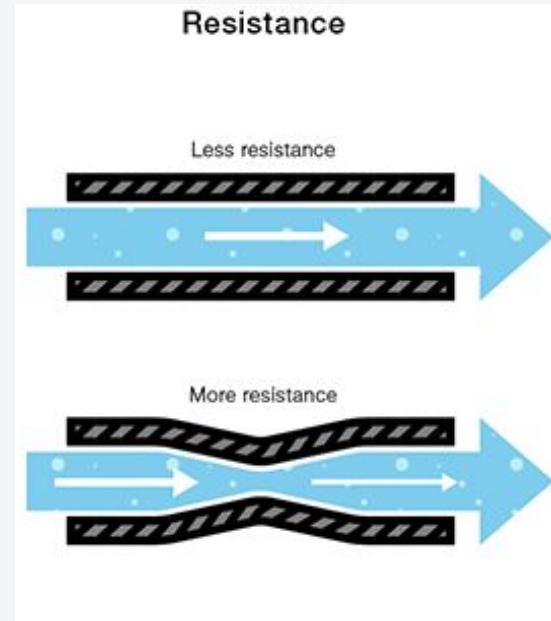
- An electrical component that creates resistance in the flow of electric current
- POTENTIOMETER is a variable resistor - meaning it can change the resistance



Fixed
resistor
(1k ohms)



Potentiometer
(up to 10k
ohms)



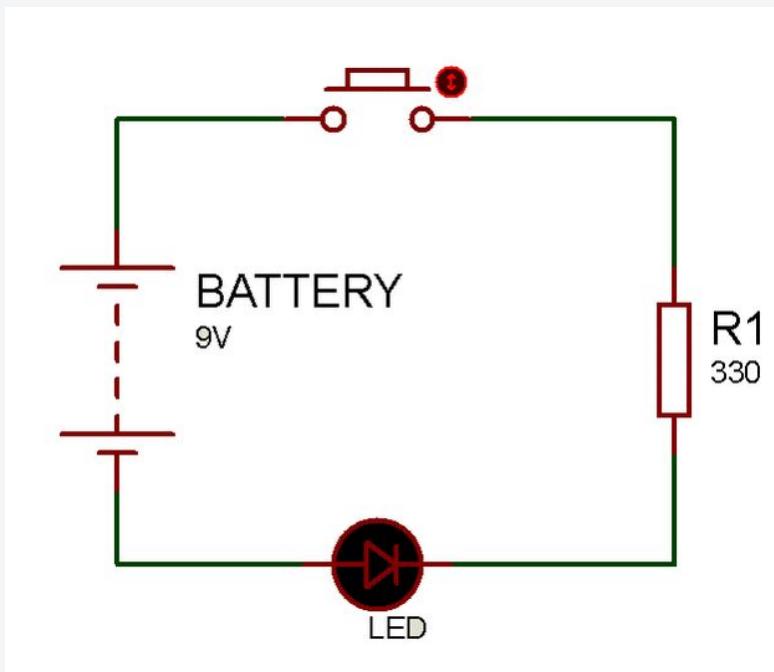
Capacitors:

- A device that stores electrical energy (like a mini battery!)
- They charge up and discharge electricity
- Some capacitors are polarized (meaning they have a positive and negative) and some are not :)



Pushbutton:

- A component that allows a path to be connected or disconnected.



What is a 555 Timer Chip?



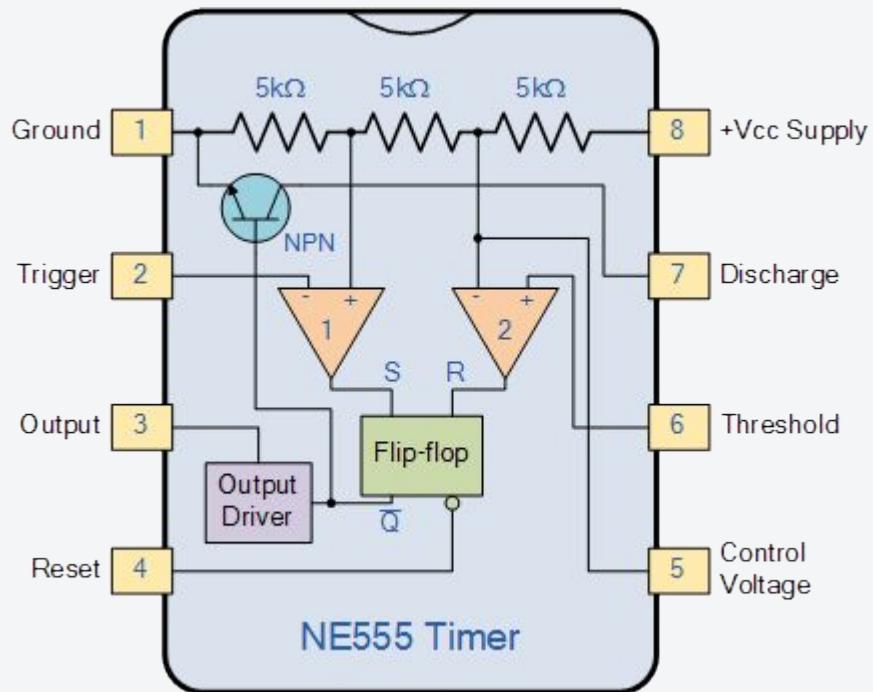
What is a 555 Timer Chip?



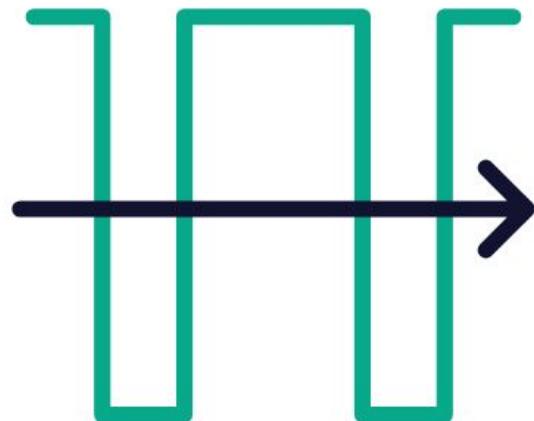
It's a timing
device!

Used for timers, delays, oscillators, etc.

What is a 555 Timer Chip?

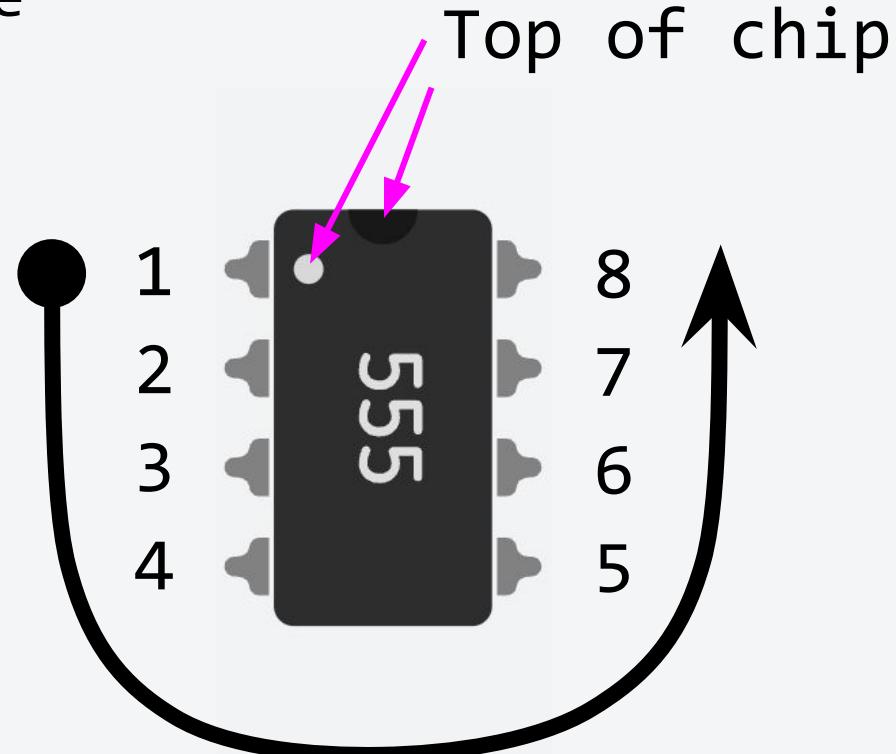


Square wave!



This is what we'll
be hearing :)

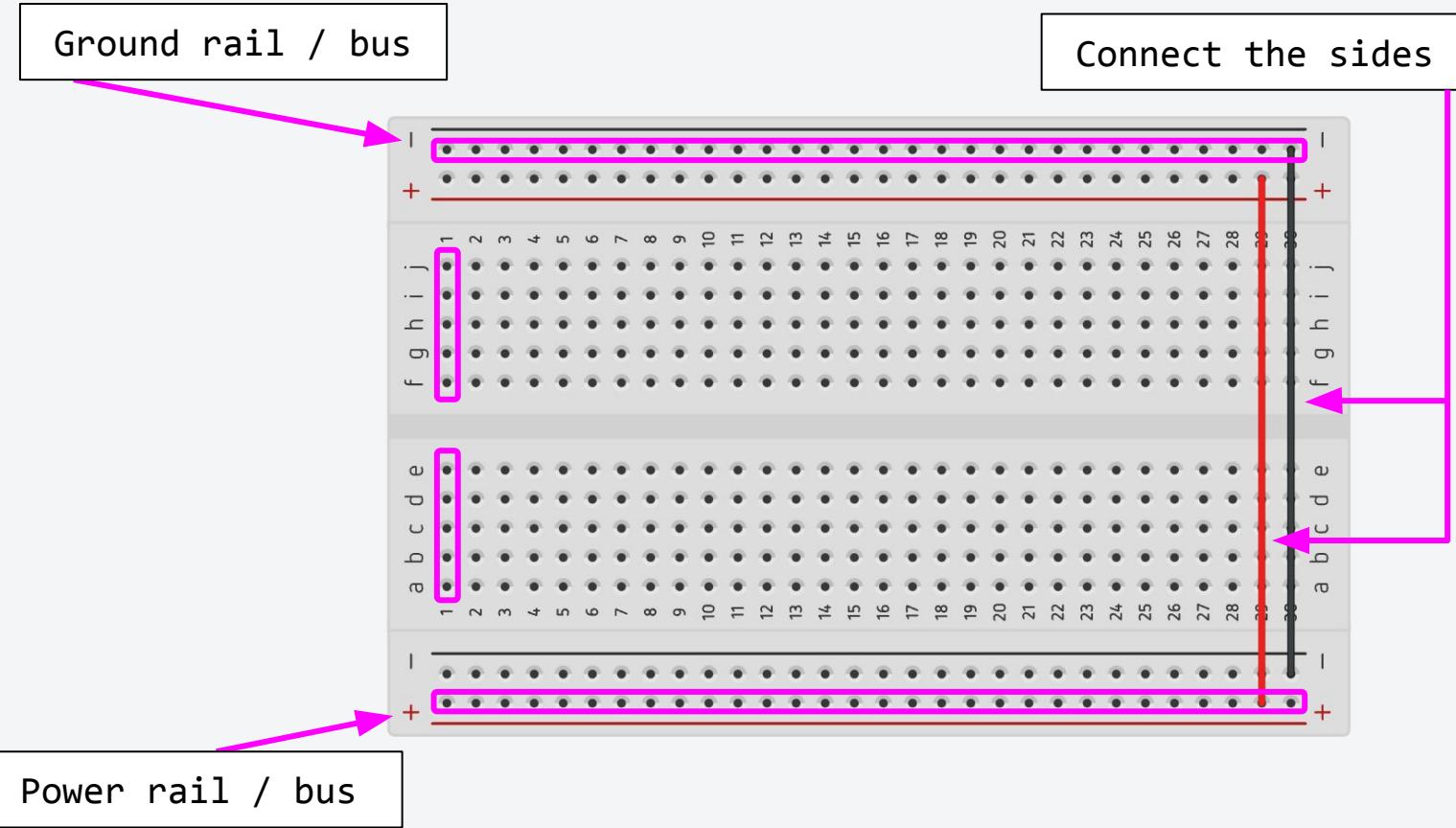
How to read the
pin numbers:



Breadboard:

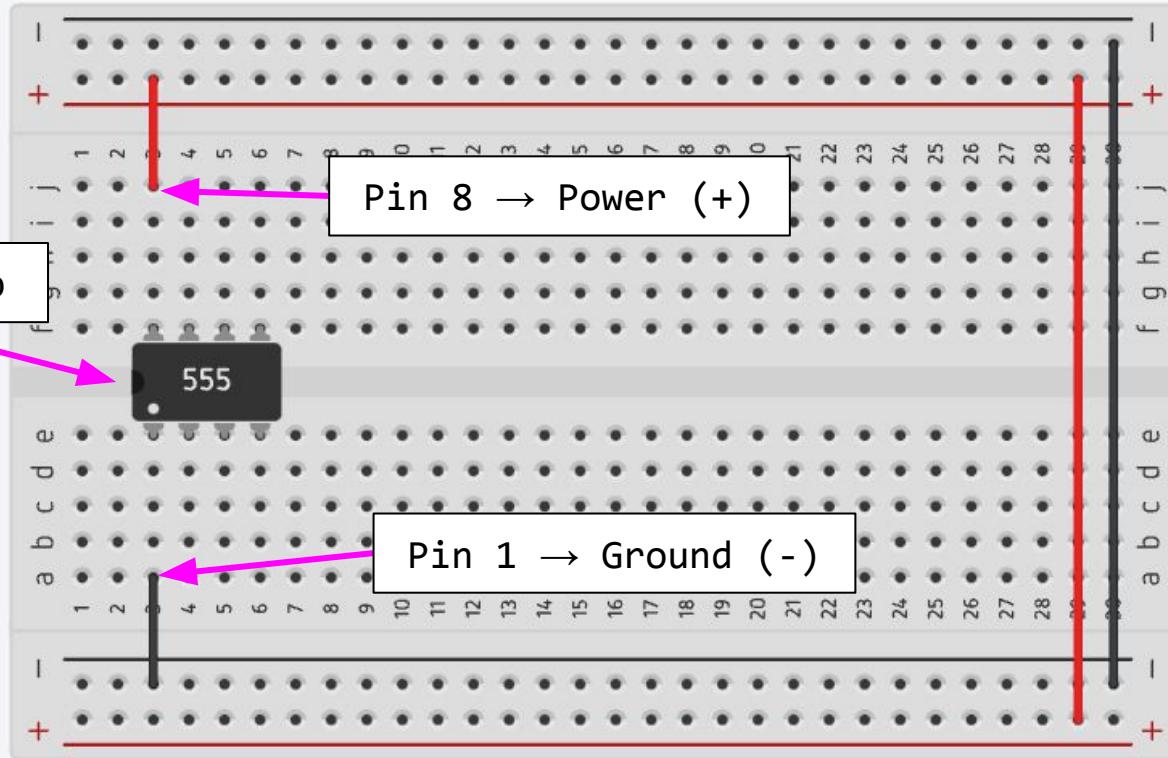
Ground rail / bus

Connect the sides

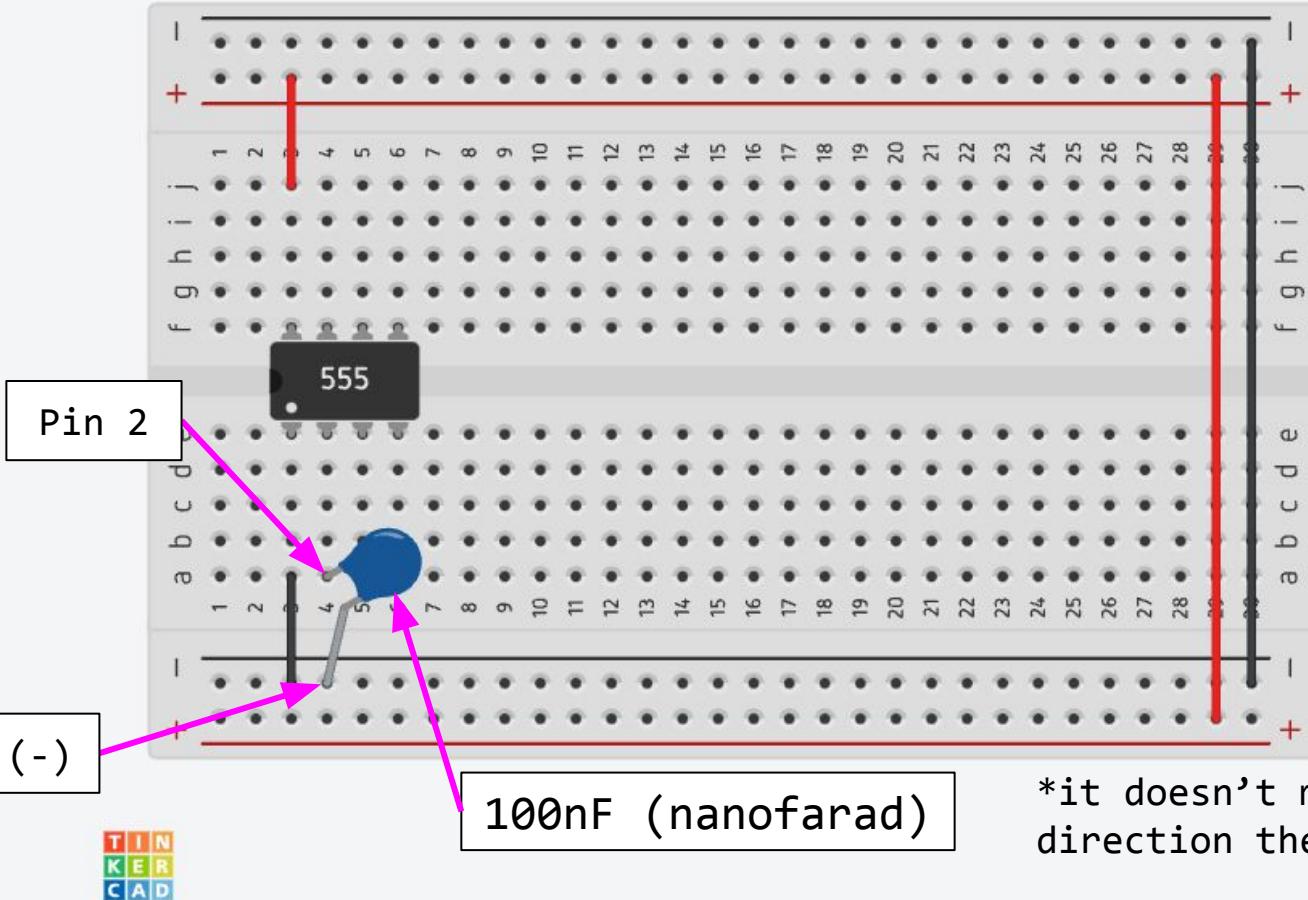


Power rail / bus

Start with the 555 timer and some wires



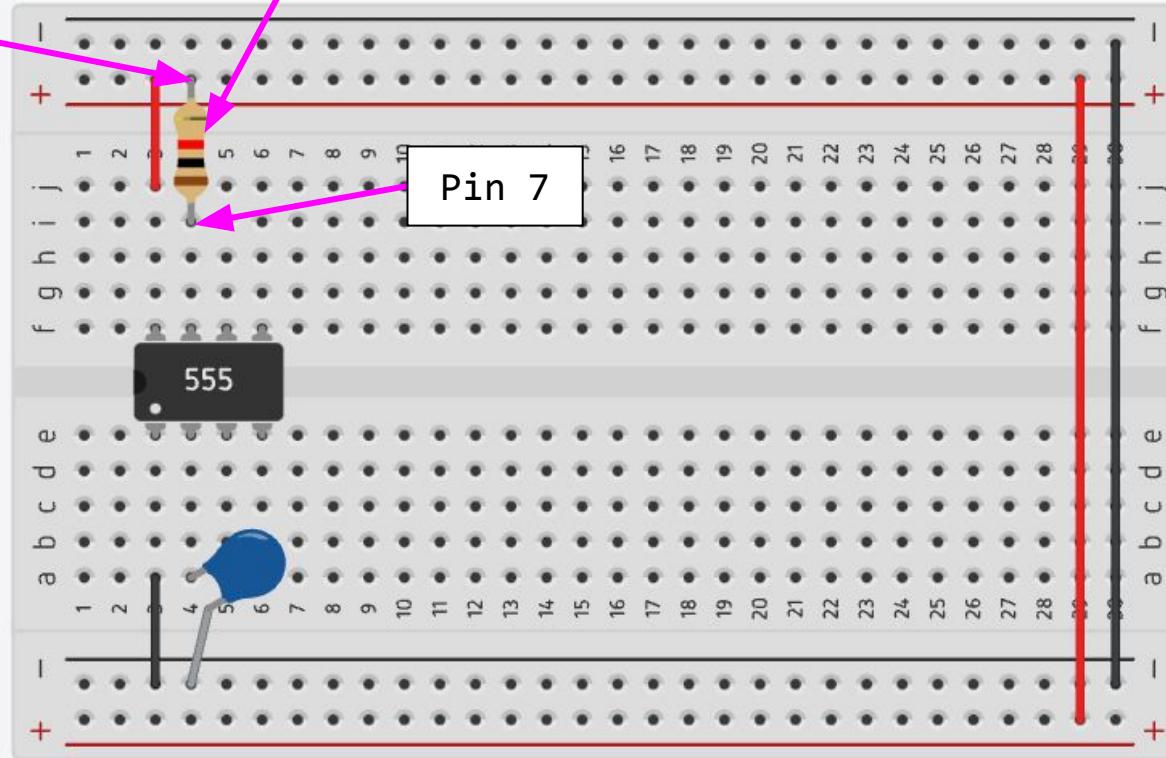
Add a capacitor



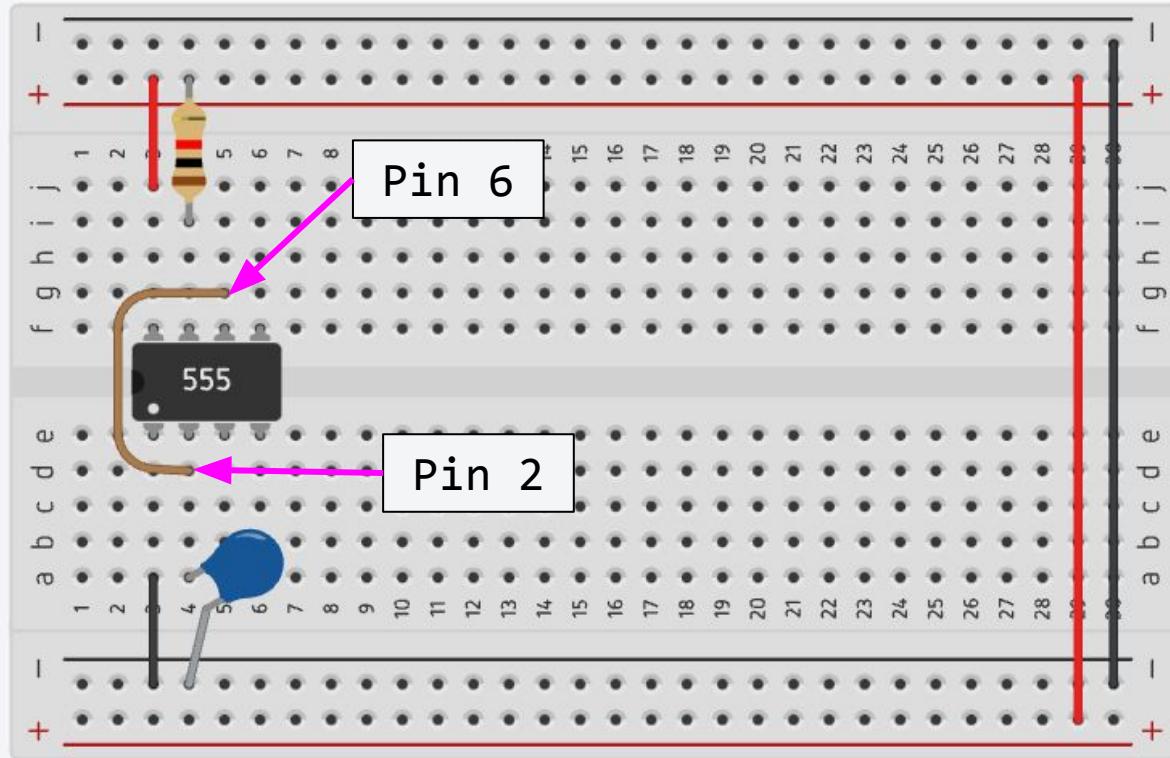
Add a resistor

Power (+)

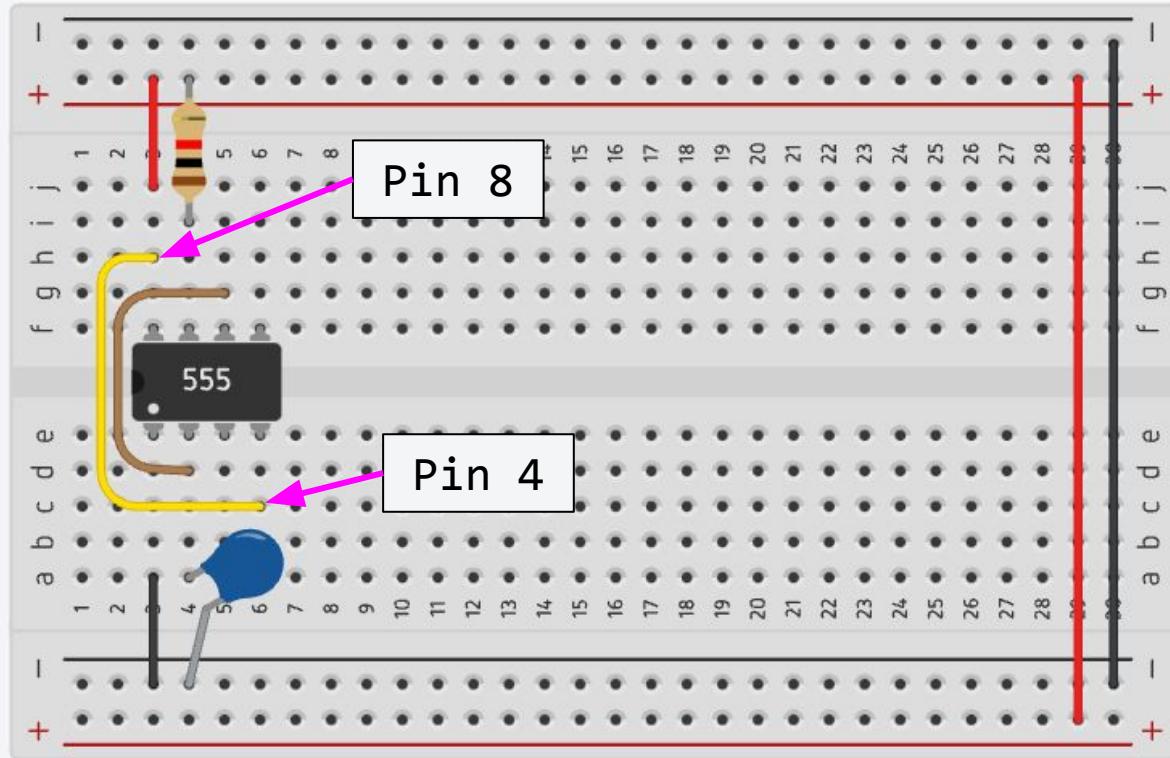
1kΩ



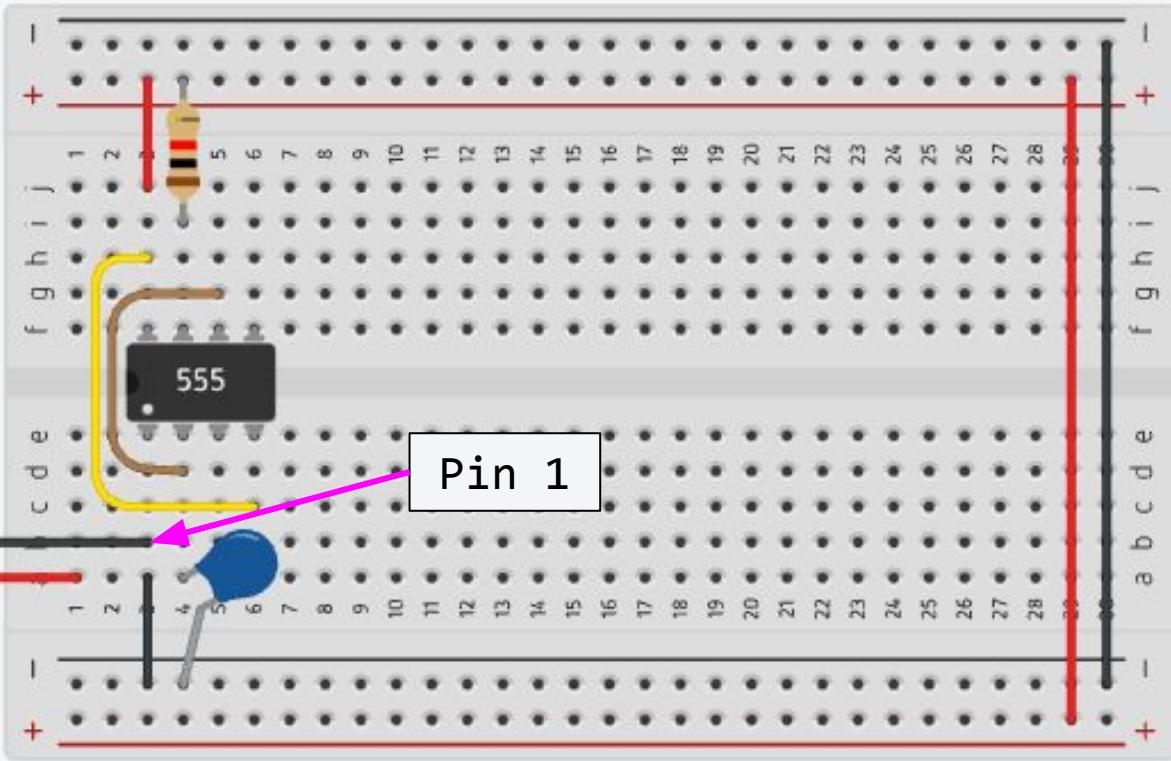
Add some wires



Add some wires

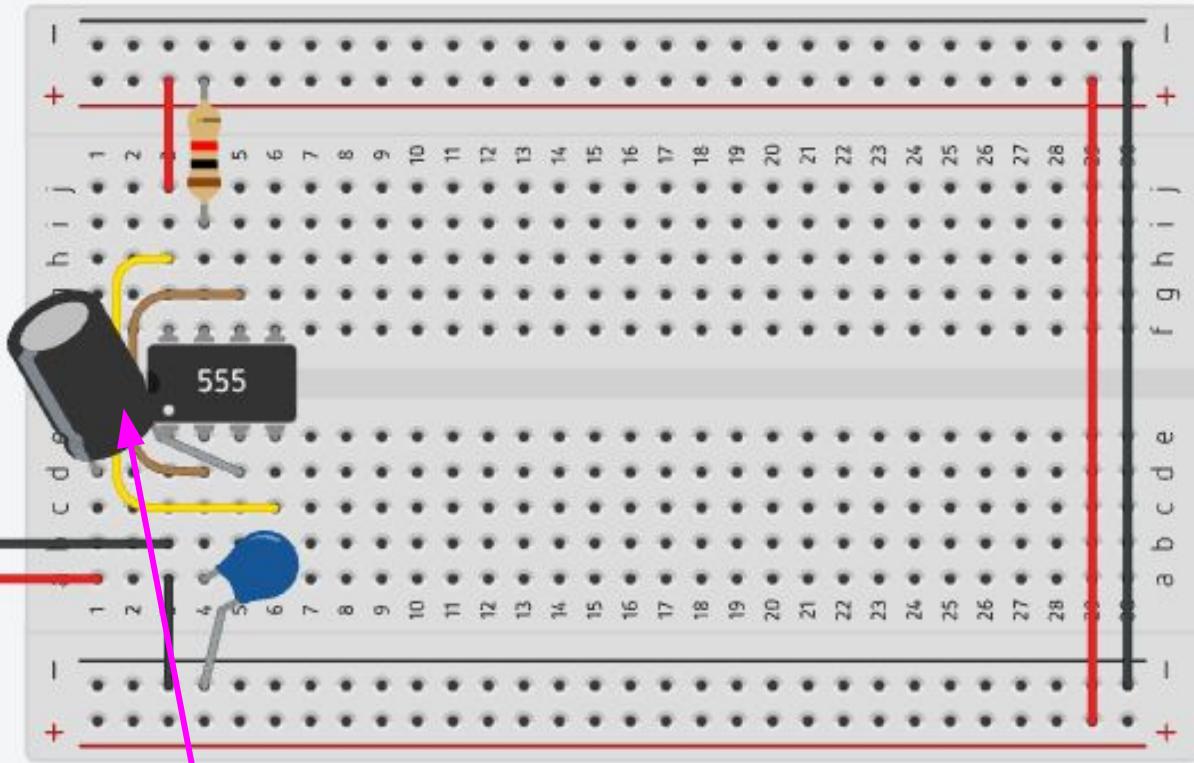


Add the speaker



Add another capacitor

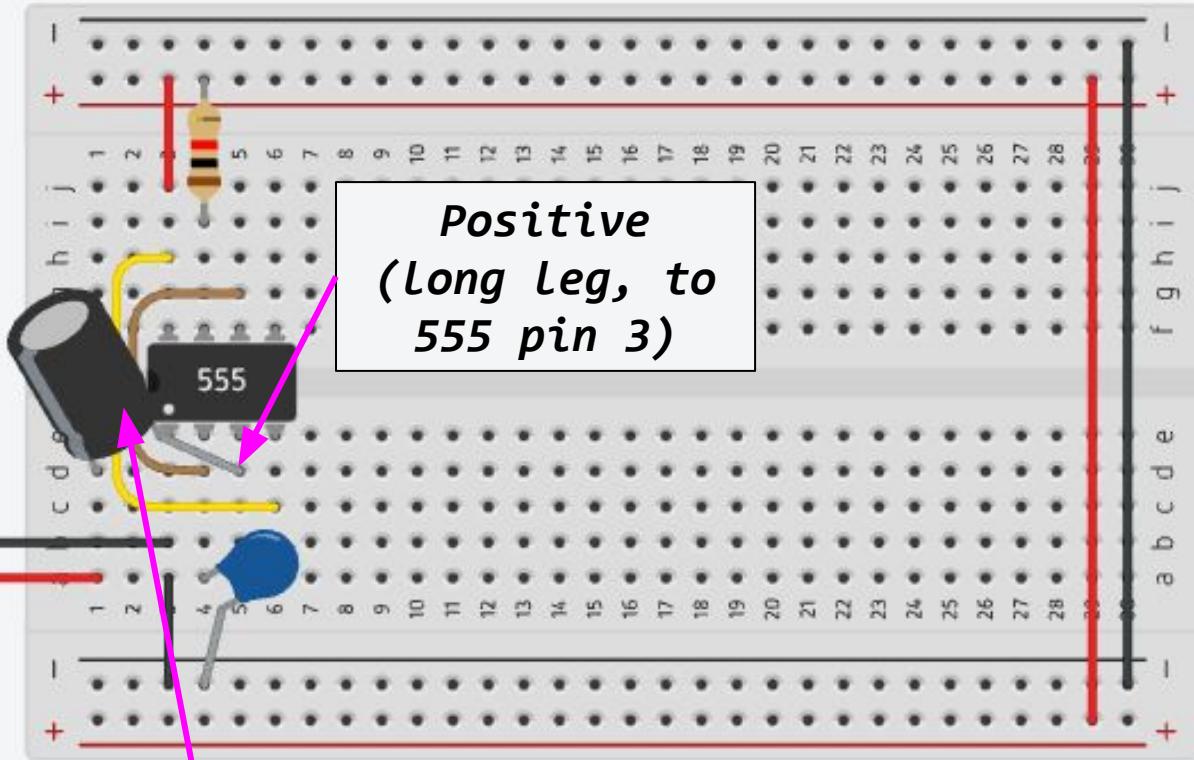
*the grey line on
your capacitor should
match the diagram



10uF (microfarad)

Add another capacitor

*the grey line on
your capacitor should
match the diagram

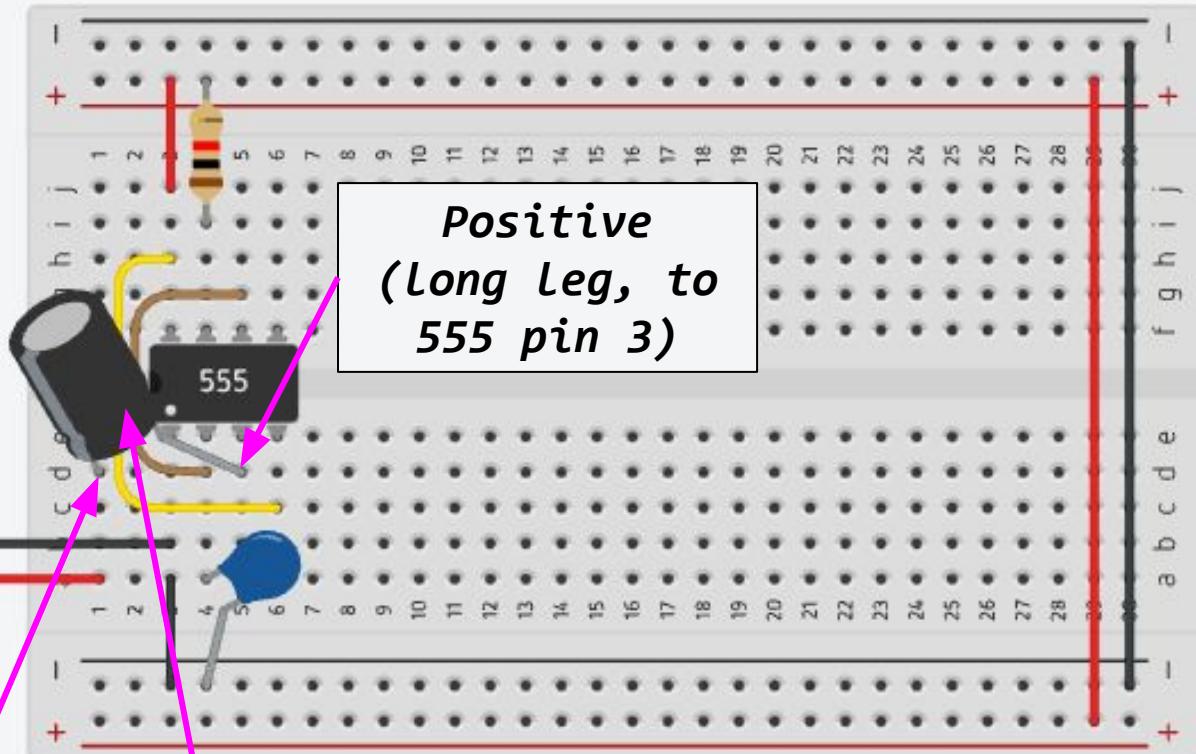


Add another capacitor

*the grey line on your capacitor should match the diagram

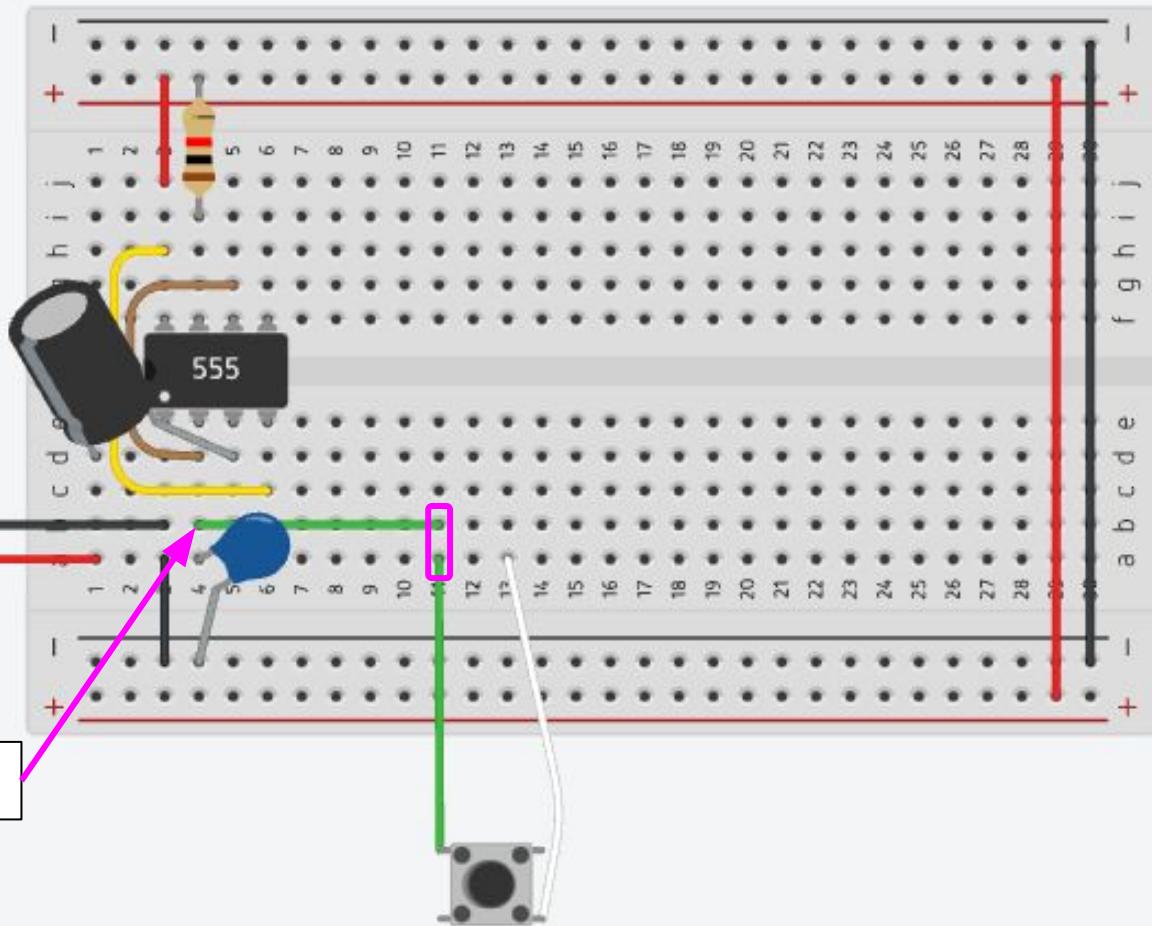
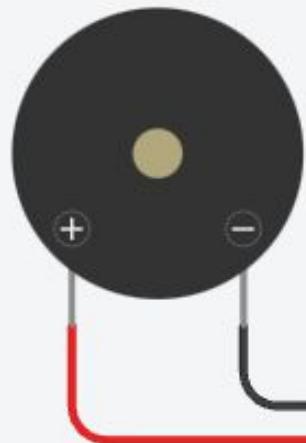


*Negative
(short leg, to
speaker red wire)*



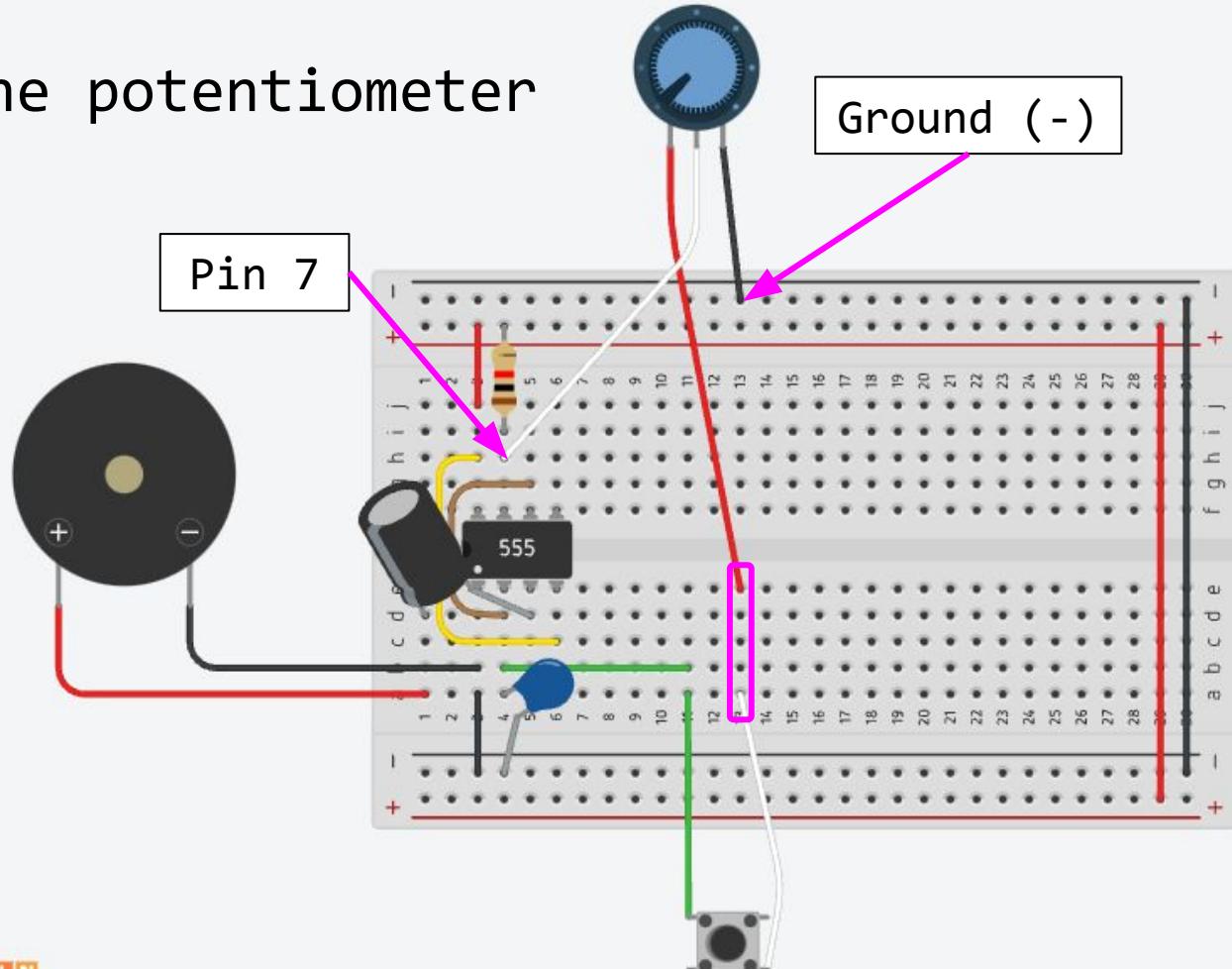
10uF (microfarad)

Add a button

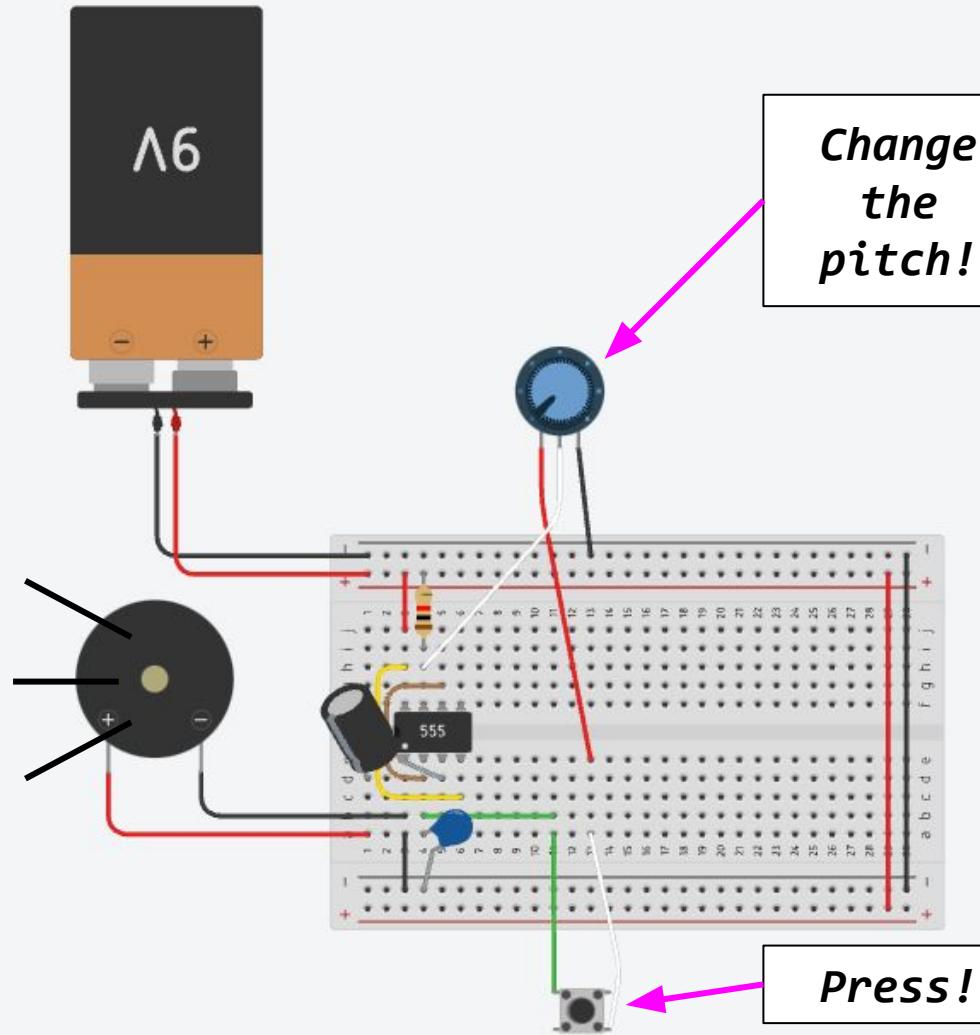


Pin 2

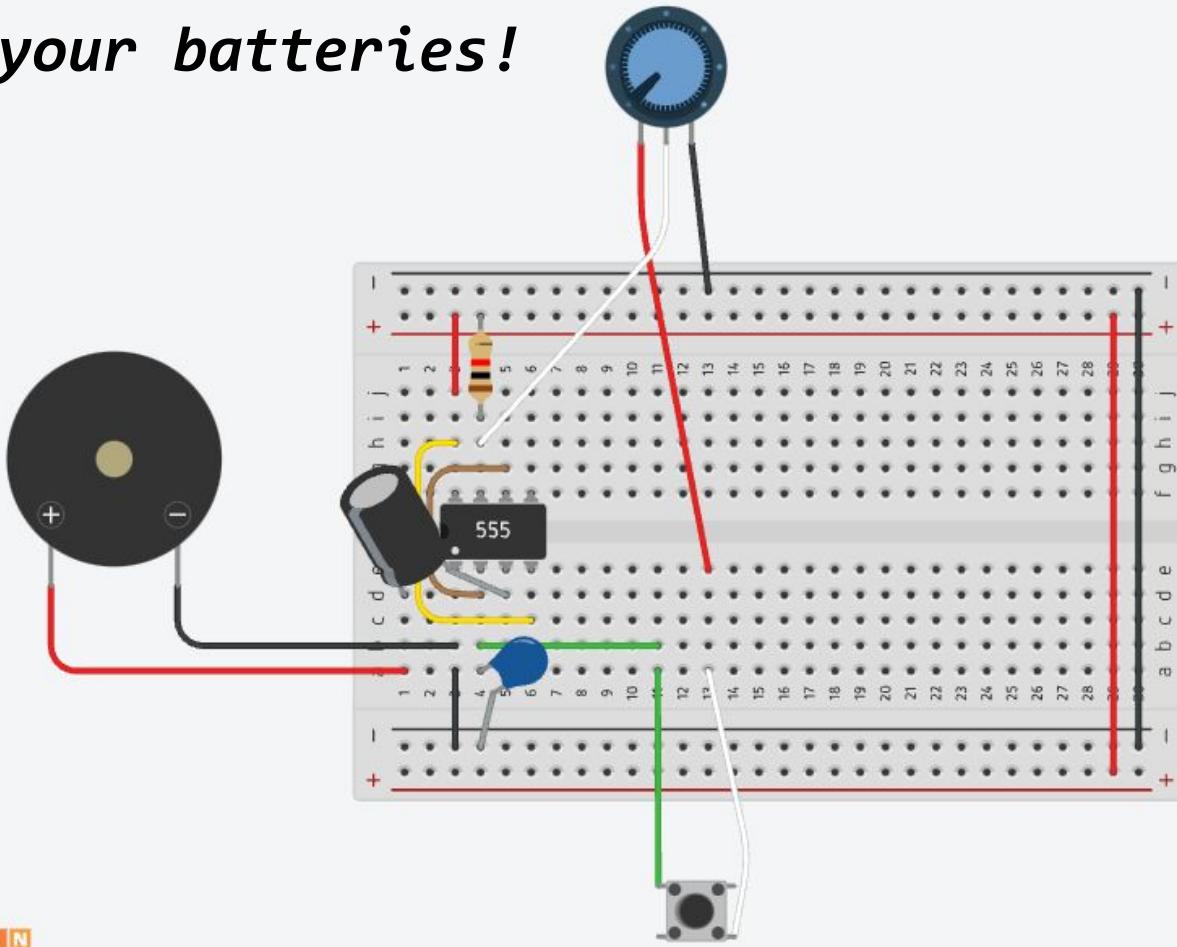
Add the potentiometer



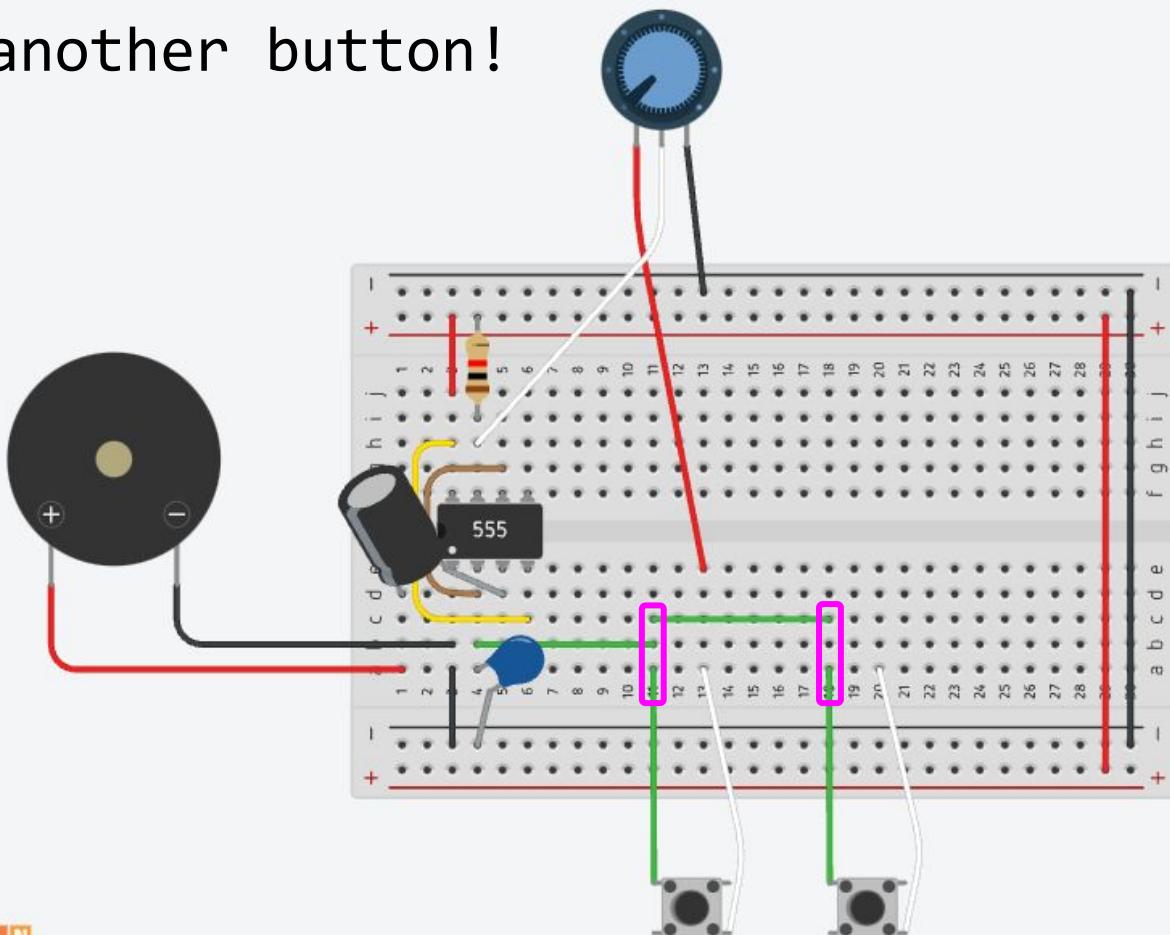
Test for sound!



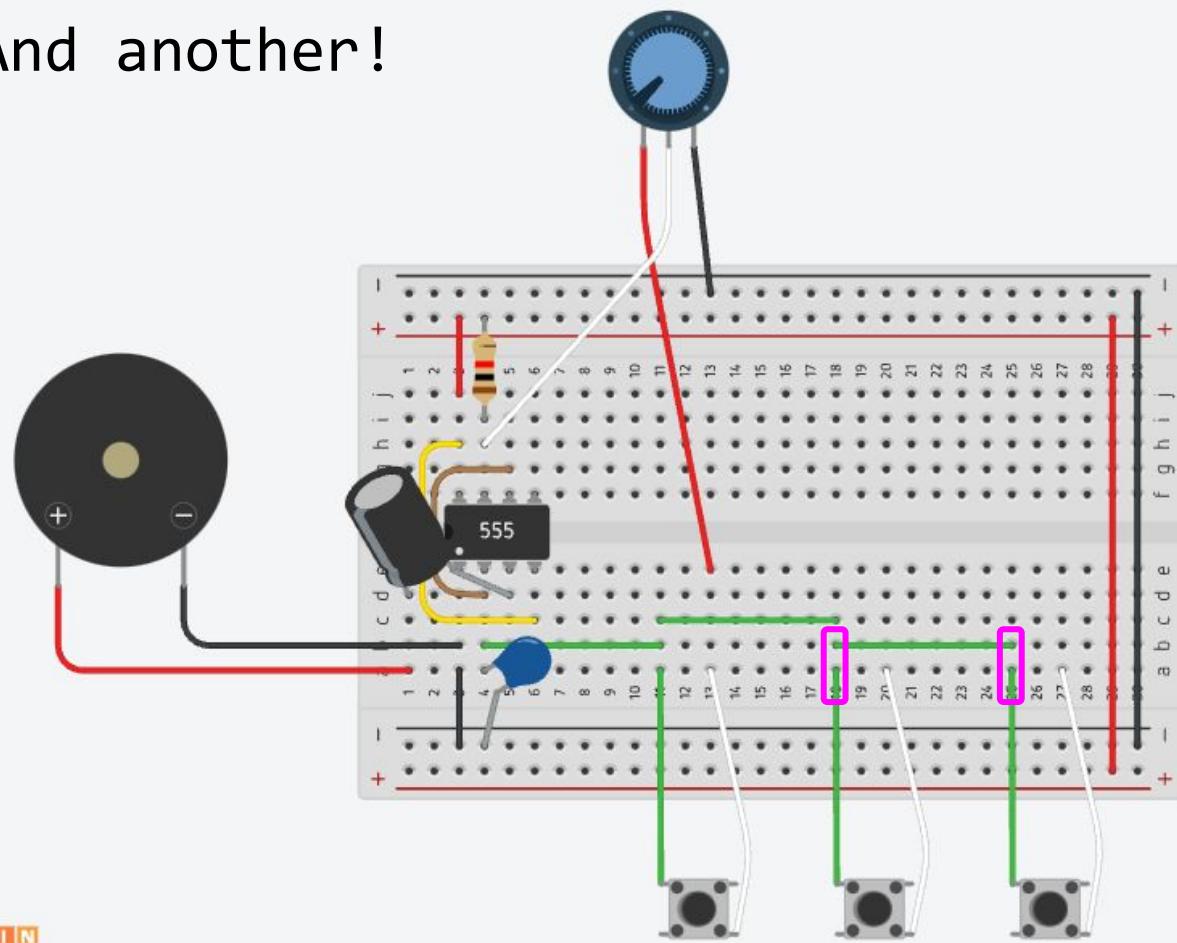
UnPlug your batteries!



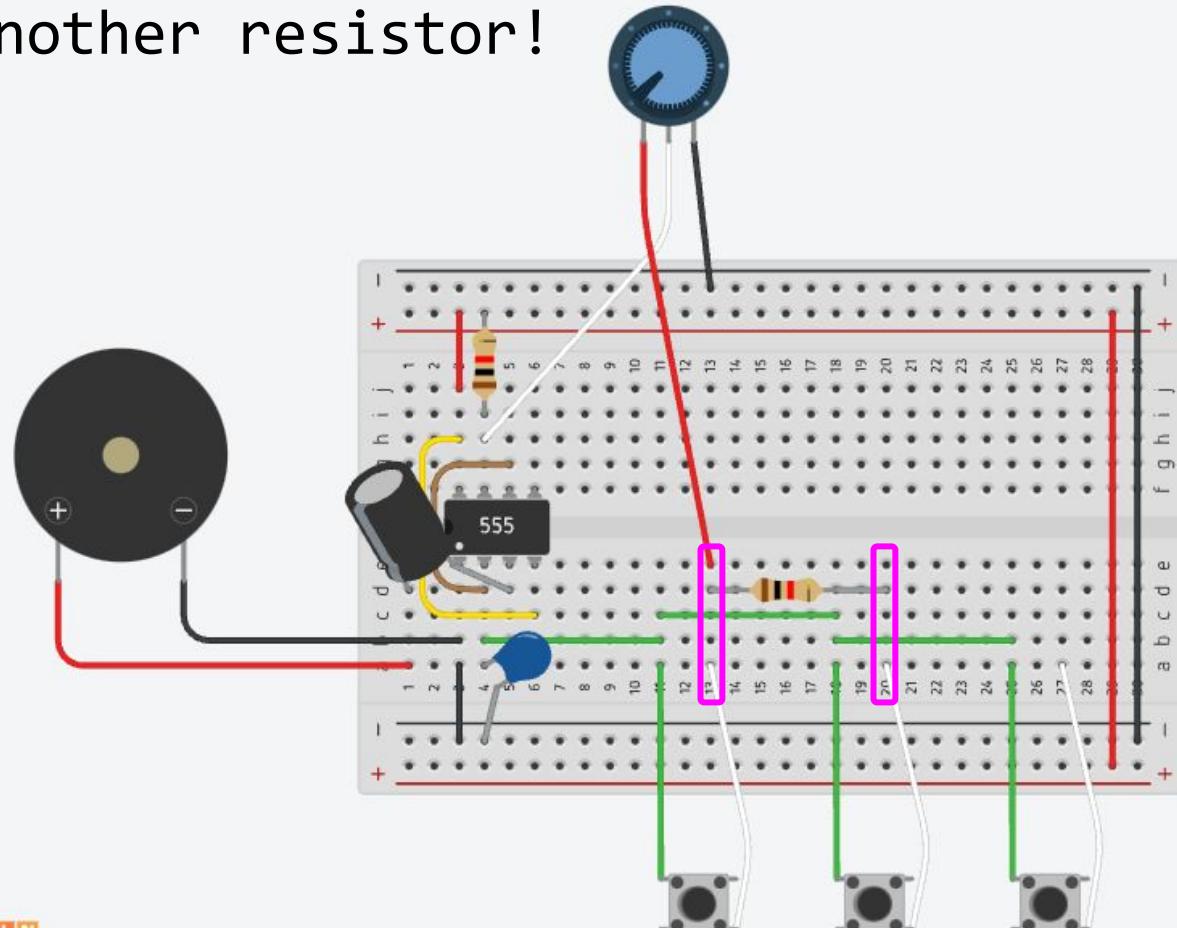
Add another button!



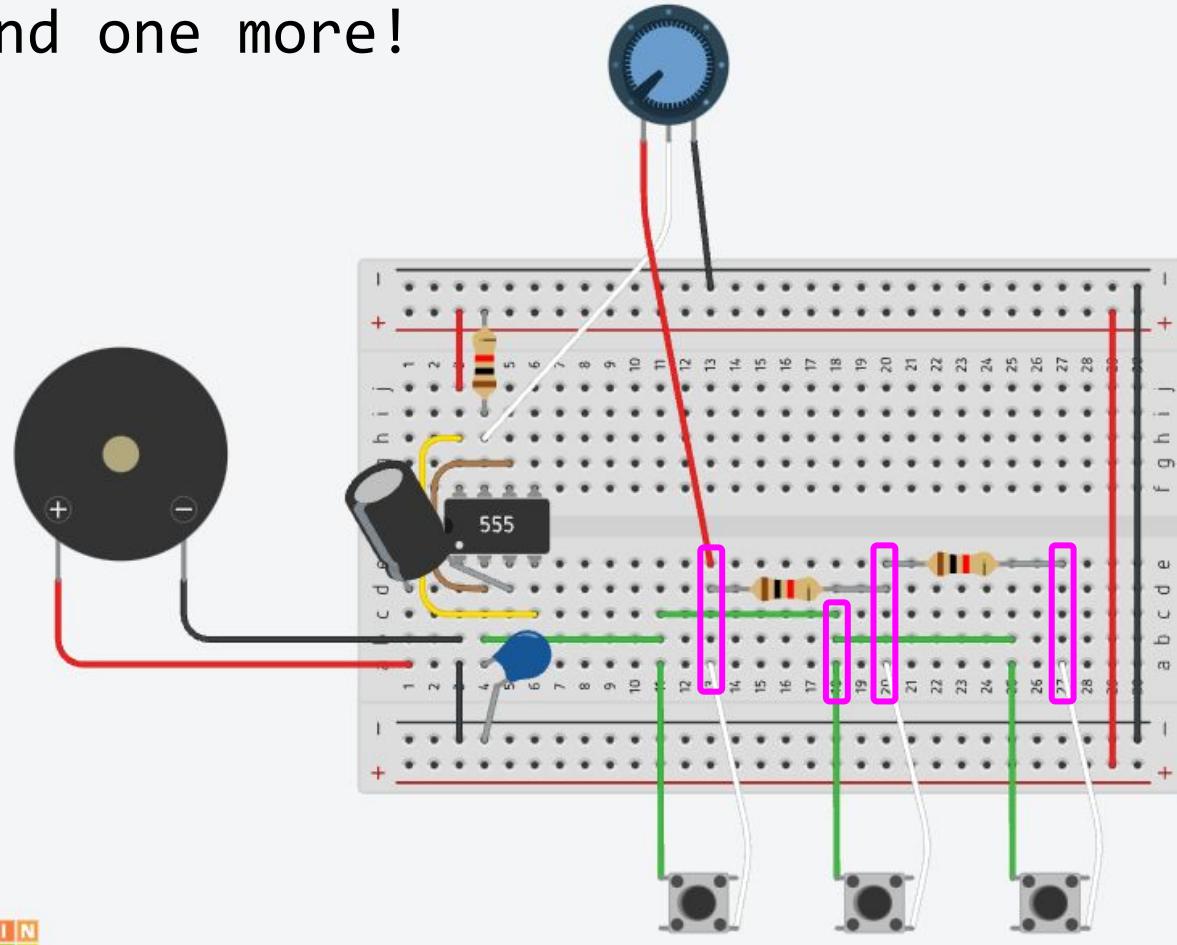
And another!



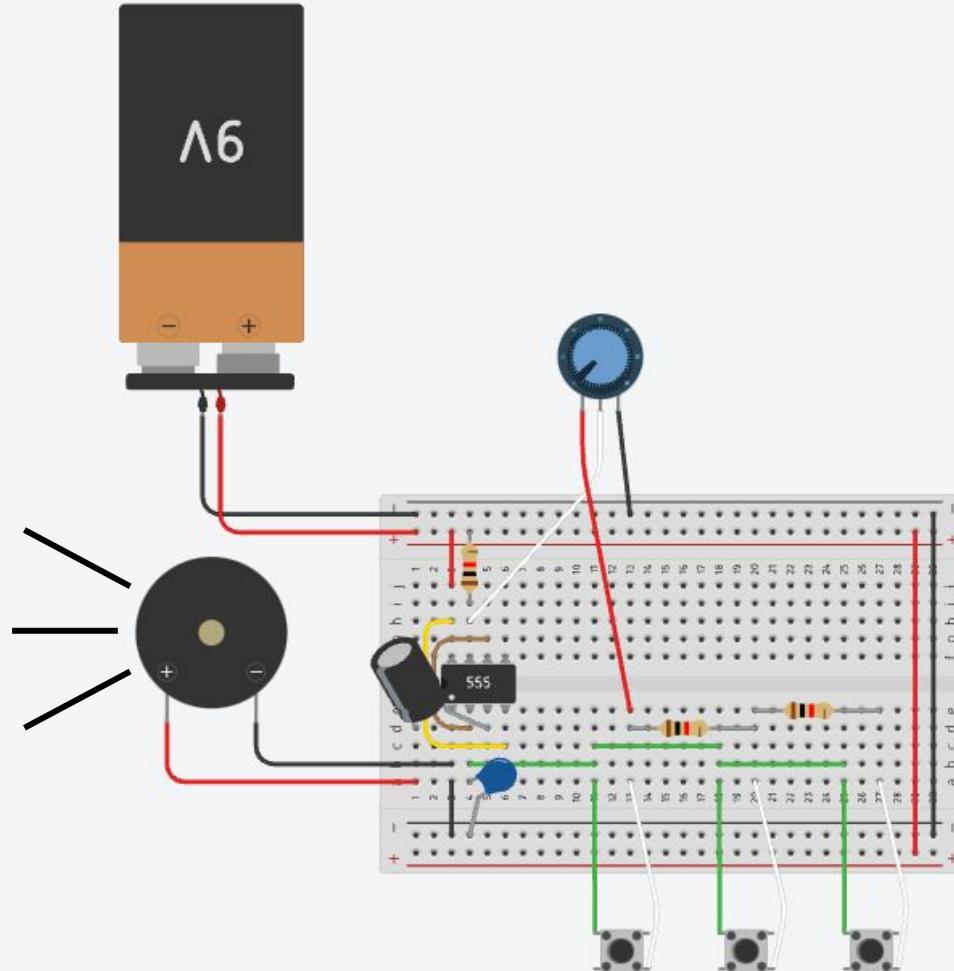
Add another resistor!



And one more!



Ta-da!



Take pictures and videos
of your circuit!

Doing this is always good for future reference :)

Beep Beep Booper Part II

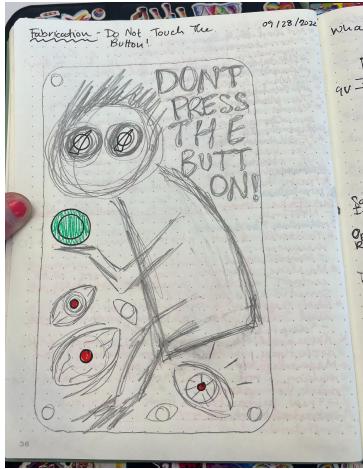
The Laser Cutter & Enclosure

If you didn't before, take good pictures of your circuit!

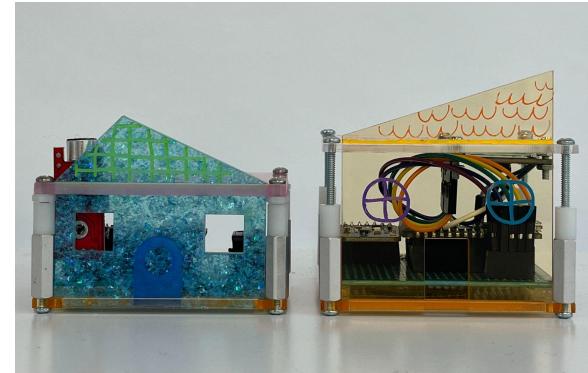
We're going to use it as reference for building the box!

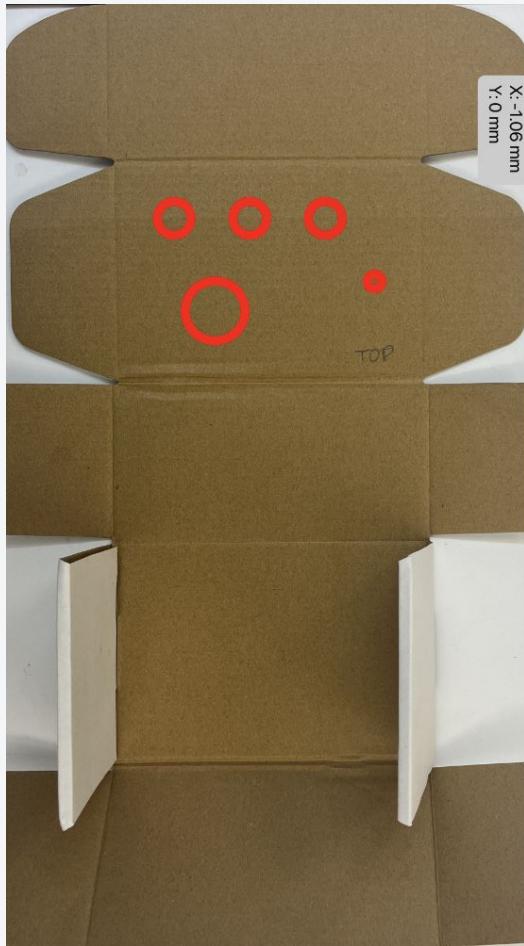
Laser Cutter:



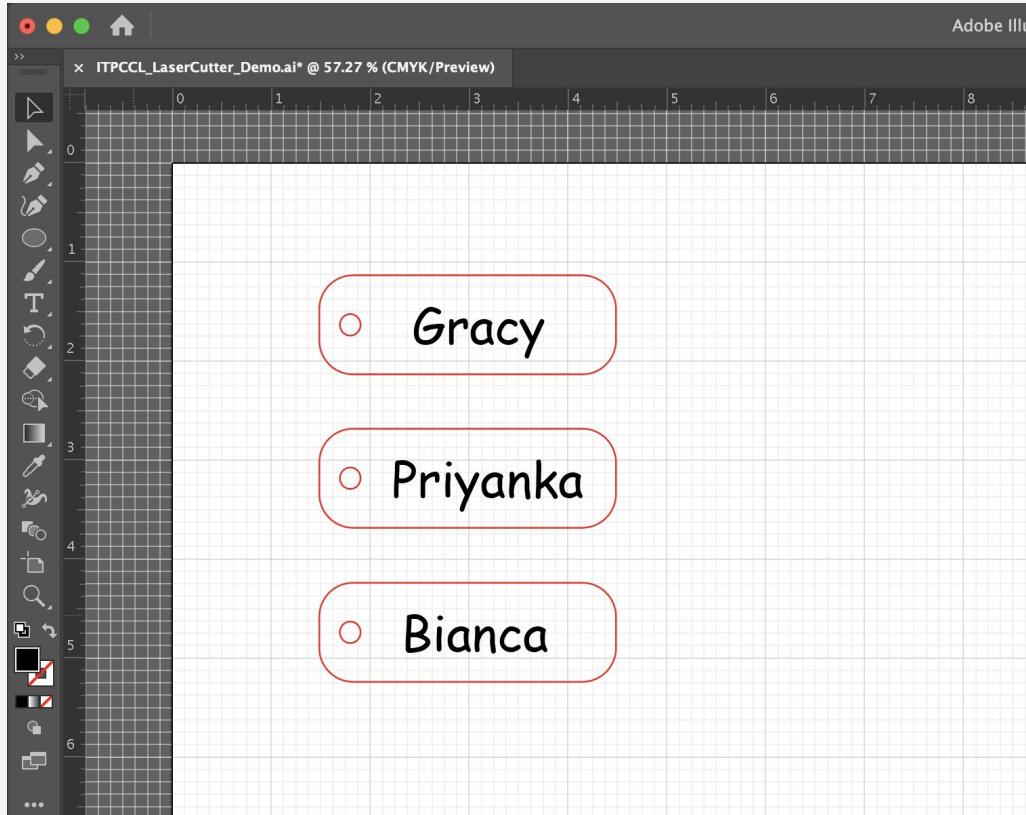


MAKIN
STUFF





Custom name tags !

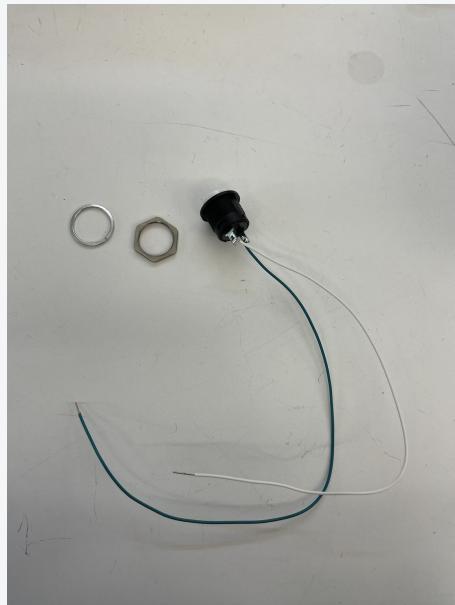


Go to this url to download the Illustrator file!

tinyurl.com/ccclasergetter

Assembling the buttons

1



2



3

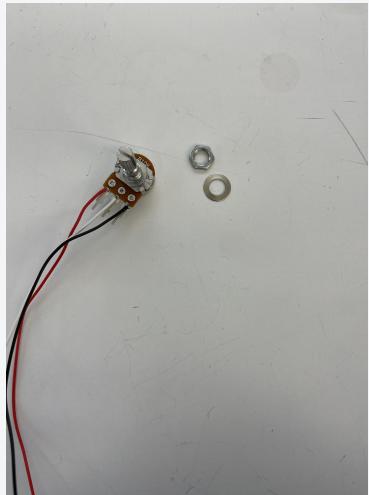


4

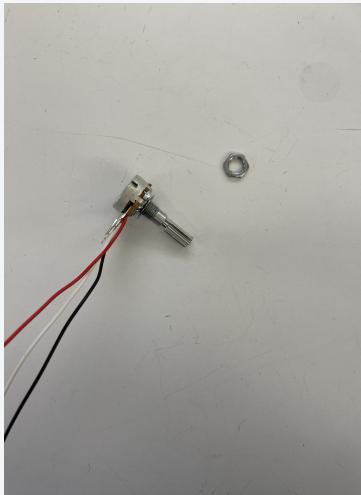


Assembling the potentiometer

1



2



3



4



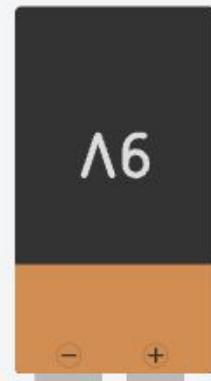
5



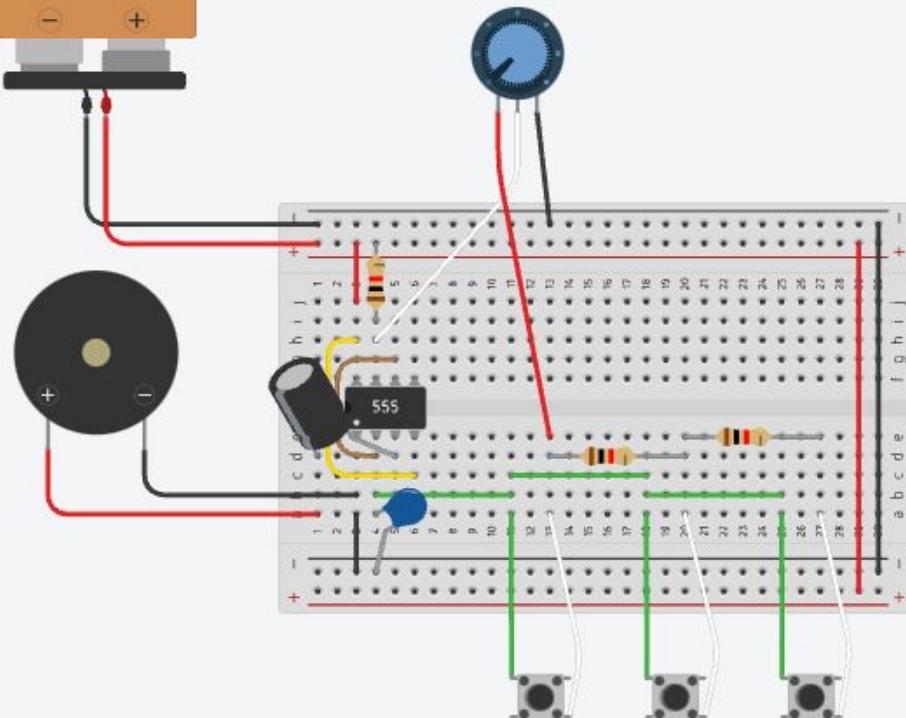
Add the speaker

- It's pressure fit so just kinda pop it in ^_(ツ)_/\^





Haha plug everything back in to your circuit again



Add the battery, and play it!

