Michael Lucenkiw

Artist, designer and researcher from Winnipeg

Environmental Science
Landscape Architecture
Fine Art

Educational Background

Environmentalism
Citizen science
Interactive artworks
Hacking/Repurposing

Topics that inspire me


E.M.S.
ENVIRONMENT
MACHINE
SHOP

Overview

1. Intro
2. Circuit Basics
3. What are we making?
4. Make it!
5. Test it!
6. Recap

Intro

Making data meaningful

Citizen science

Participation in research

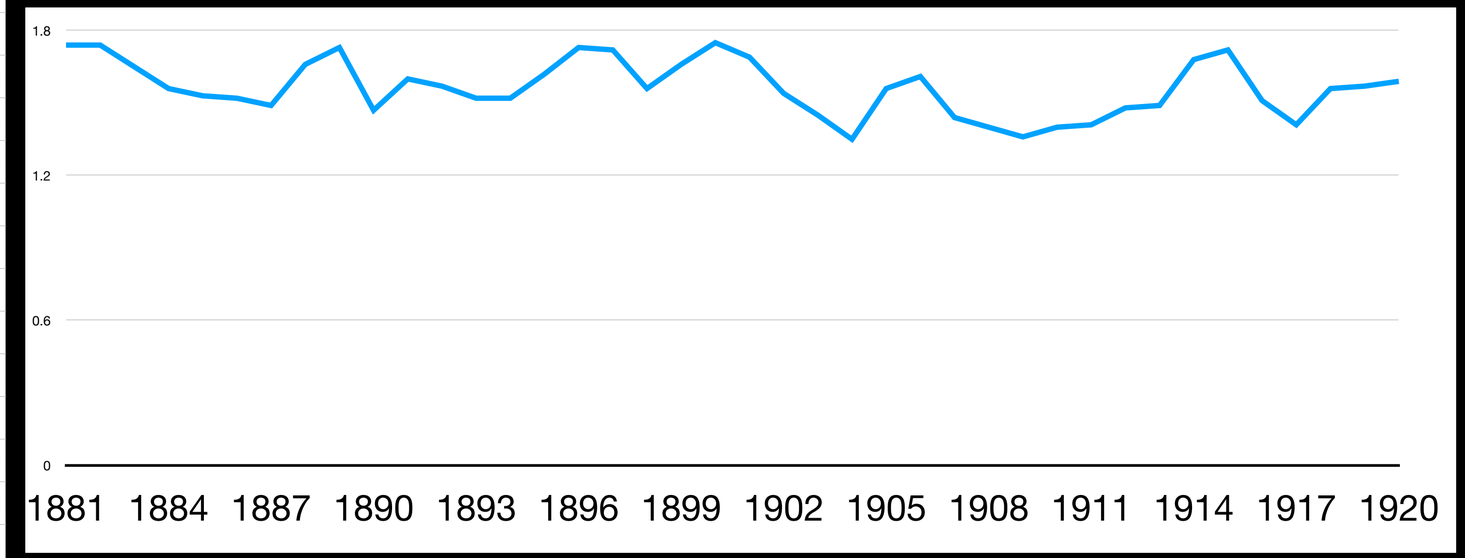
Citizen led research

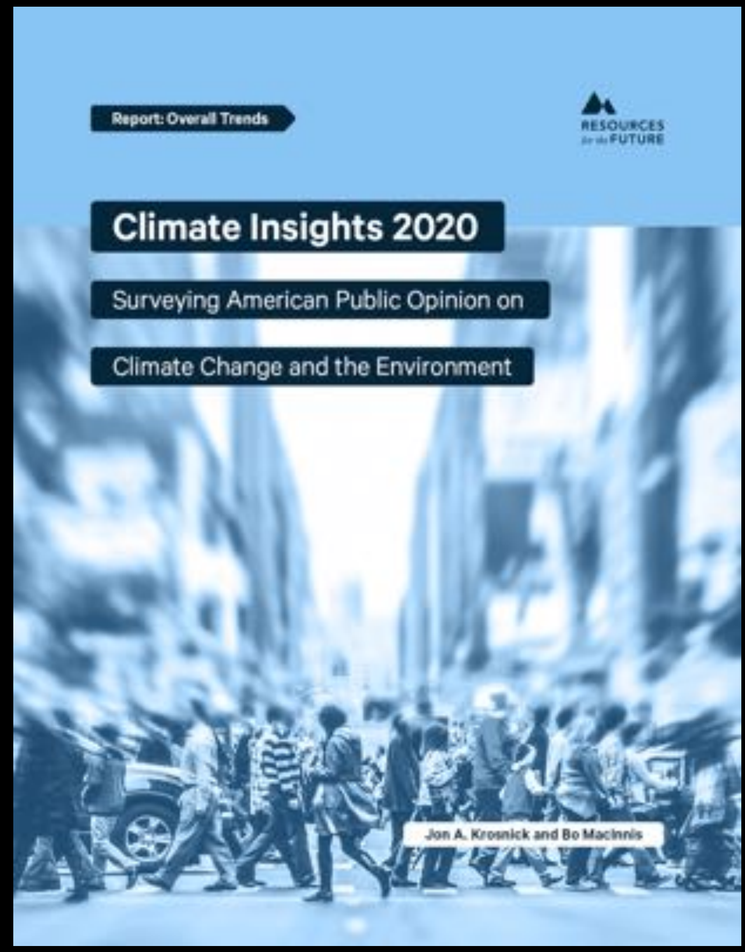
DIY Technology

Form of Protest

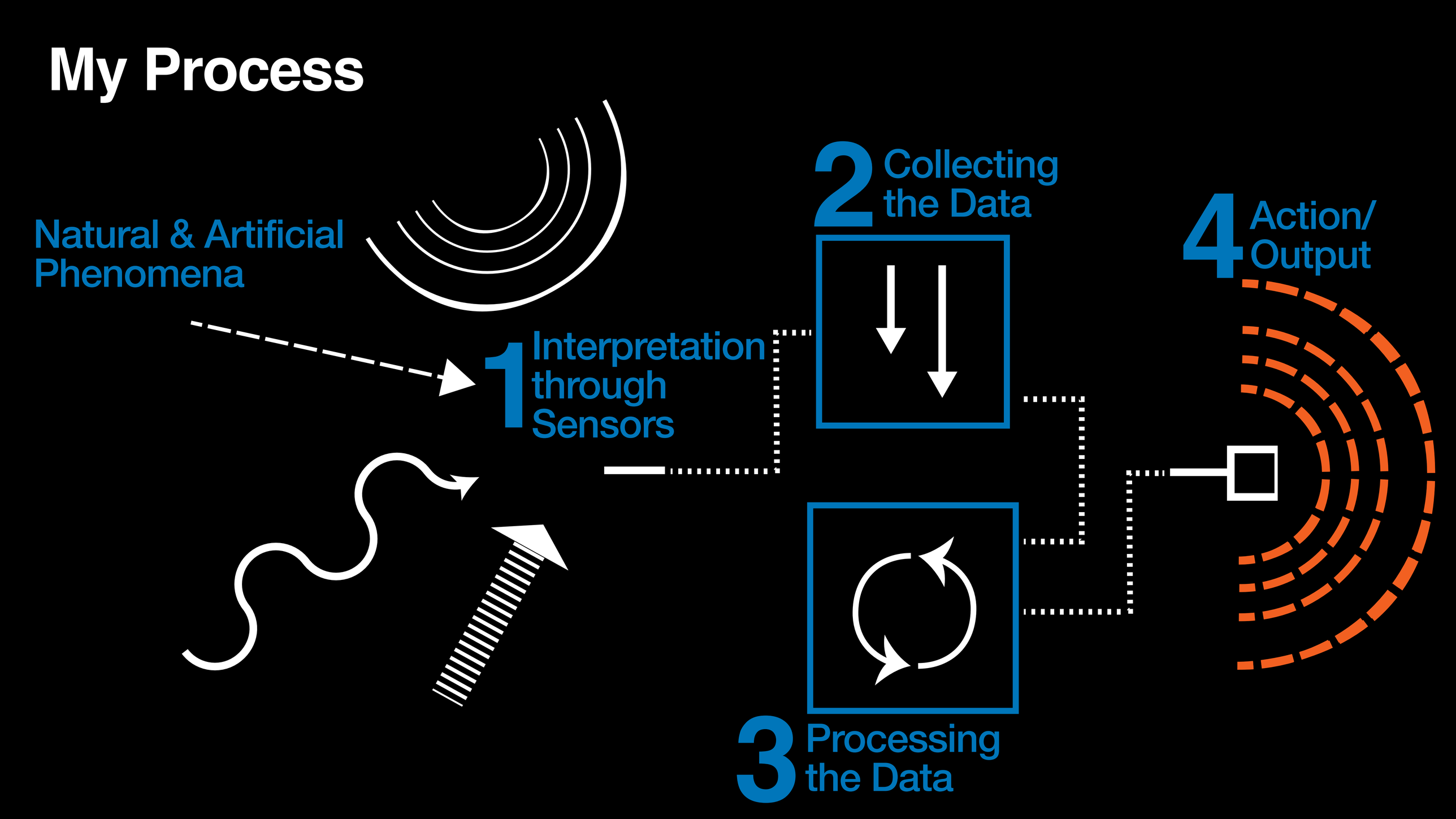
What is sonification of data?

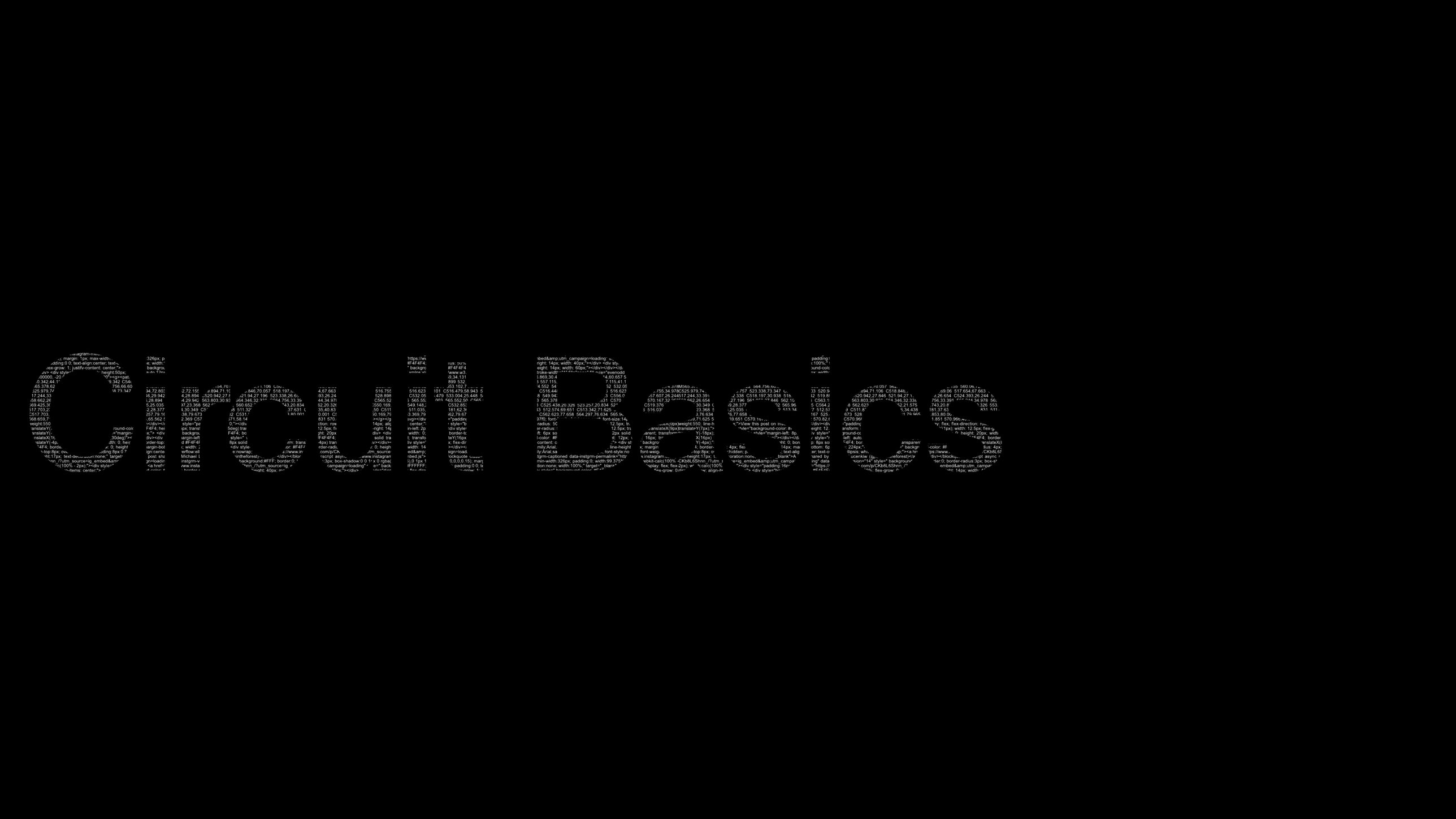
Year	Temp
1880	1.65
1881	1.74
1882	1.74
1883	1.65
1884	1.56
1885	1.53
1886	1.52
1887	1.49
1888	1.66
1889	1.73
1890	1.47
1891	1.6
1892	1.57
1893	1.52
1894	1.52
1895	1.62
1896	1.73
1897	1.72
1898	1.56
1899	1.66
1900	1.75
1901	1.69
1902	1.54
1903	1.45
1904	1.35
1905	1.56
1906	1.61
1907	1.44
1908	1.4
1909	1.36
1910	1.4
1911	1.41
1912	1.48
1913	1.49
1914	1.68
1915	1.72
1916	1.51
1917	1.41
1918	1.56
1919	1.57
1920	1.59





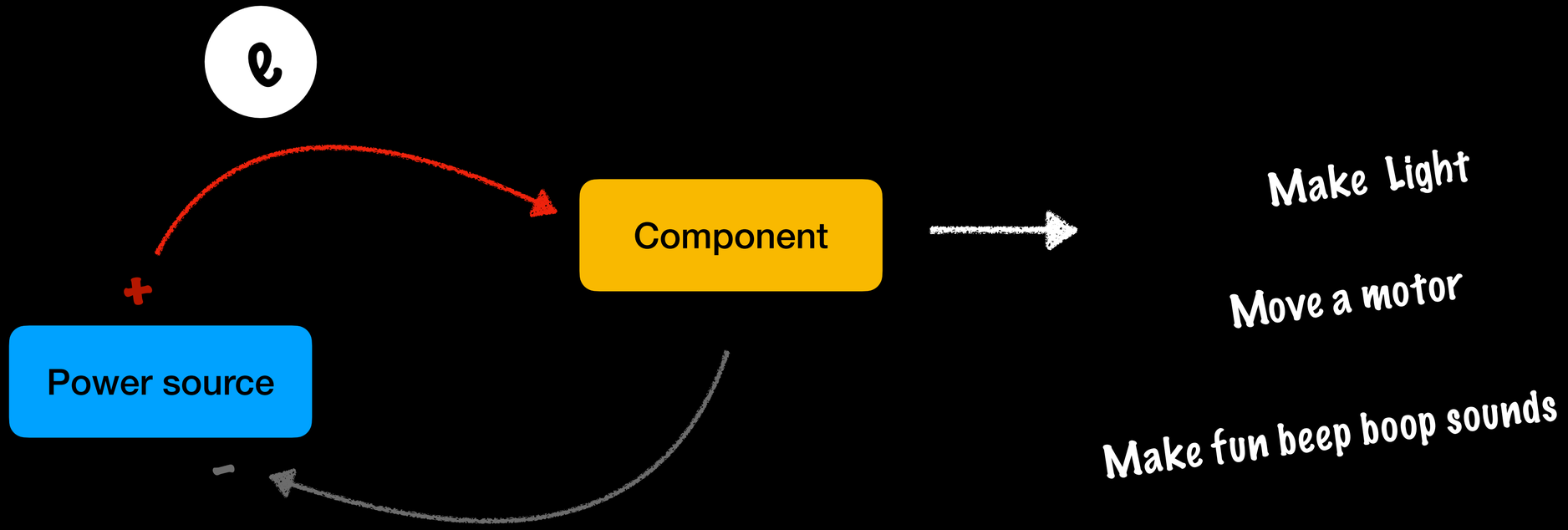
My Process

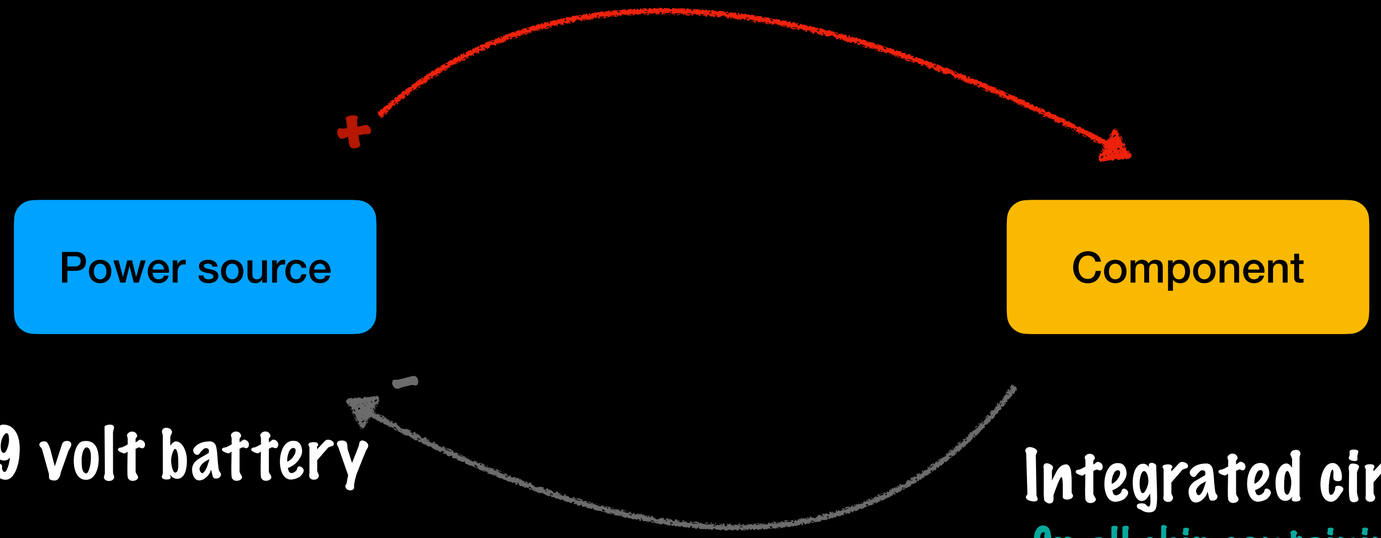

Natural & Artificial Phenomena
1 Interpretation through Sensors
2 Collecting the Data
3 Processing the Data
4 Action/ Output



What is a circuit?

Directional loop of electrons connected to do some work





9 volt battery

Integrated circuit (IC)

Small chip containing fixed components

Resistor

Resists flow of electrons

Capacitor

Builds up and releases charge

Diode

Directionally limits electron flow

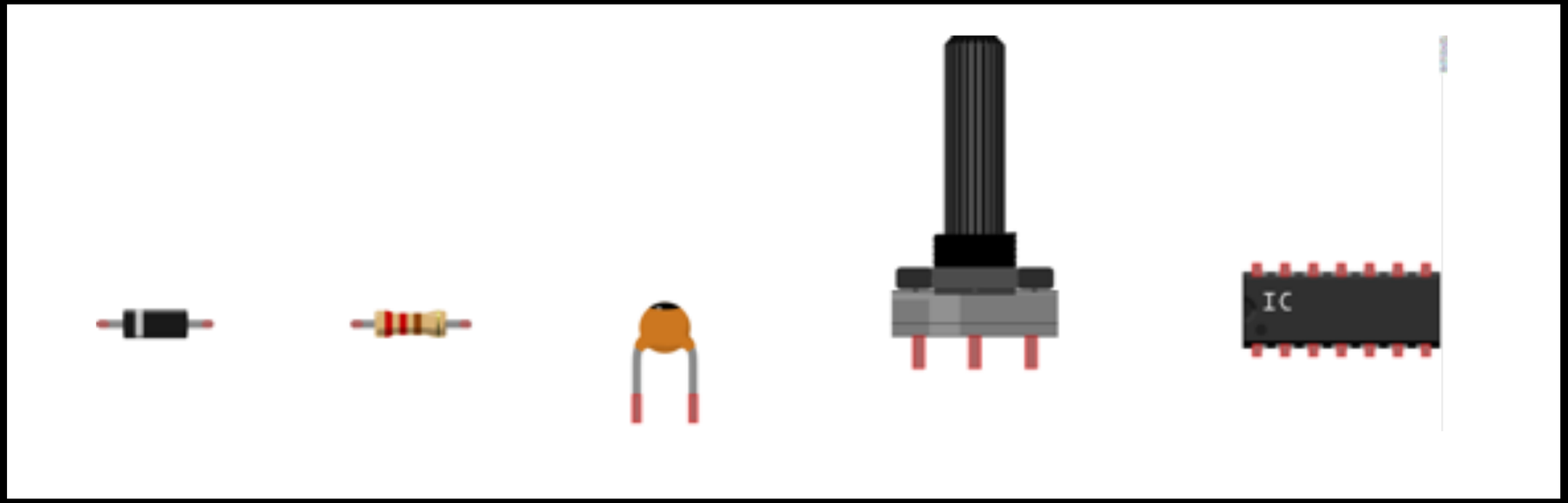
Potentiometer

Adjustable resistor

Wire

Conductive path

Components



Diode
Directionally limits electron flow

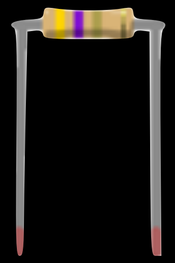
Resistor
Resists flow of electrons

Capacitor
Builds up and releases charge

Potentiometer
Adjustable resistor

Integrated circuit (IC)
Small chip containing fixed components

Resistors!

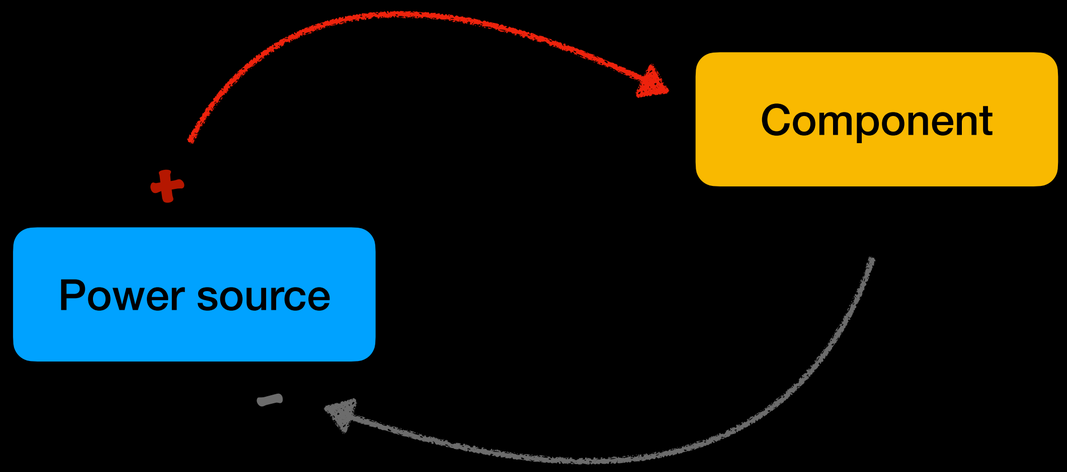


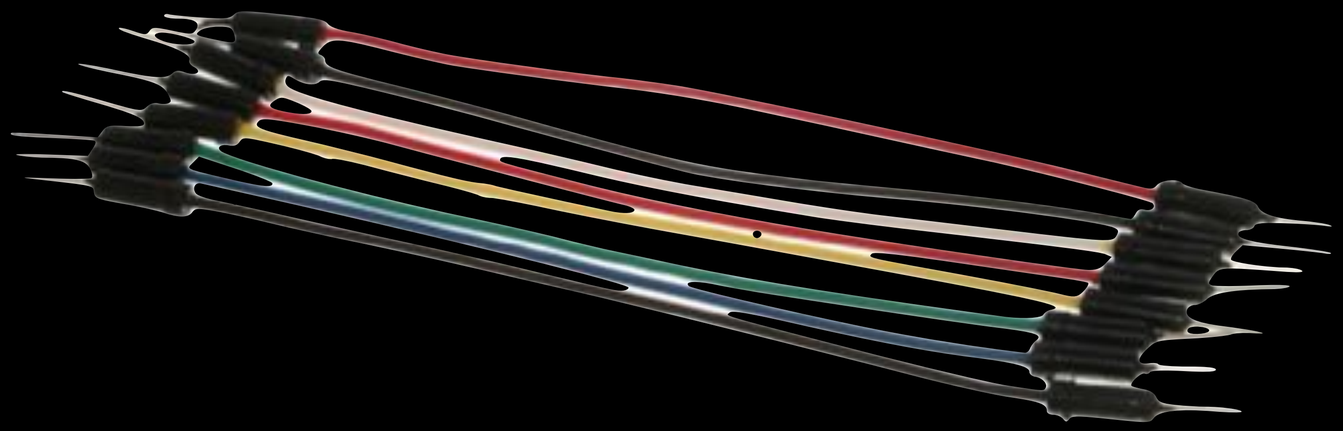
Fixed Resistor

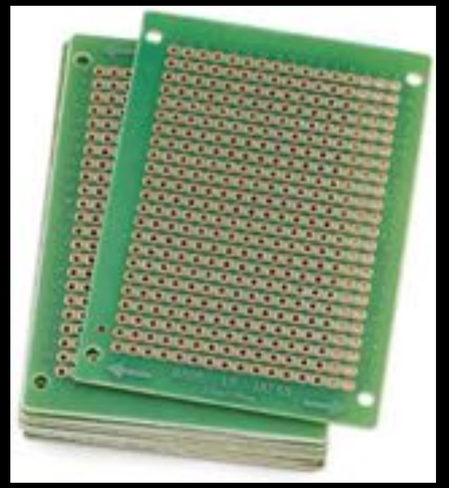
Potentiometer

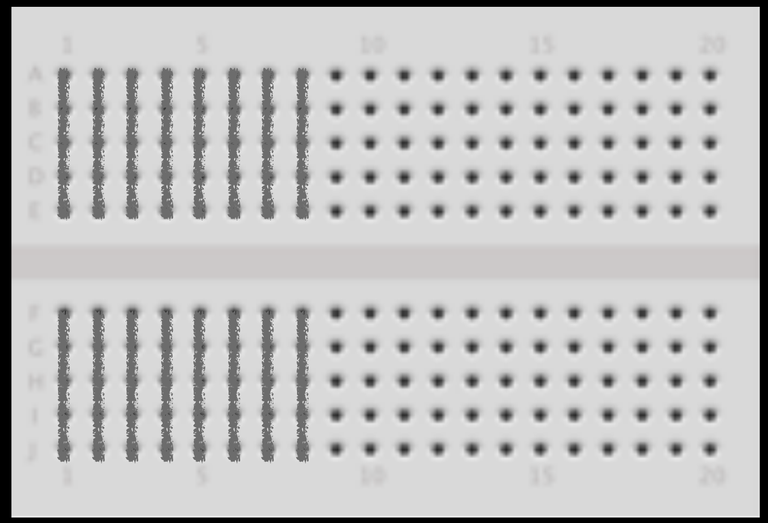
Photo resister

Making Connections

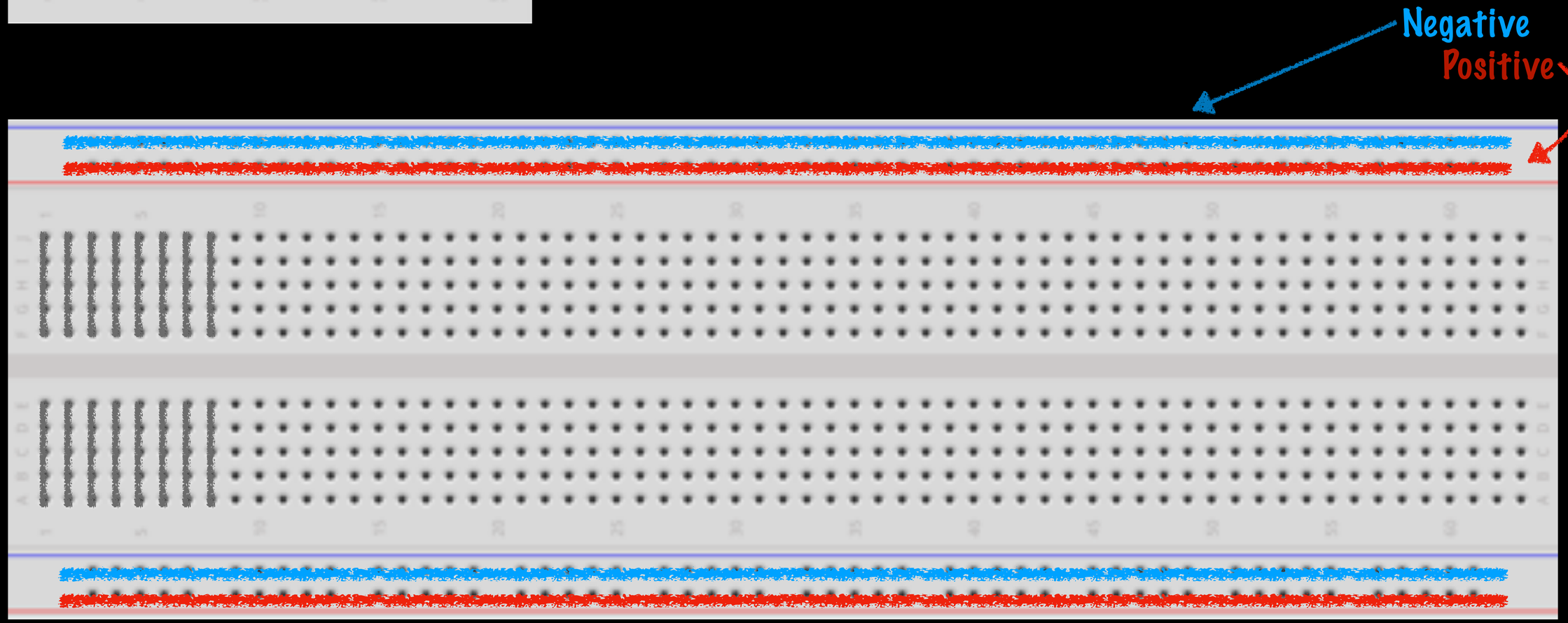








Breadboard



https://wiki.nus.edu.sg/display/Arduino/Electricity+%3A+Basic+Concepts+Review?preview=/283478175/283478171/image2019-7-31_17-7-52.png

Making Jumpers


MERGING ART & TECH AT EASTERN EDGE
WWW.EASTERNEDGE.CA

HACKADAY

Logic Noise: Sweet, Sweet Oscillator Sounds

Elliot Williams • February 4, 2015

Welcome to part one of a series taking you down the rabbit hole of DIY electronic synthesizers based on (largely) CMOS logic chips. Instead of synths being commodity gear made by large corporate enterprises, we'll be building with the cheapest available parts, using and misusing digital logic. In short, don't expect pre-packaged smooth tones, because we'll be making creative noise machines.

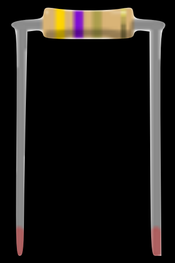
If you're the chiptunes type, you'll probably find something you like here. If you're the circuit bender or electro-noise-punk type, this is gonna be right up your alley. If you just like to see CMOS chips wriggle and squirm in unintended ways, feel free to look over my shoulder. If you're the type who insists that a screwdriver can't be used to pry open a paint can, then maybe you'd better move along. There's a thin line between the glitch as bug and the glitch as interesting discovery, and we'll be dancing all over it.

To give you a taste of what we're up to this session, here is a quick demo. Have a look and then we'll get down to it.

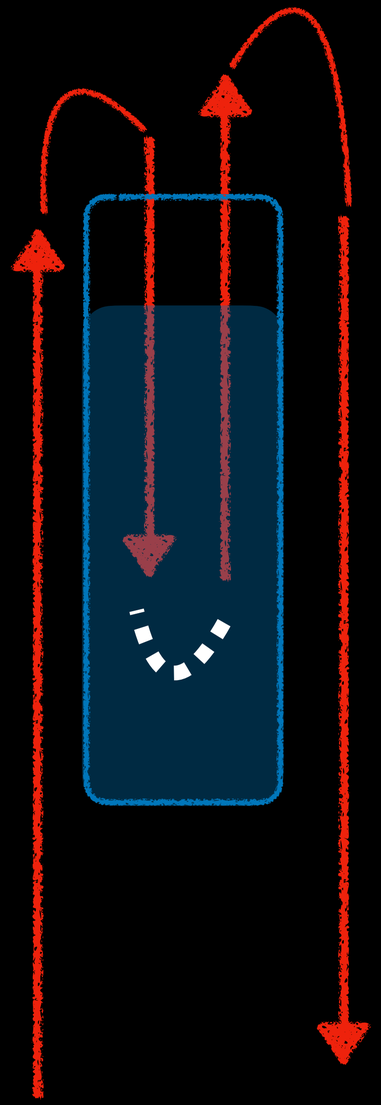
"a quick and dirty oscillator out of an inverter"

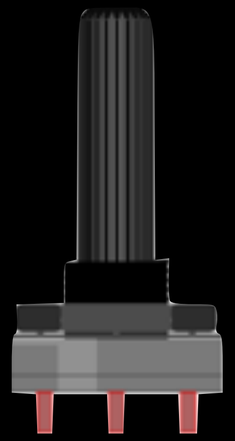
https://hackaday.com/2015/02/04/logic-noise-sweet-sweet-oscillator-sounds/

Remember Resistors!



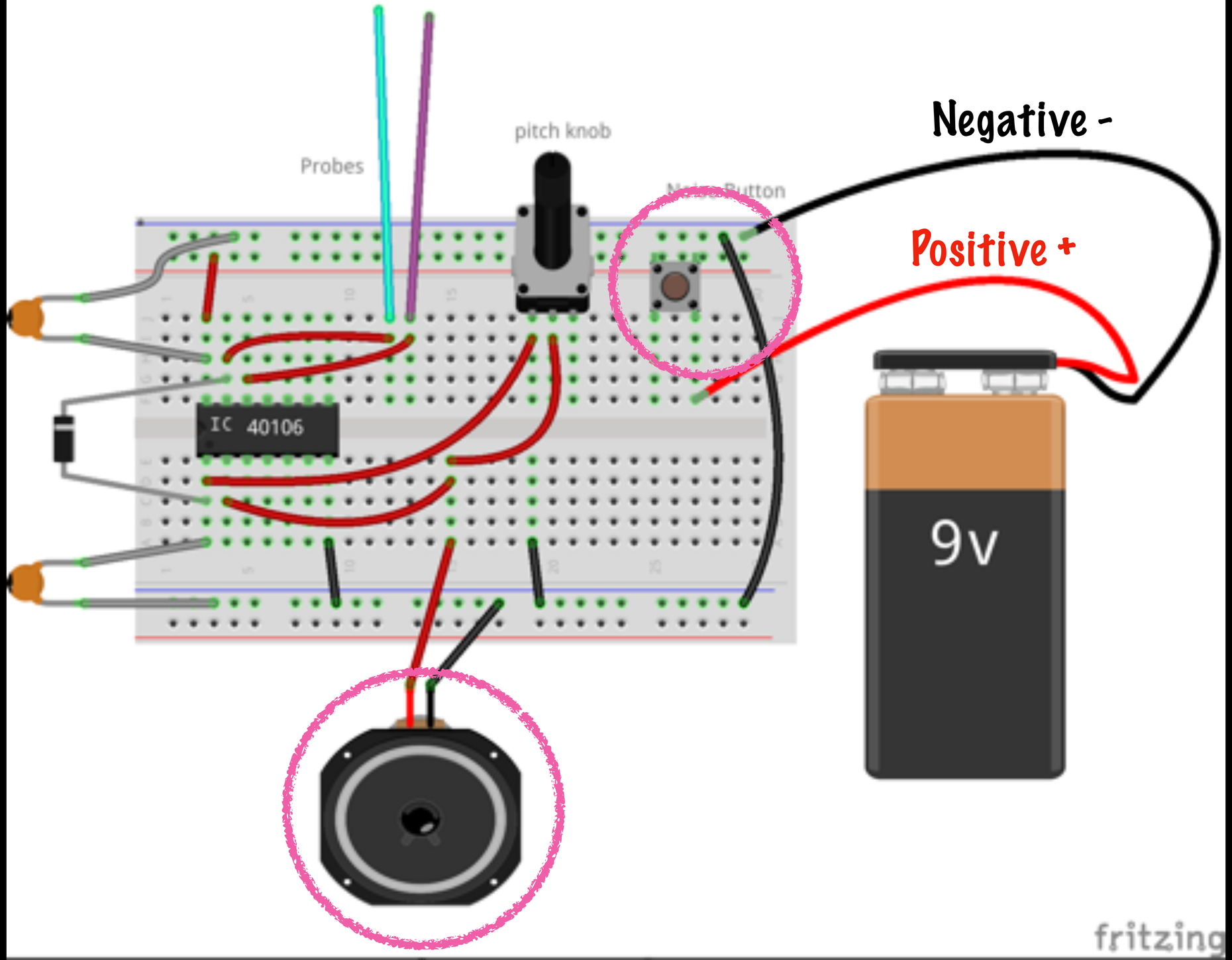
Fixed Resistor



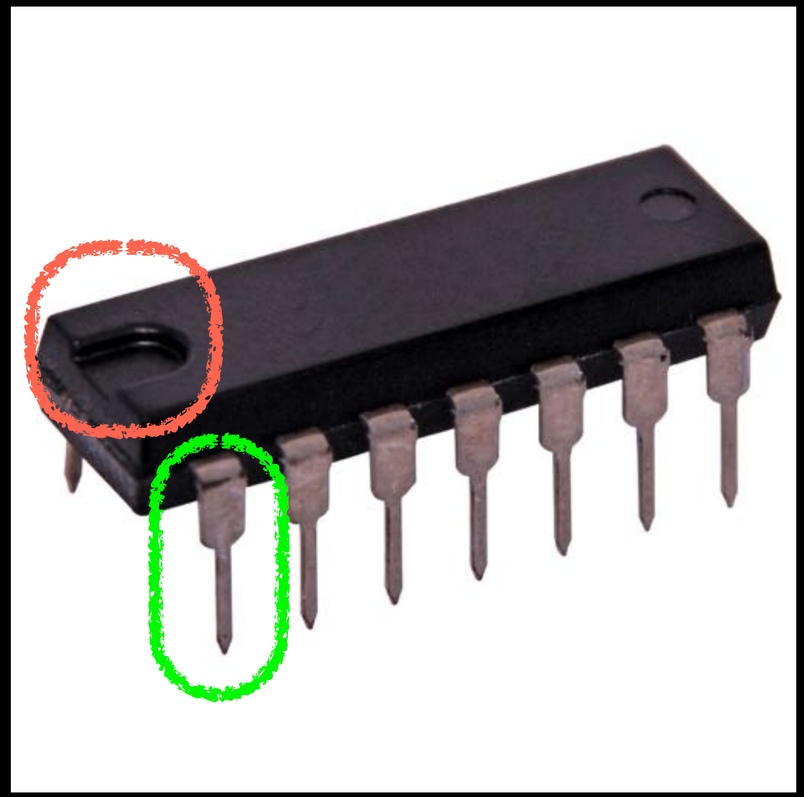


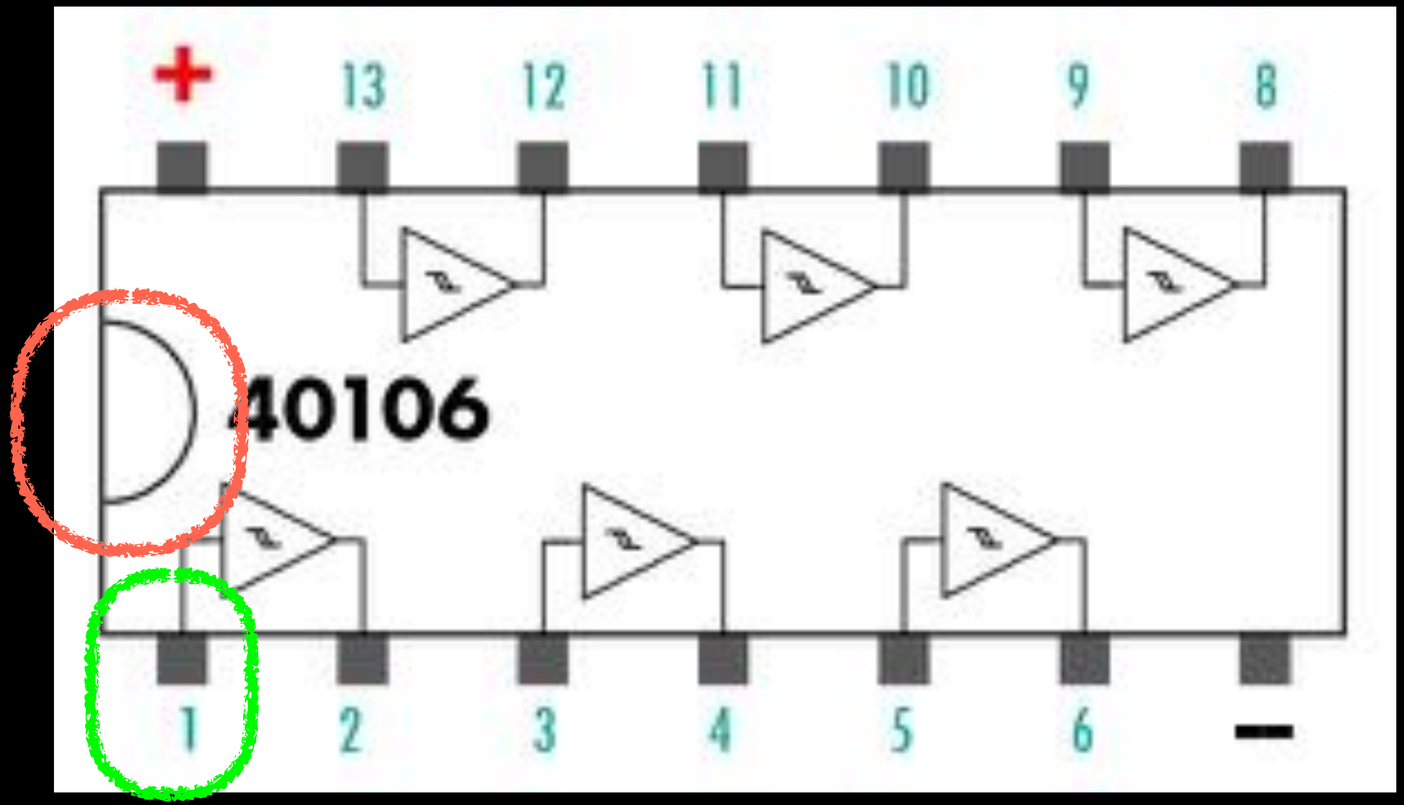
Potentiometer

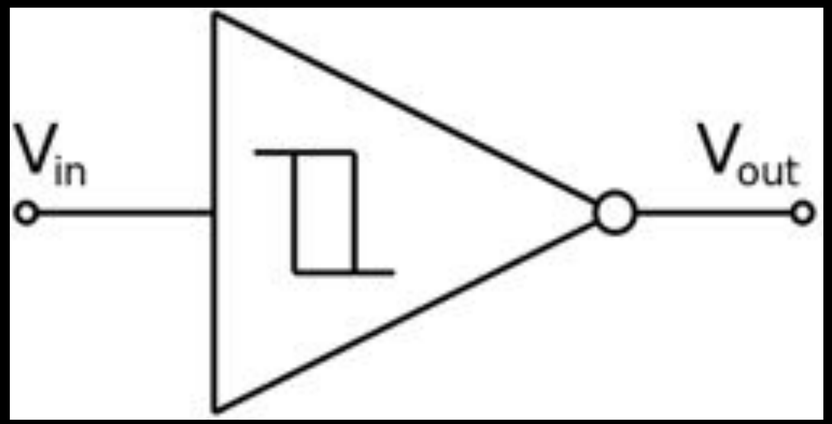
Photo resister


Probes
pitch knob
Negative -
Positive +
IC 40106
9v
fritzing

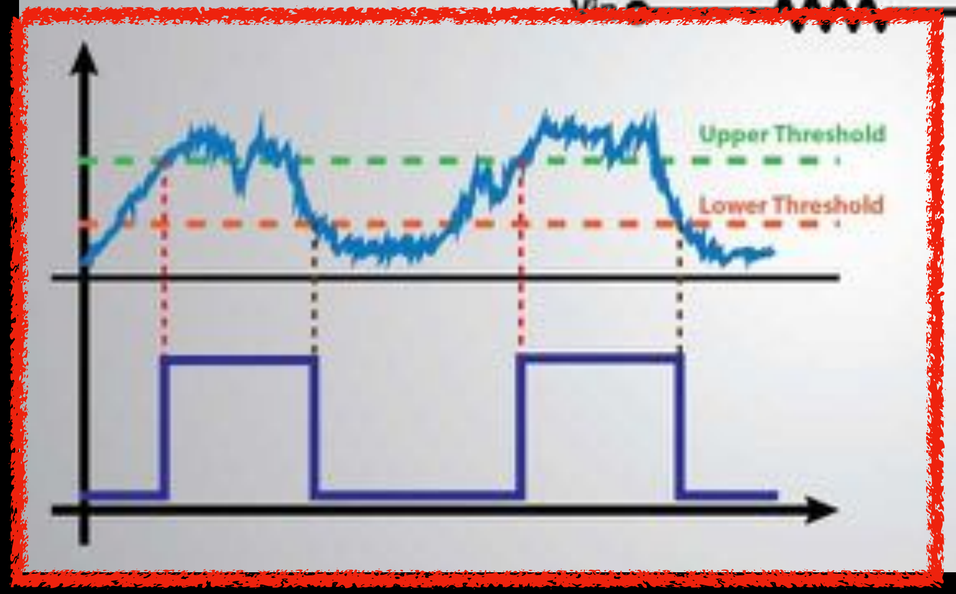
The Main Ingredient: IC40106

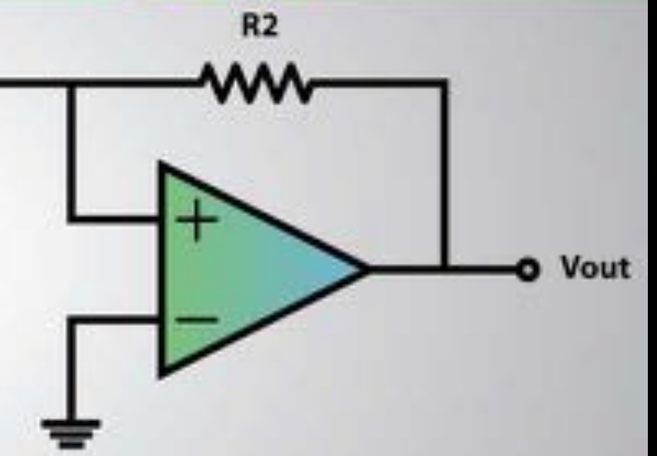




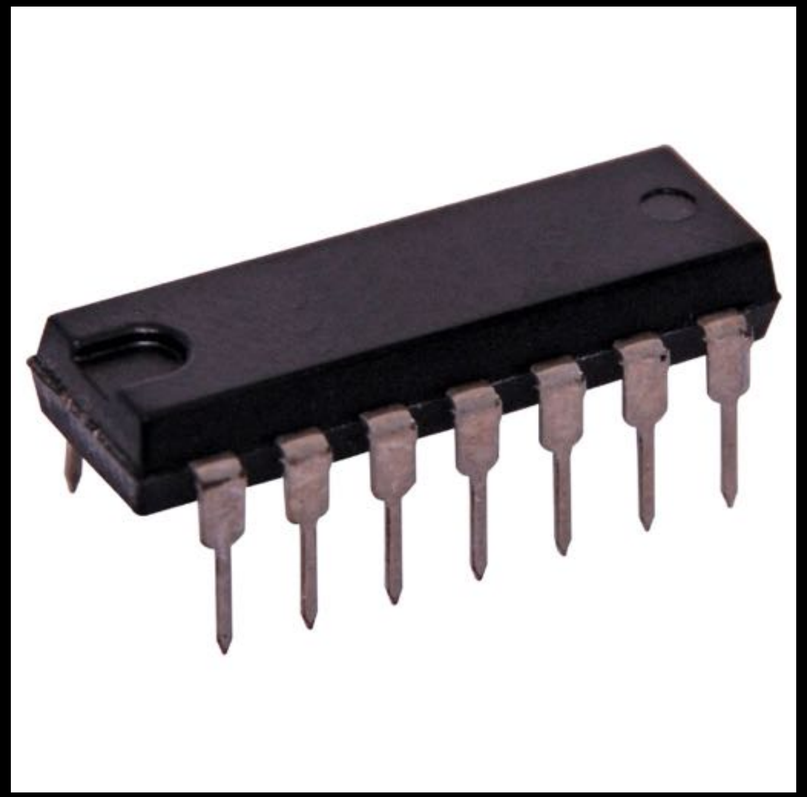


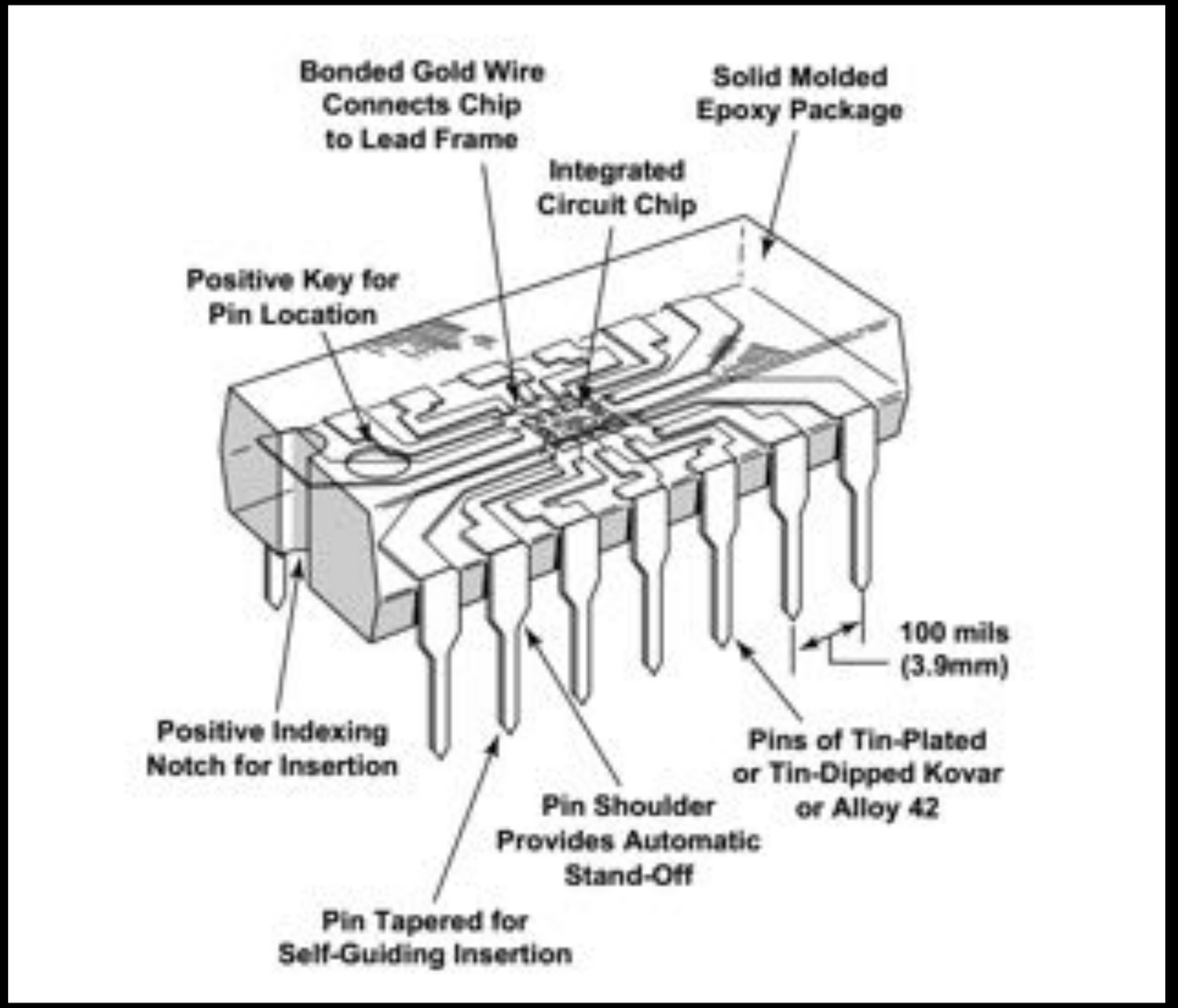
Schmitt Trigger



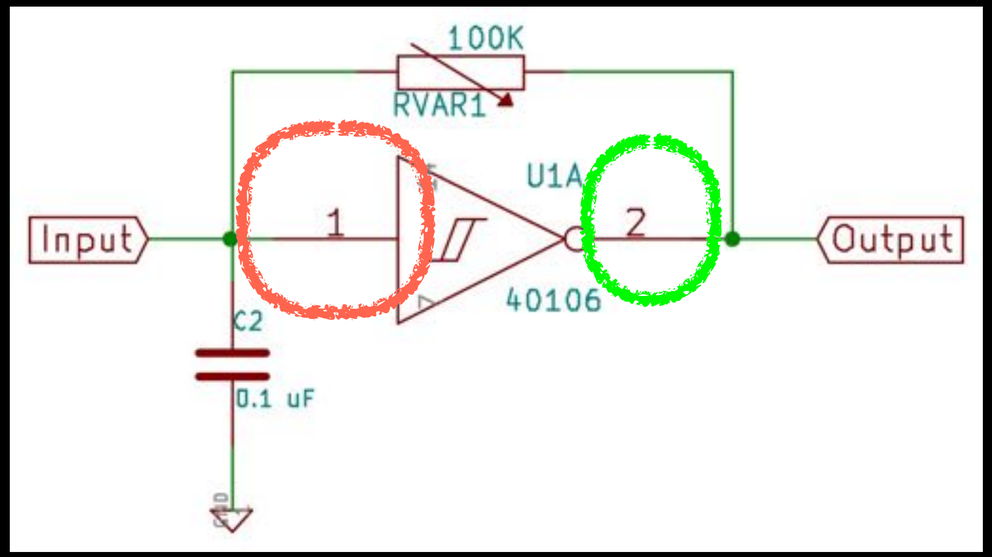


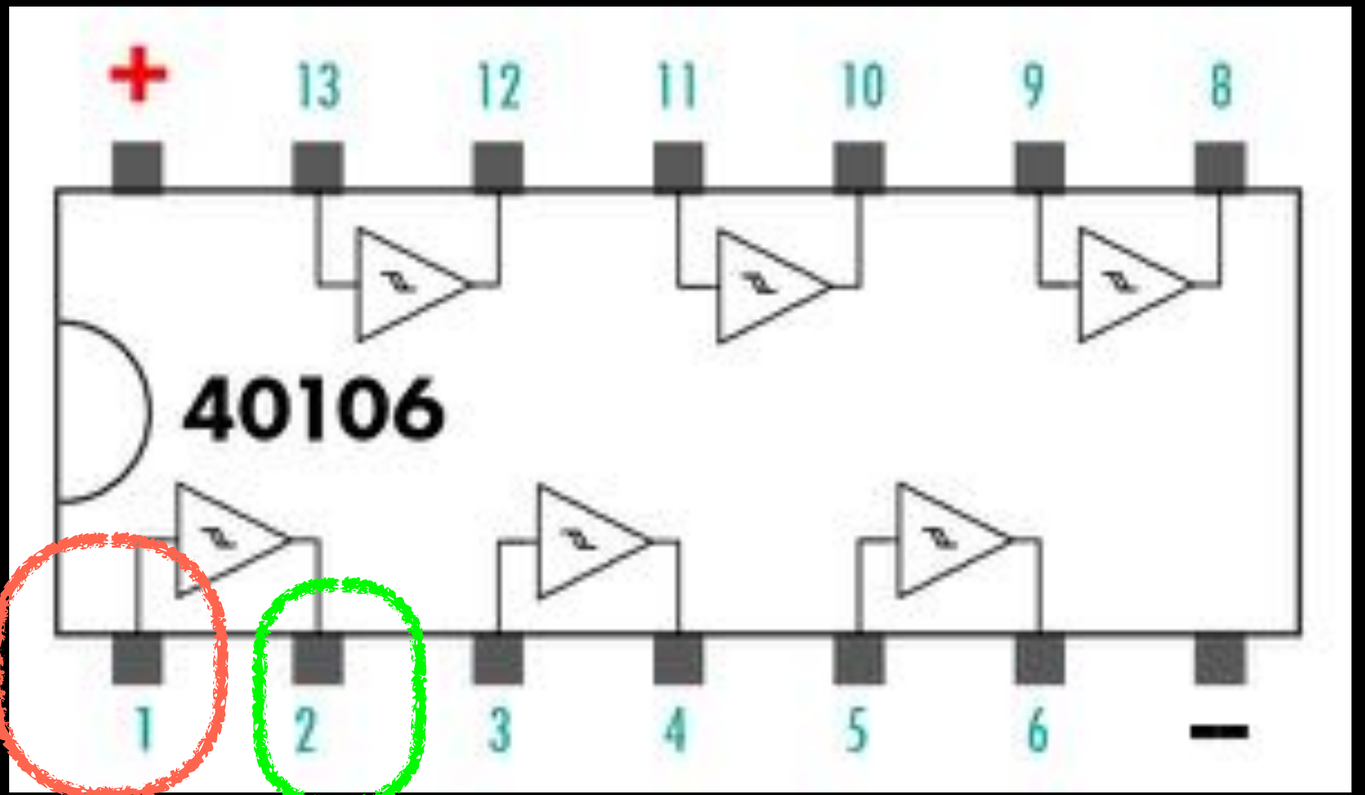
Inside an IC



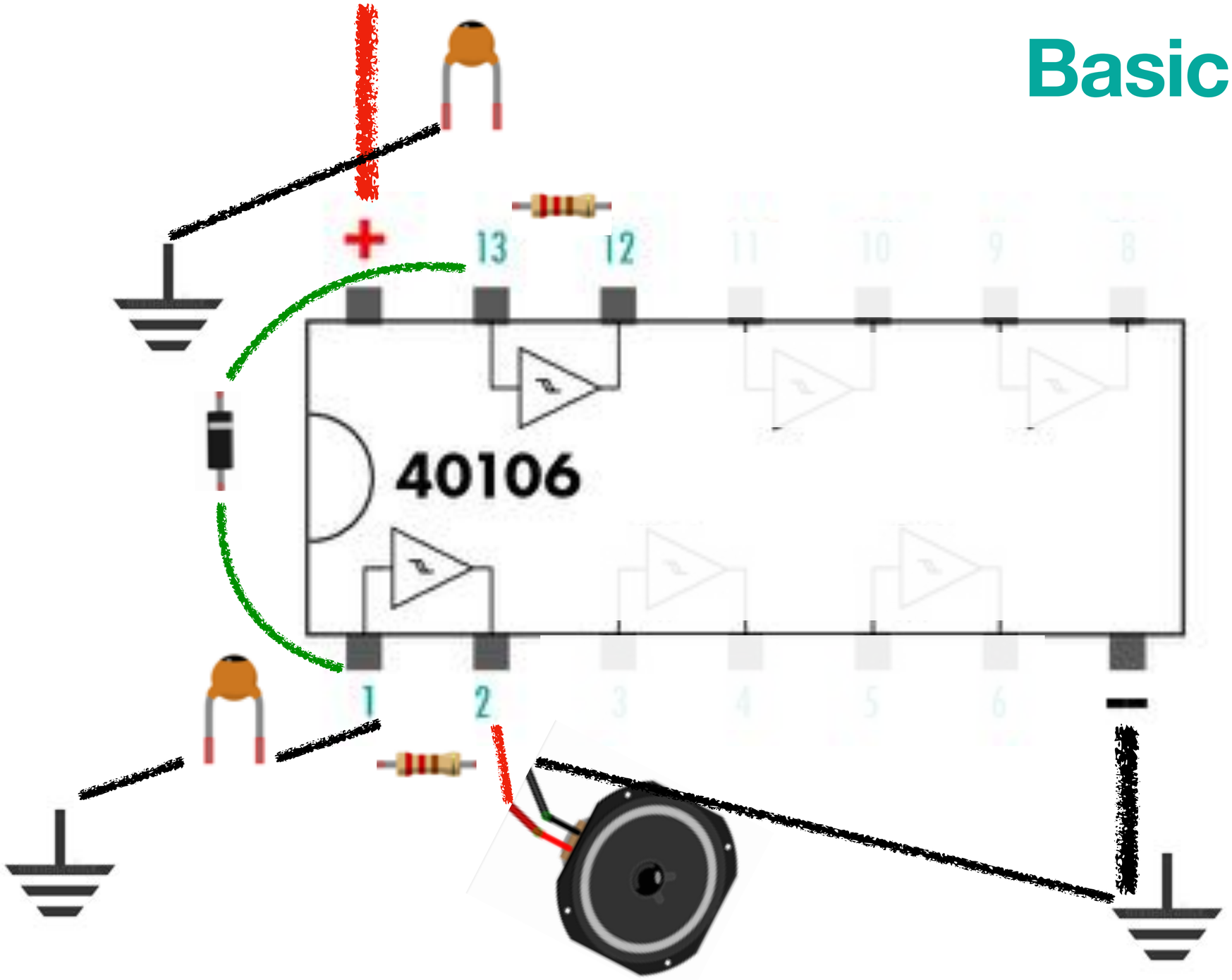


Rocketmagnet (https://electronics.stackexchange.com/users/1024/rocketmagnet), What is the protective layer around microchips made out of?, URL (version: 2012-03-28): https://electronics.stackexchange.com/q/28842


100K
RVAR1
U1A
Input
1
2
Output
40106
C2
0.1 uF
GND


+
13
12
11
10
9
8
40106
1
2
3
4
5
6
–

Basic Overview

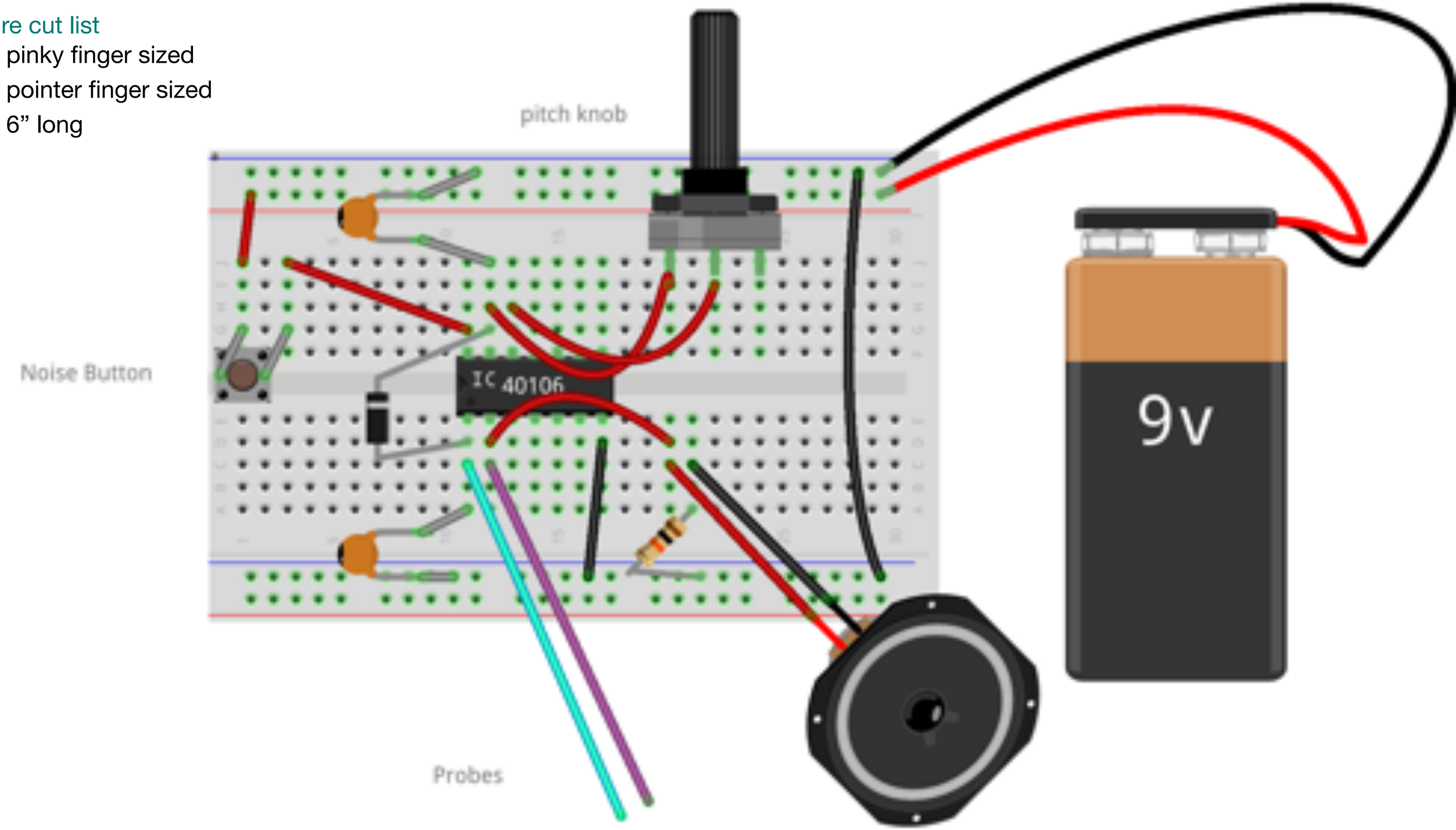


Wire cut list

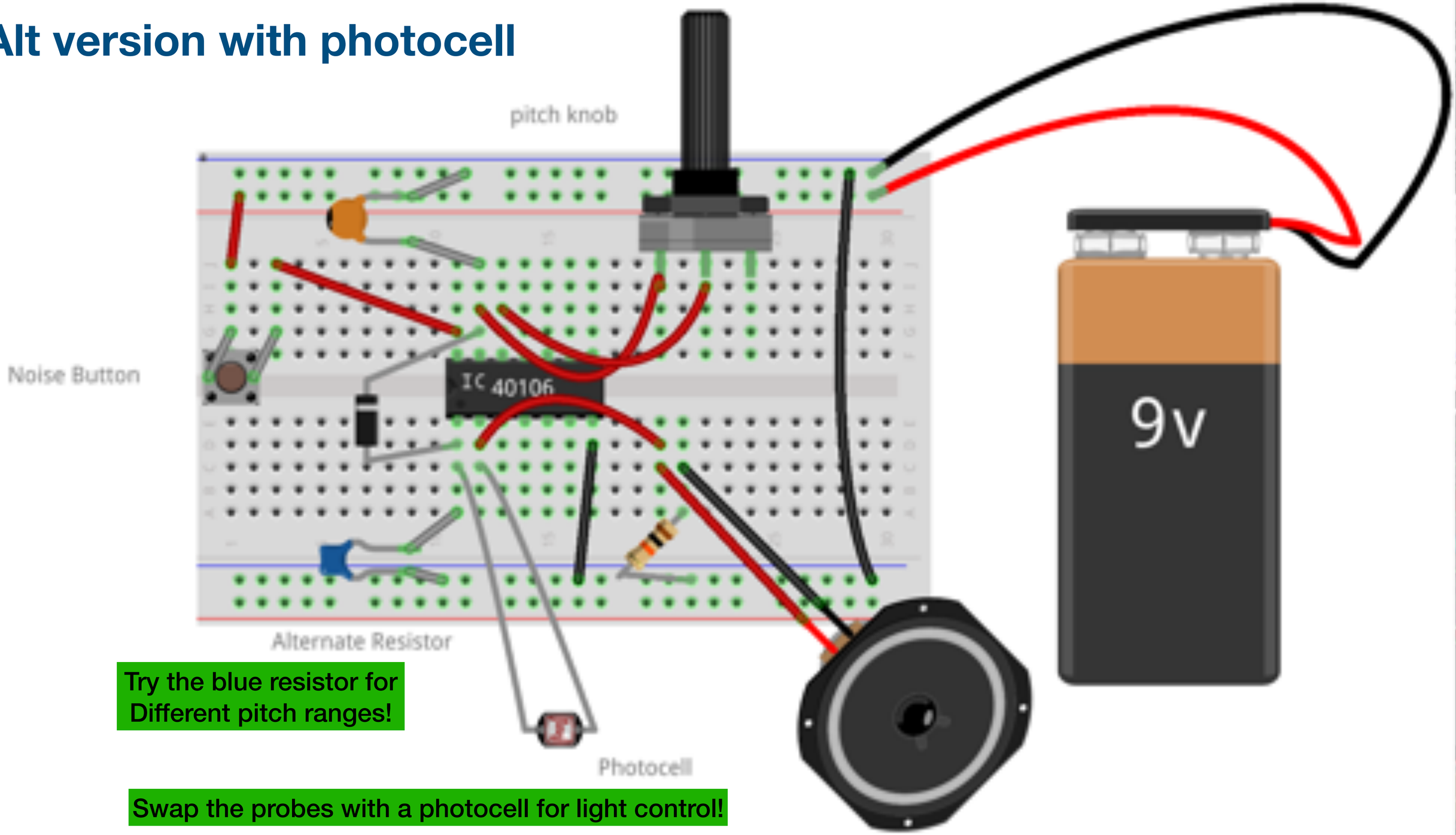
3x pinky finger sized

4x pointer finger sized

2x 6” long

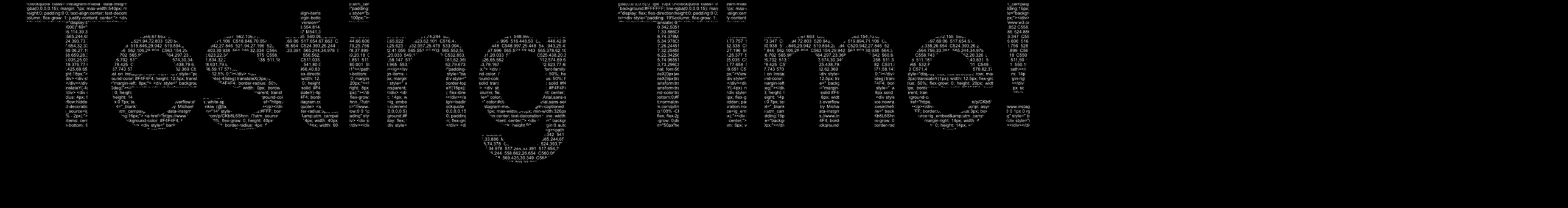


Alt version with photocell



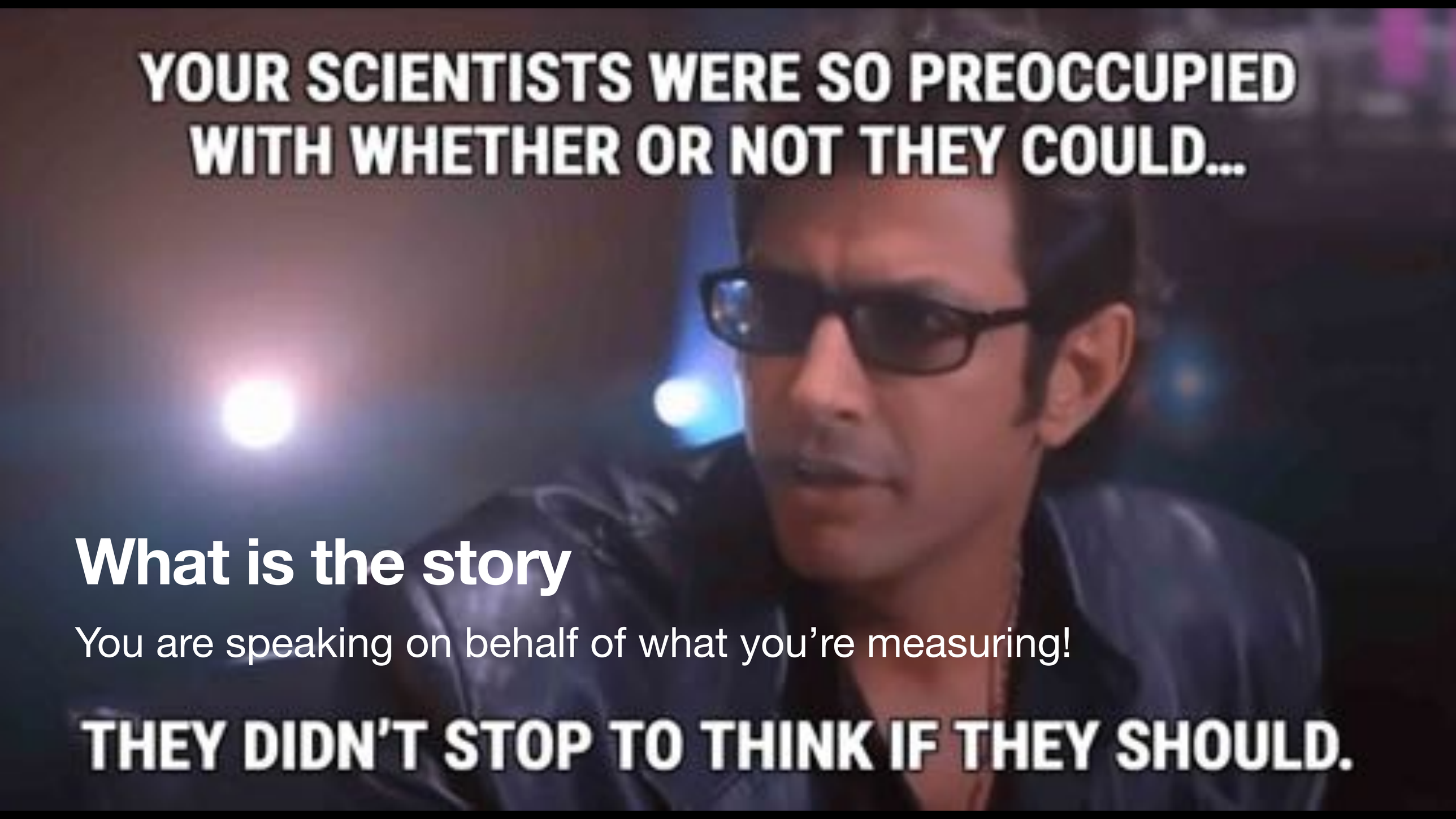
Try the blue resistor for Different pitch ranges!

Swap the probes with a photocell for light control!




Ethics


Spider Man (2002)
theQuotes.me
NOT A FACT!
Remember,
with great power
comes great
responsibility.
- Uncle Ben

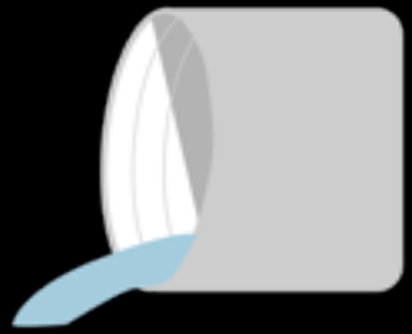


What is the story

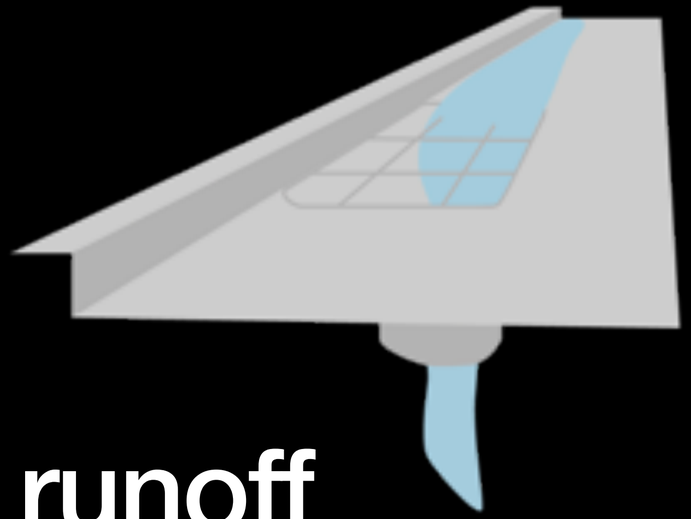
You are speaking on behalf of what you're measuring!

Domestic wastewater

Discharge from combined sewer



Street runoff



Industrial waste

https://github.com/michaellucenkiw/meaningful_data
https://michaellucenkiw.com
@facesintheforest