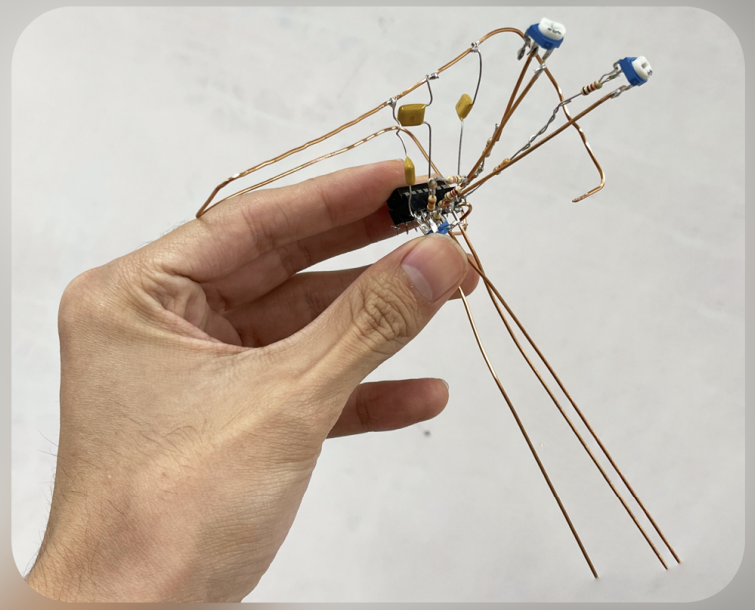
ATS
WORKSHOP SERIES

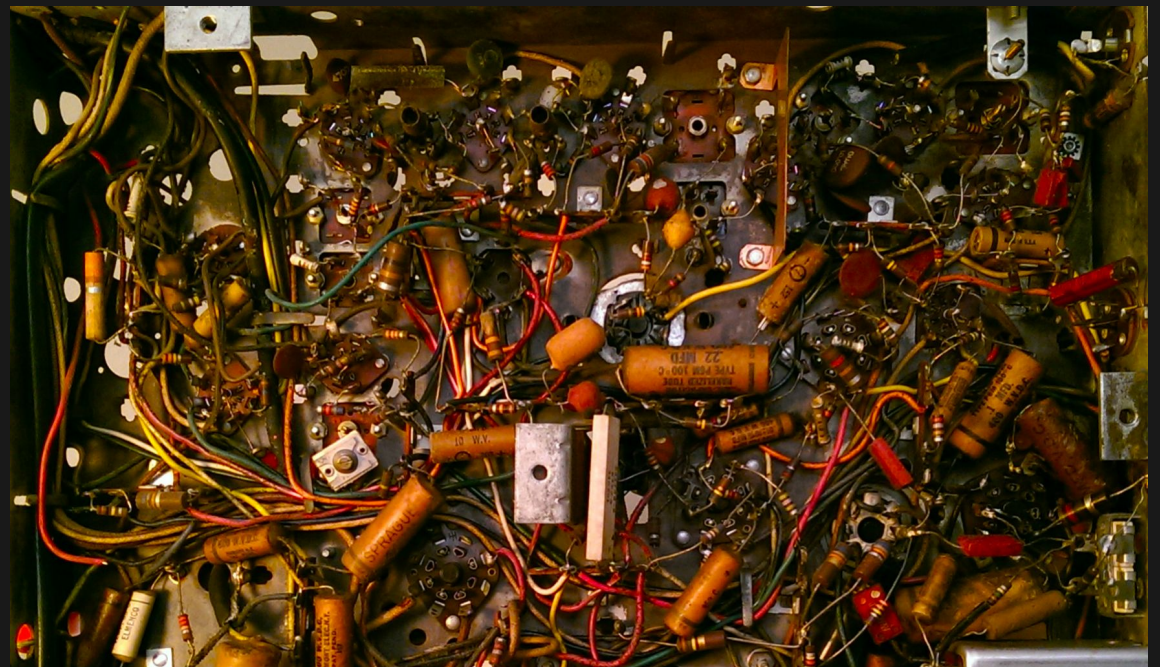


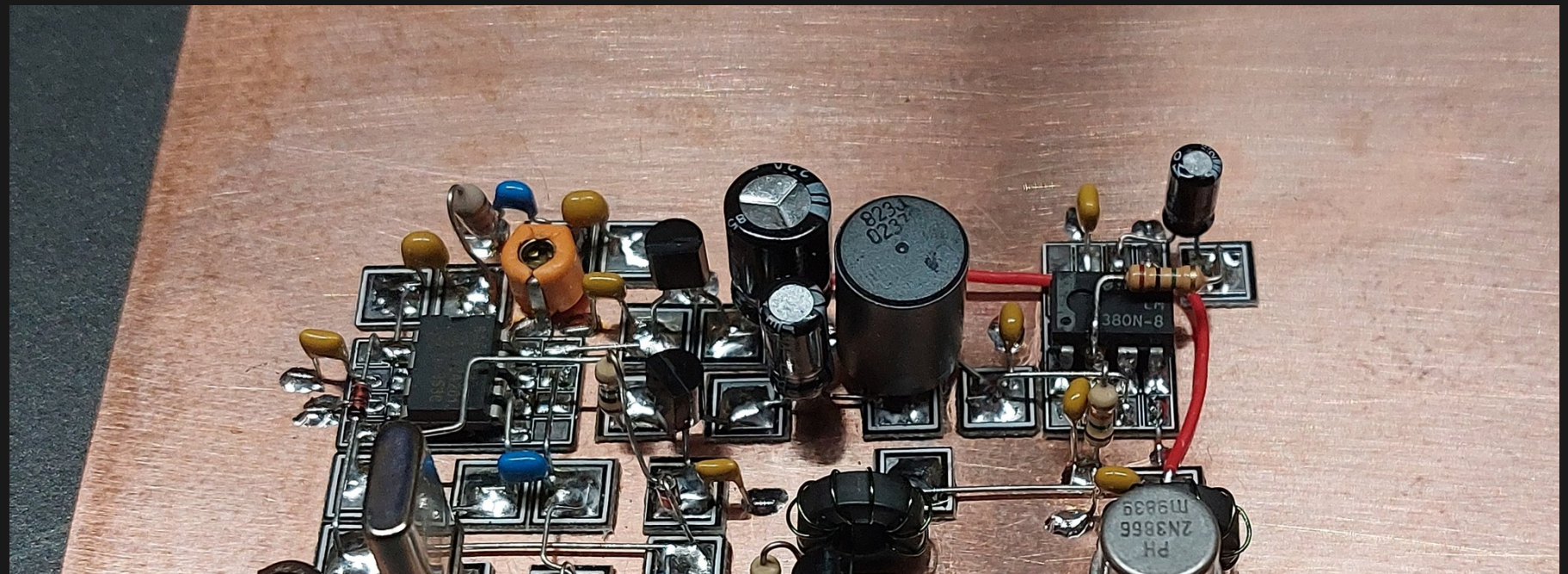
SCULPTURAL OSCILLATOR CIRCUIT
Juan Flores

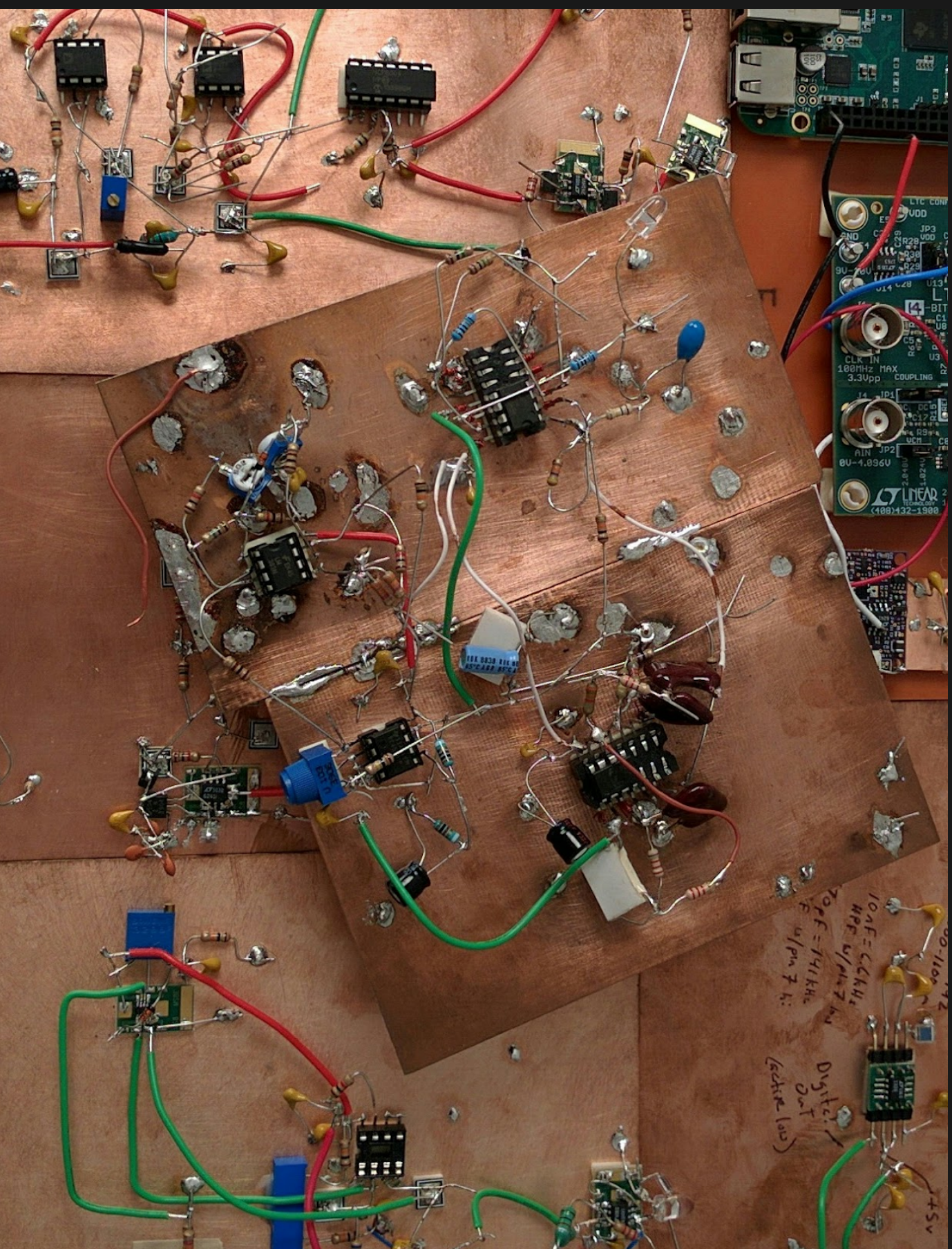
This two hour workshop is a walkthrough on how to use the CD40106 IC to create up to 6 pulse wave oscillators. A CD40106 oscillator is a simple circuit consisting of just a power source, resistor, capacitor and a single Schmitt-Trigger inverter from the CD40106. An introduction to a circuit schematic will be given, along with an overview of these basic electronic components. An oscilloscope will be used to demonstrate how to read the generated wave's frequency and amplitude. To encourage creativity, we will look at sculptural circuit examples made by Peter Vogel, and sound work like Tristan Perich's 1-Bit Symphony to think about sound composition. On the sculptural side, there is the option to use a wire bending jig to make different kinds of hard angle bends and round bends. On the sound side, we can look at how different waves can be tuned, modulated, and combined to create more complex and "musical" sounding waveforms. We will be soldering these components together, but no soldering experience is required.

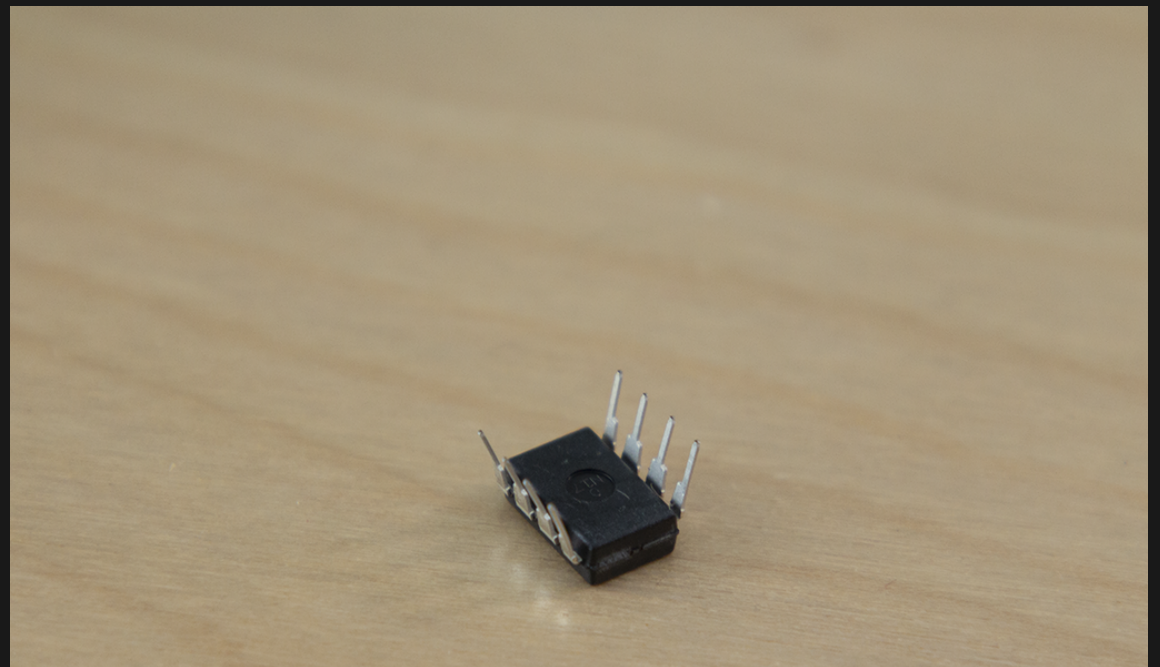
NOVEMBER 18
1:00-3:00PM
EK LAB (B1-07)

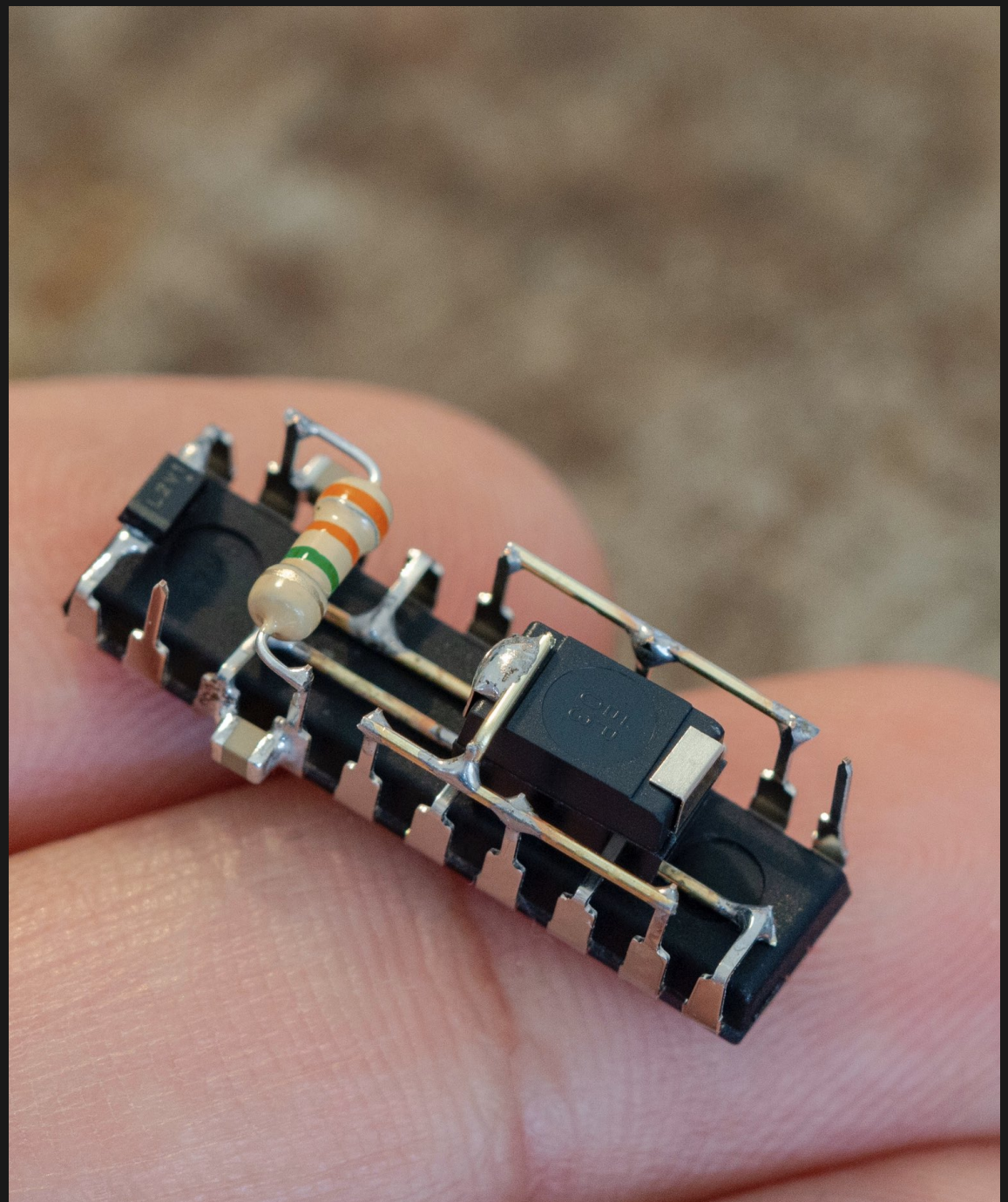
Open to All Students!
Scan to Register

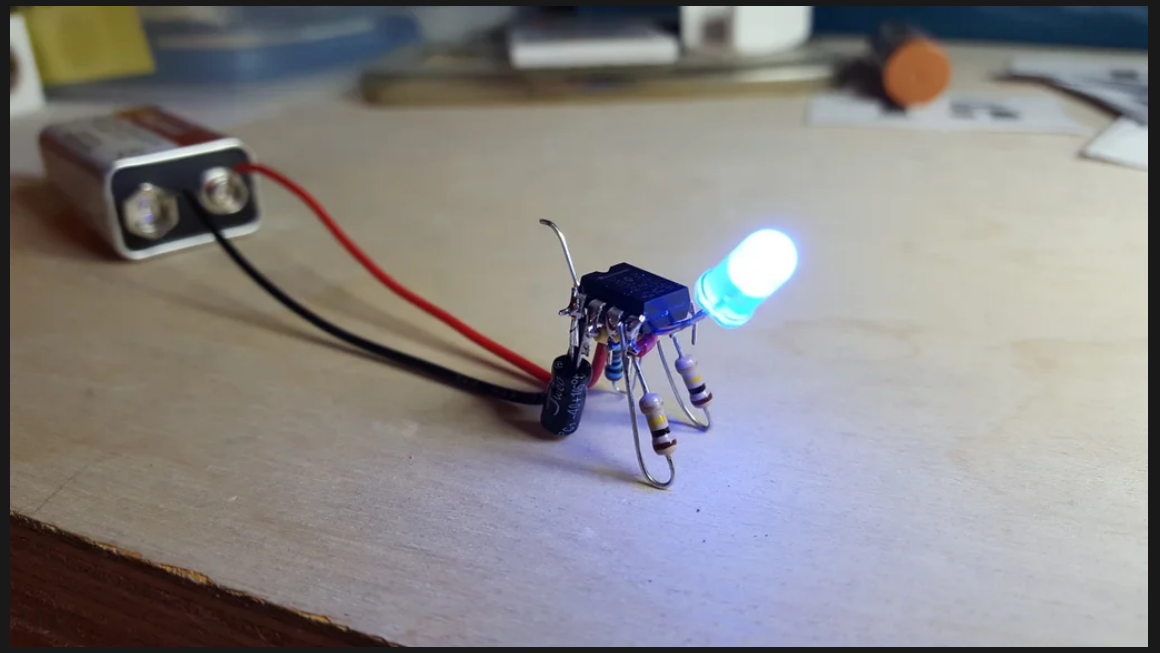

22 MFD
TYPE PGM 100°C
SPRAGUE

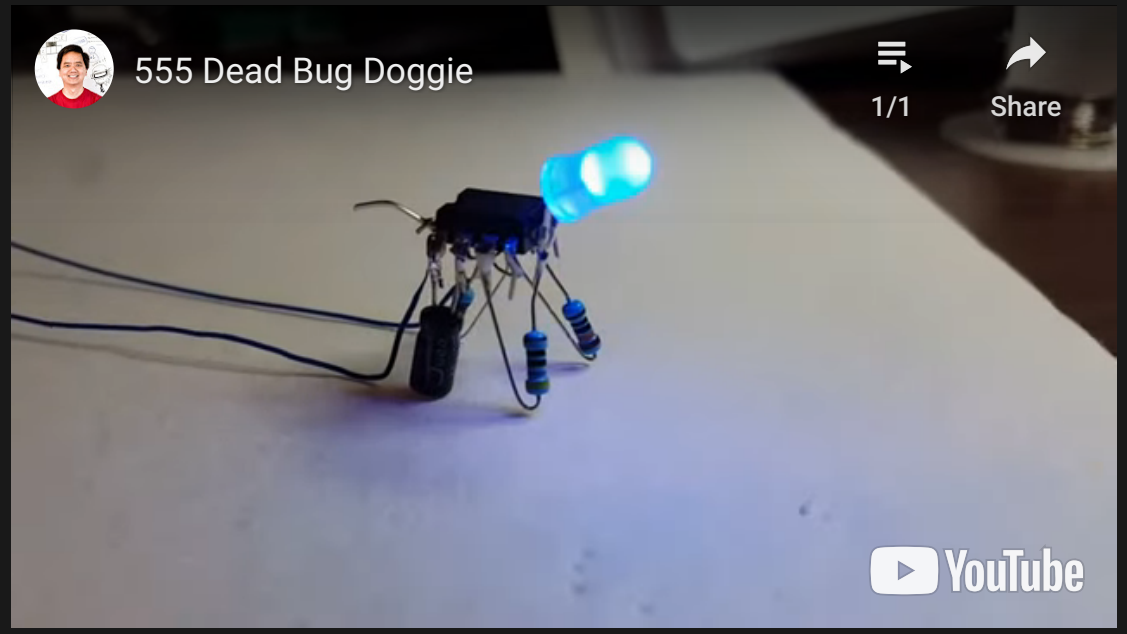

8234
0237
LM
380N-8
PH
2N3866
M9839


VDD
JP3
CLK IN
100MHz MAX
3.3Vpp
COUPLING
AIN
JP2
0V-4.096V
LINEAR
(408)432-1900
10nF = 676Hz
HPF o/p
Digital
Out
(active low)
+5V

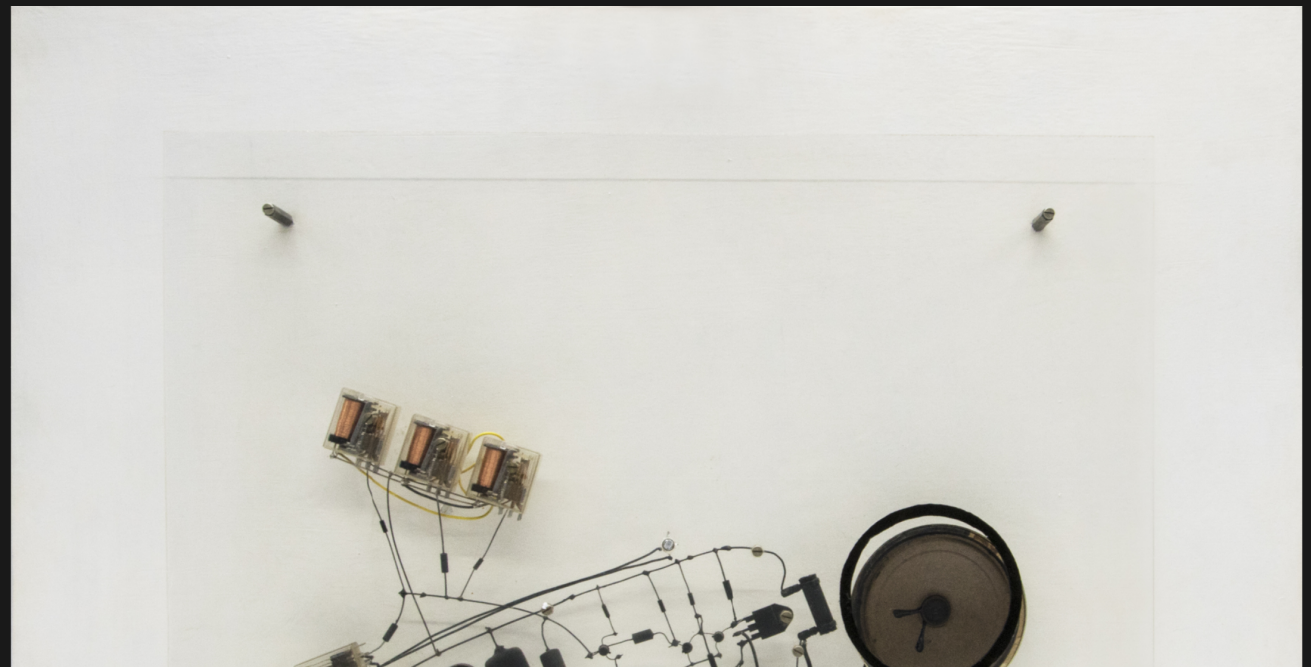






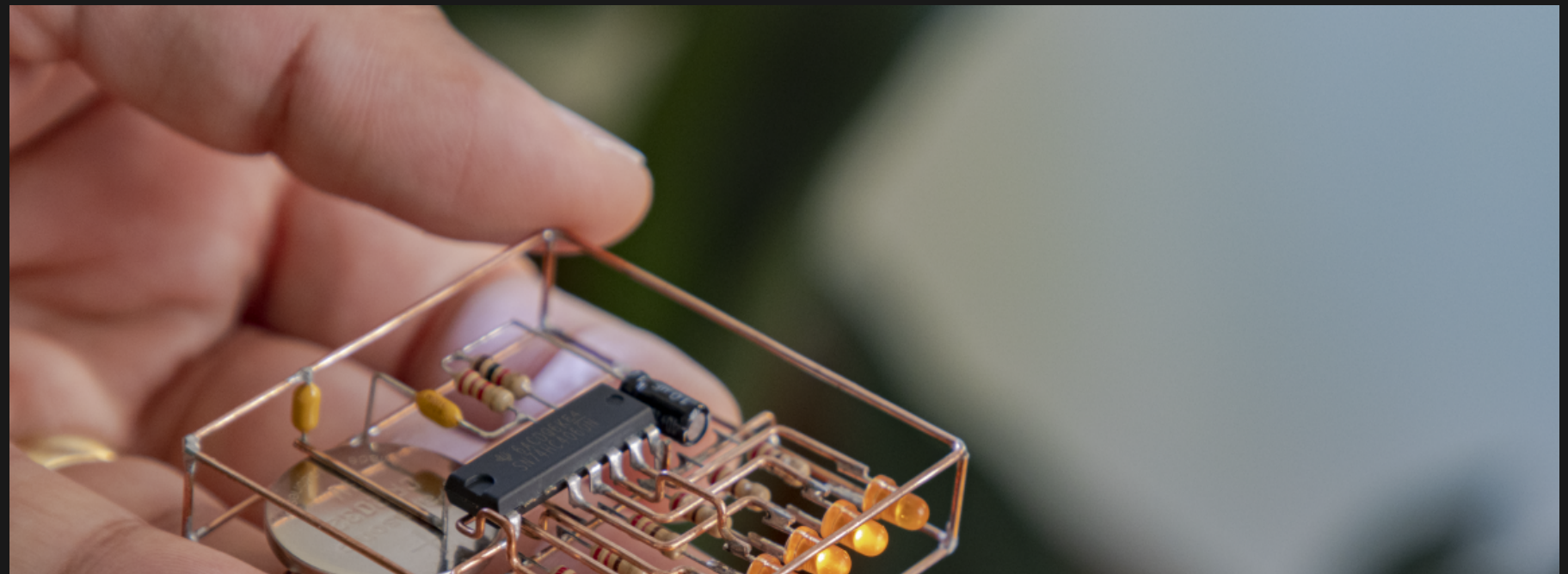

555 Dead Bug Doggie
1/1
Share
YouTube

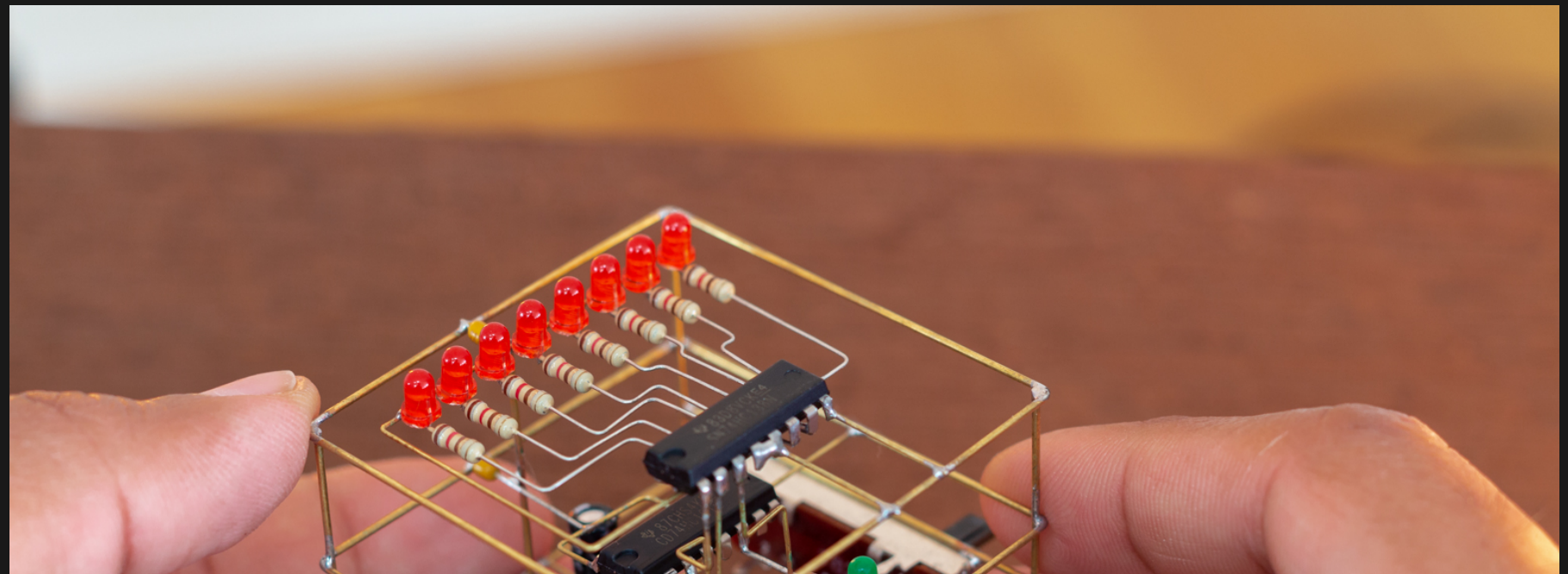
Peter Vogel



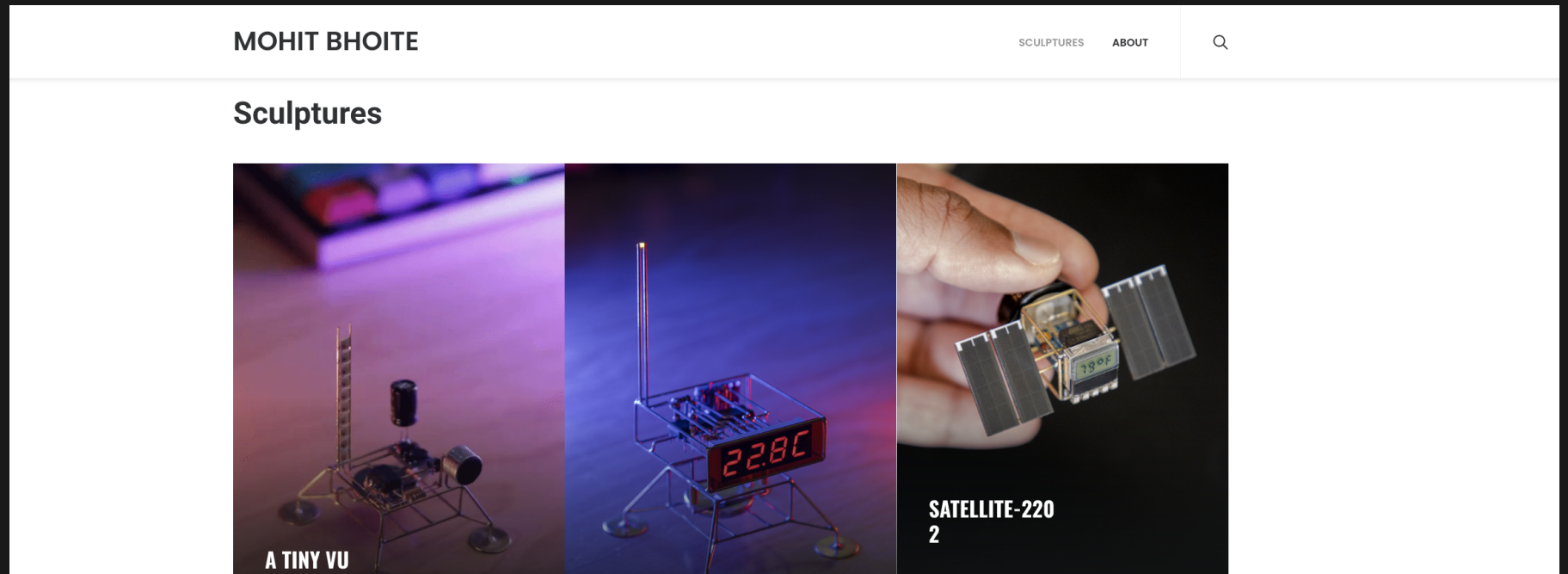

Peter Vogel Soundwall performance
Share

Mohit Bhoite

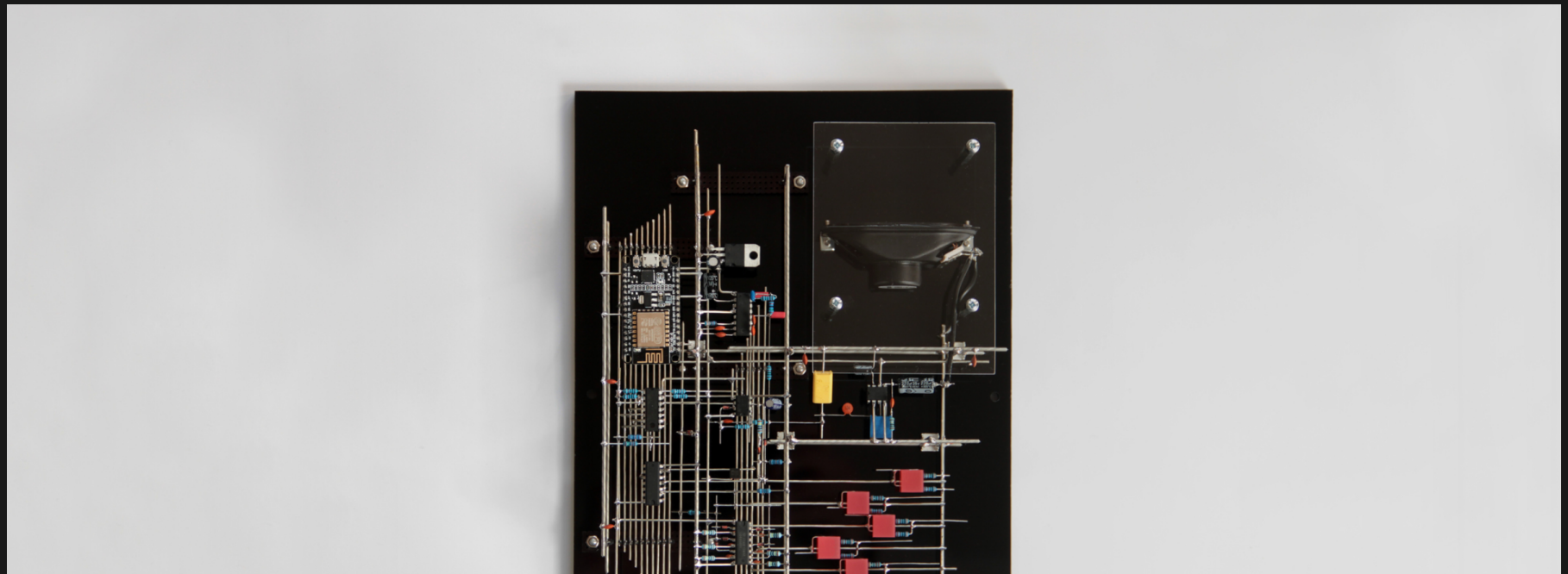




https://www.bhoite.com/sculptures/

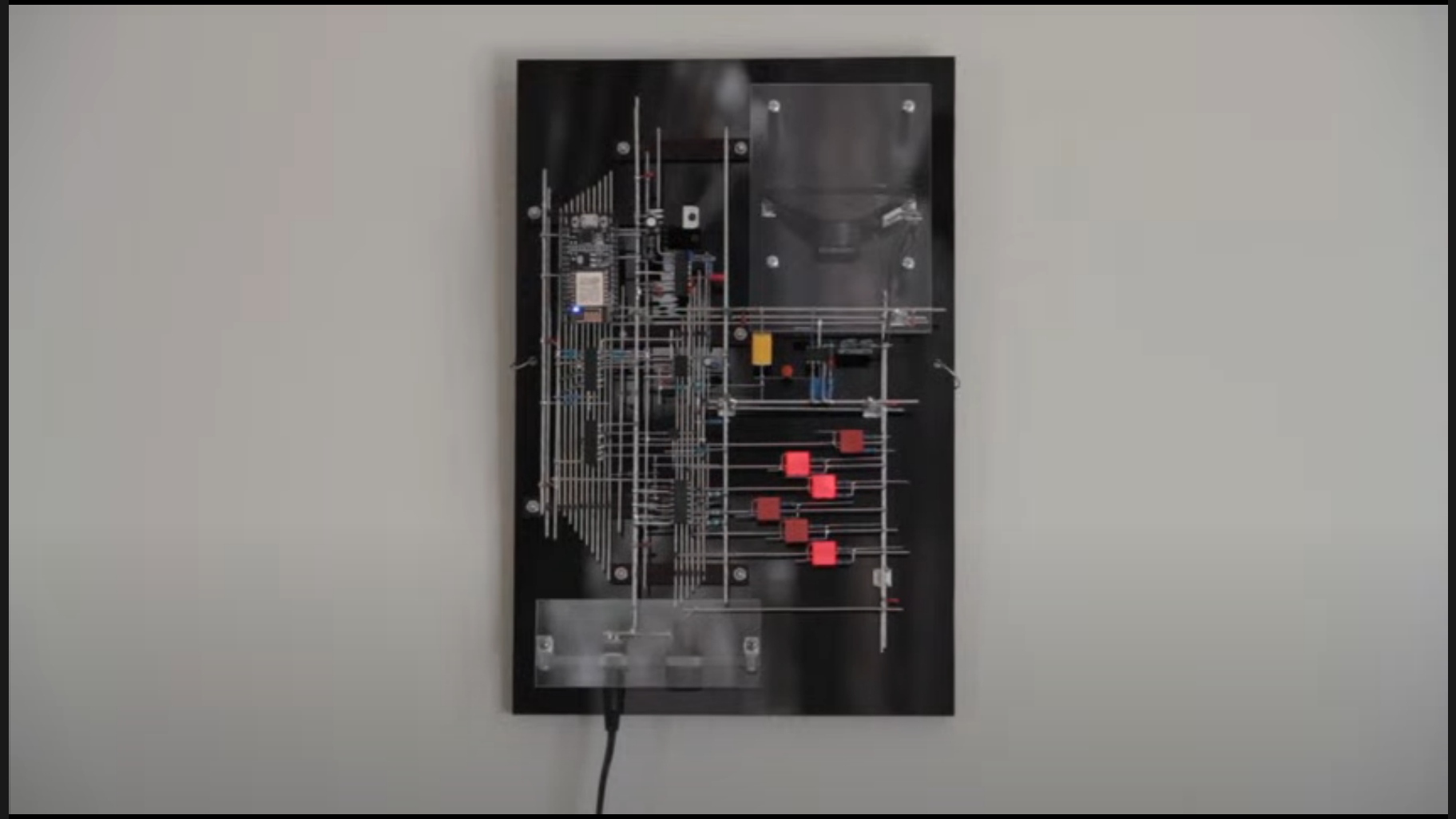


Eirik Brandal



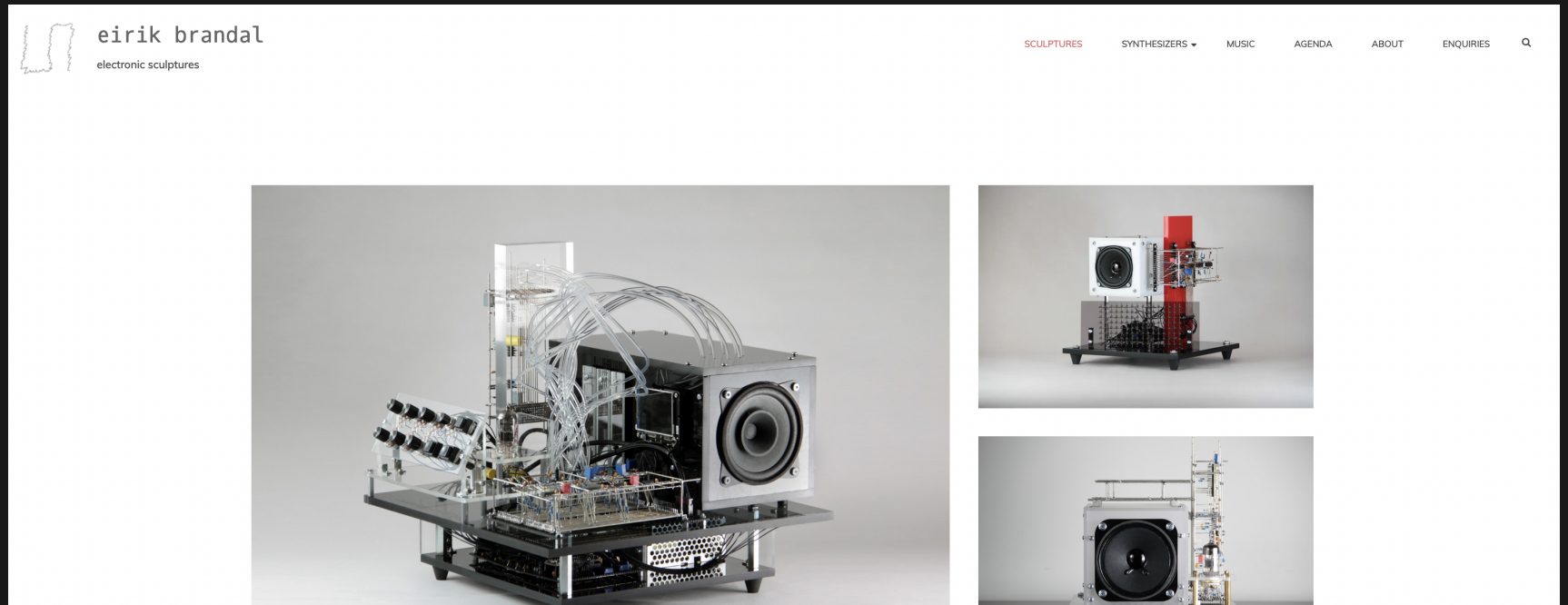
viyndr | electronic sound and light sculpture

Share



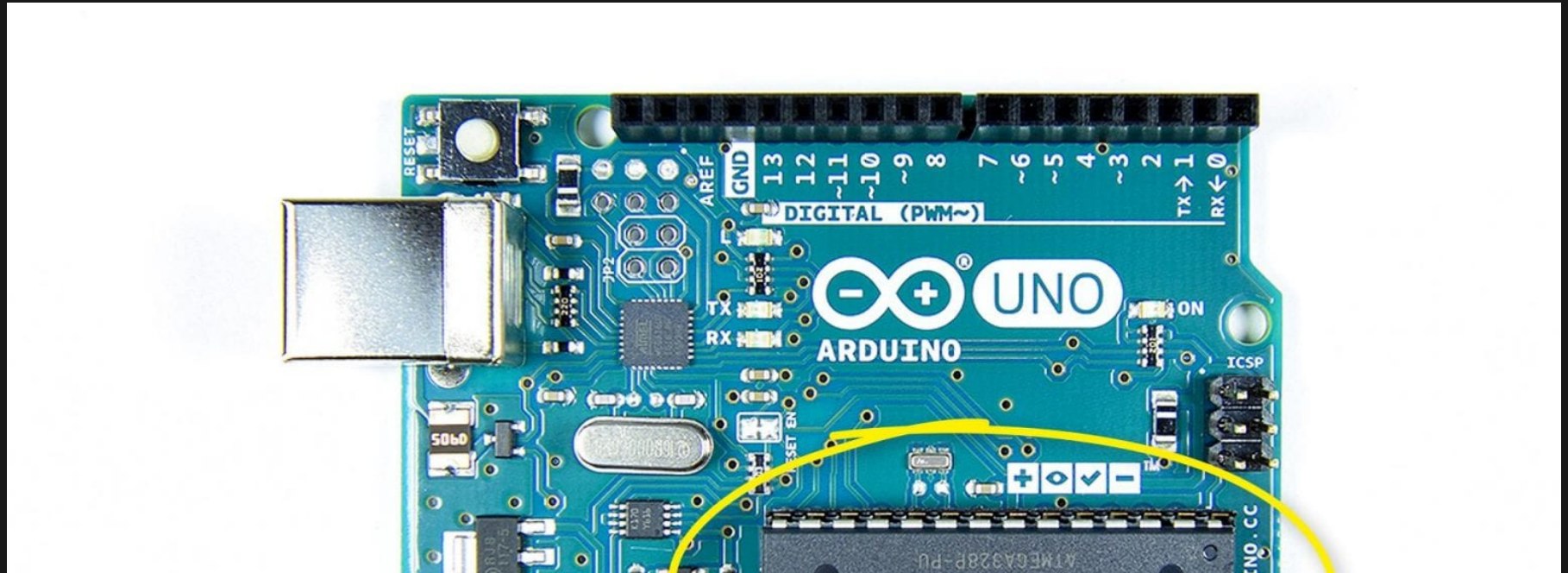
0:00 / 1:01

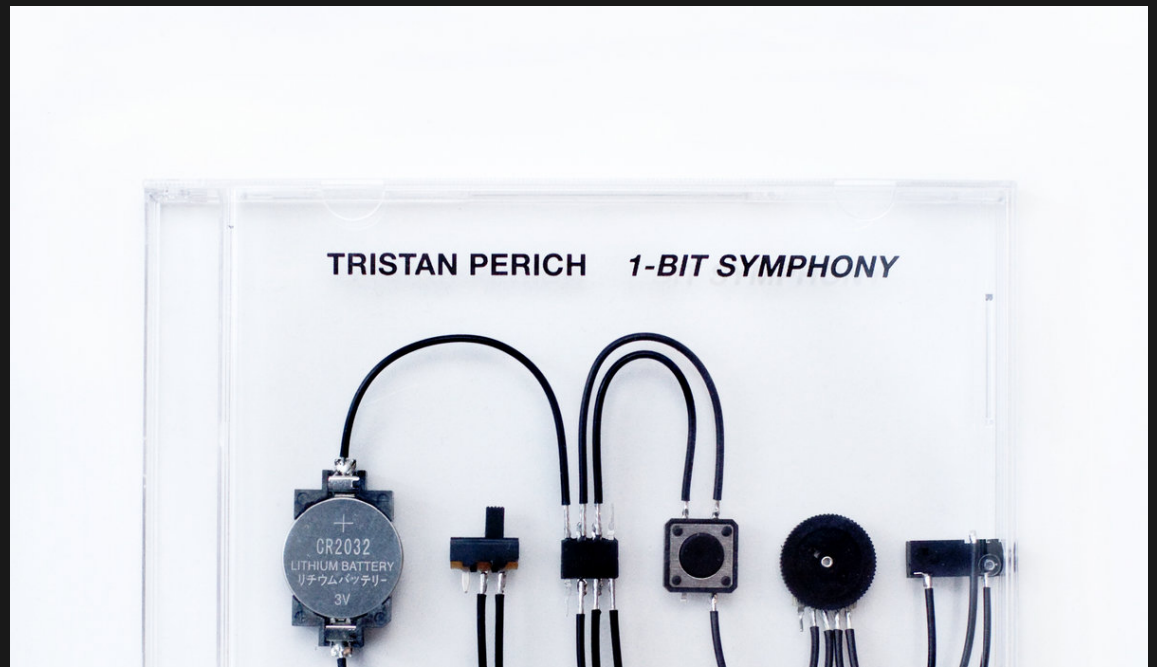
https://eirikbrandal.com/



Tristan Perich

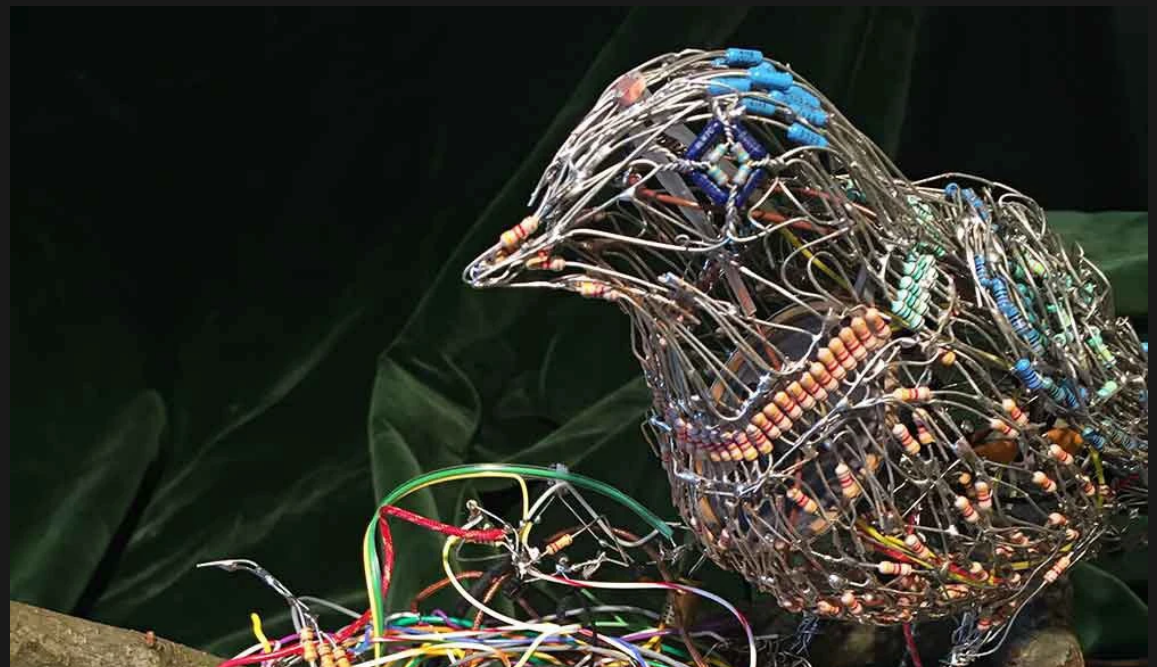
ATmega328 (~$7)


RESET
AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
DIGITAL (PWM~)
UNO
ARDUINO
TX
RX
ON
ICSP
5060
ATMEGA328P-PU


TRISTAN PERICH
1-BIT SYMPHONY
CR2032
LITHIUM BATTERY
リチウムバッテリー
3V

Why?

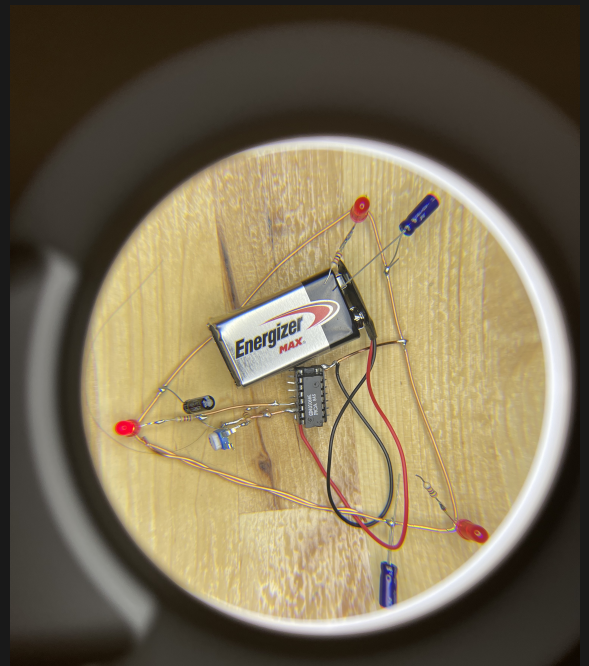
Free the circuit and bring it to life.



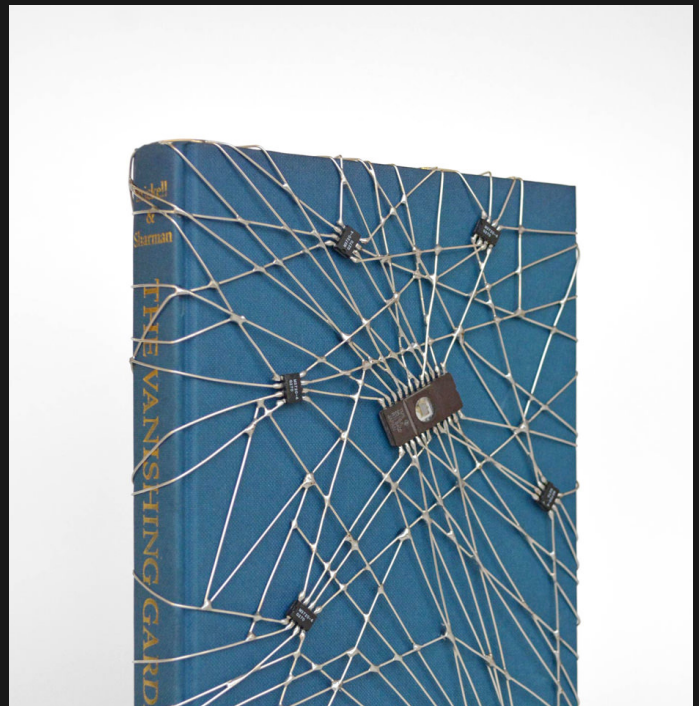
Cheap and accessible.

Escape the computer and breadboard.

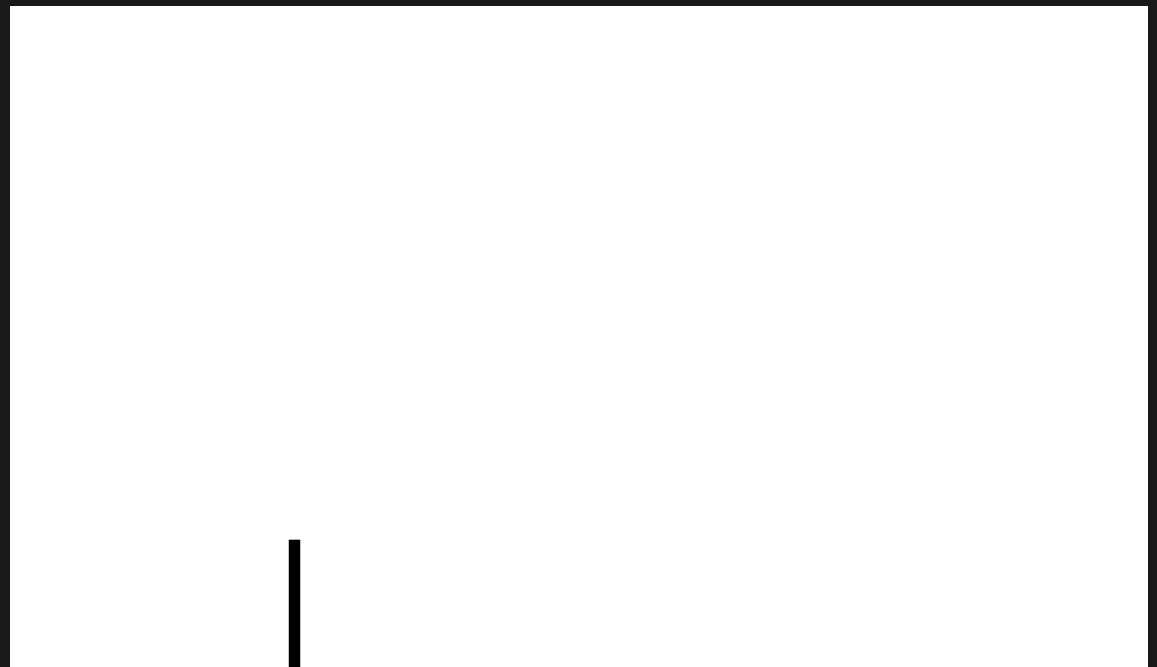
You'll learn a circuit well.

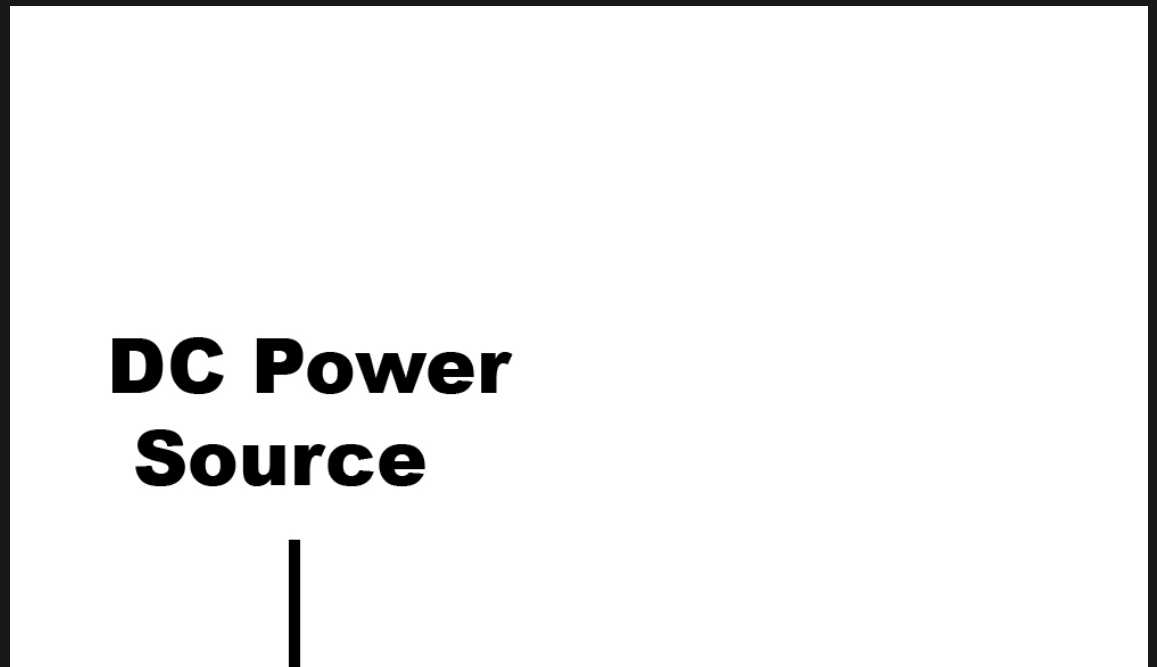


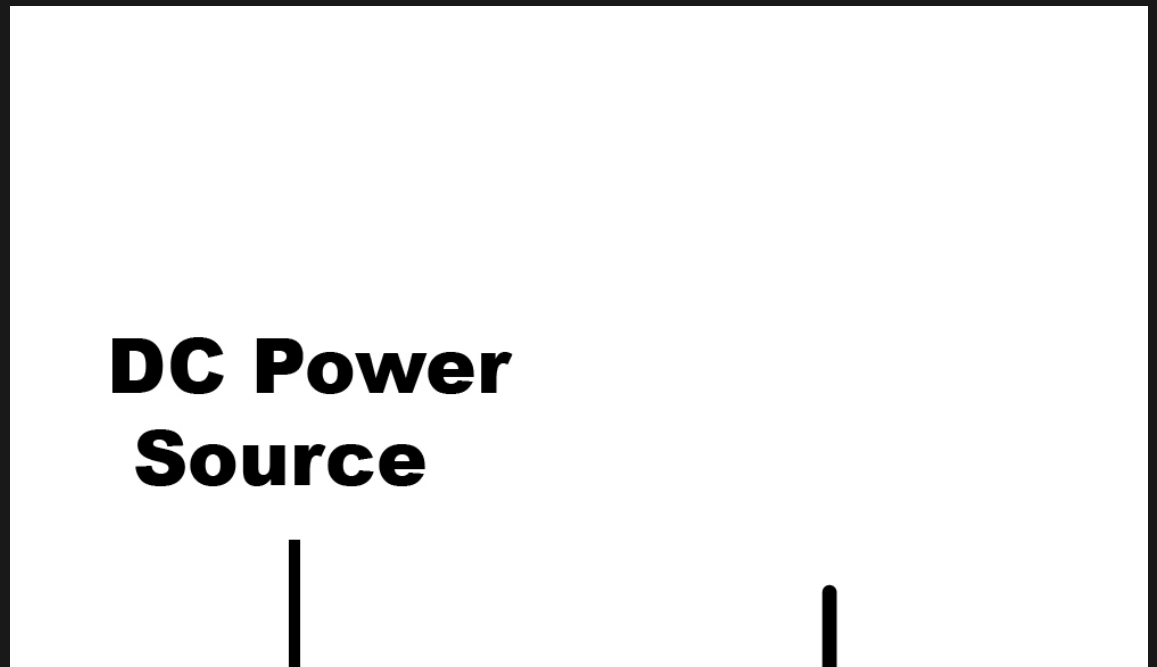
More fun and creative!

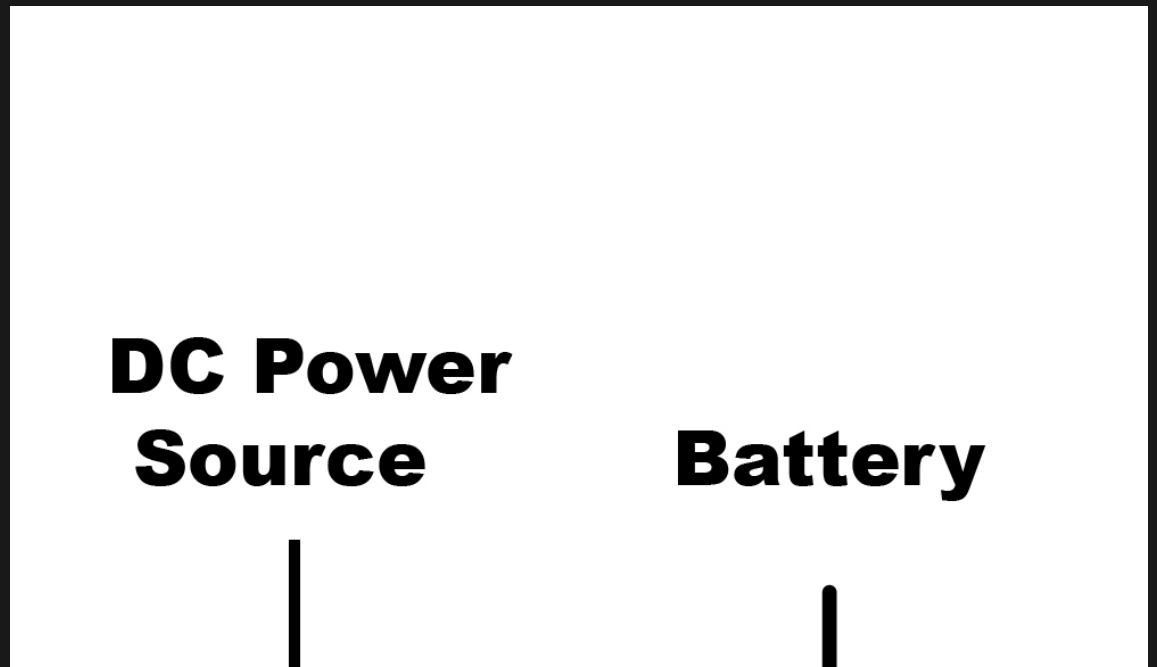


Quick Overview of Components and Schematics



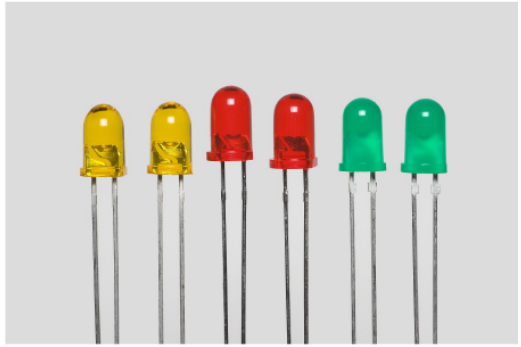

DC Power
Source


DC Power
Source

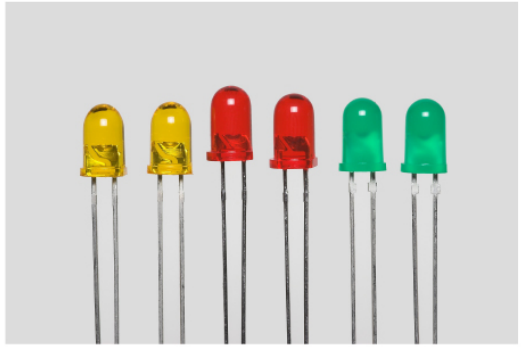

DC Power Source
Battery

Resistor

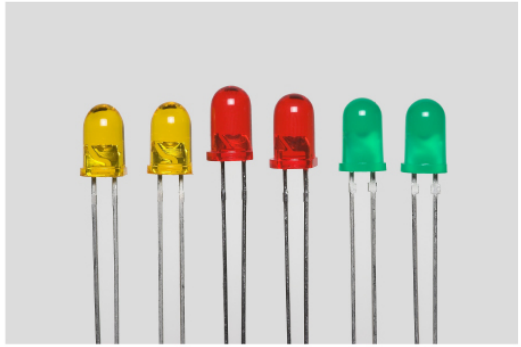
Resistor



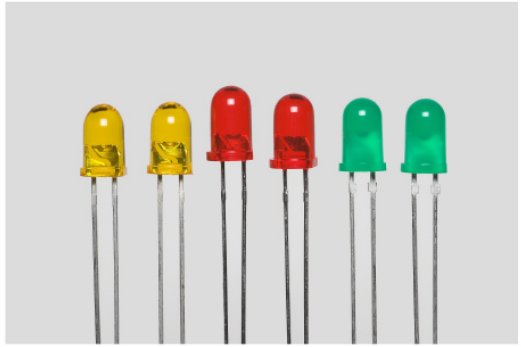
LED



LED

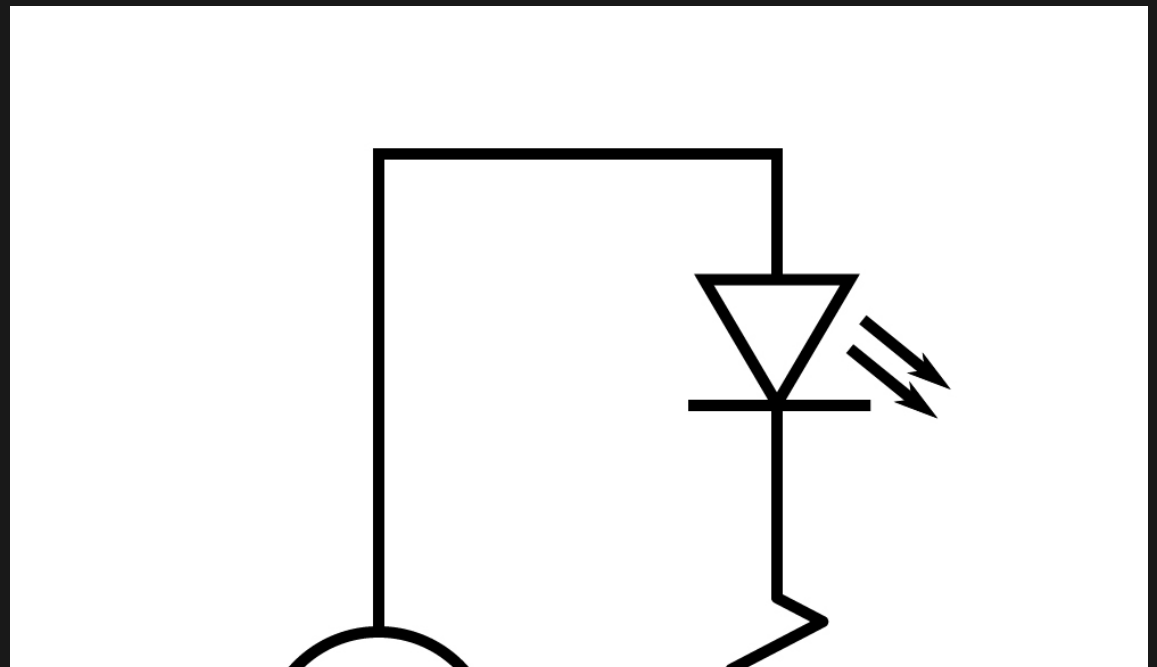


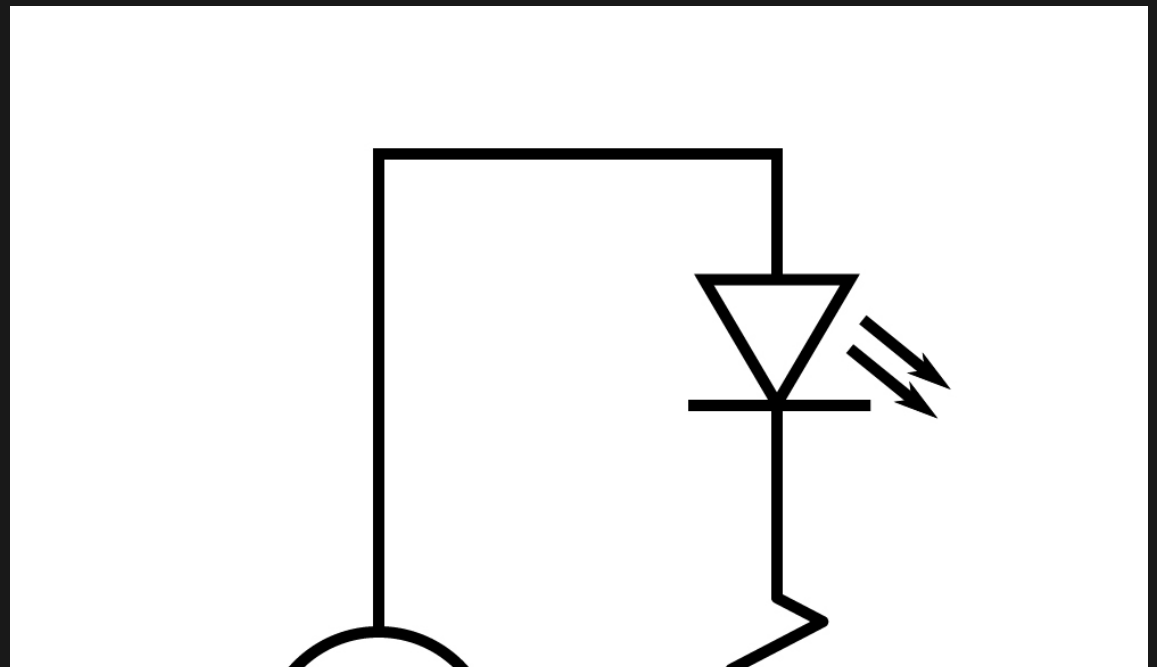
LED

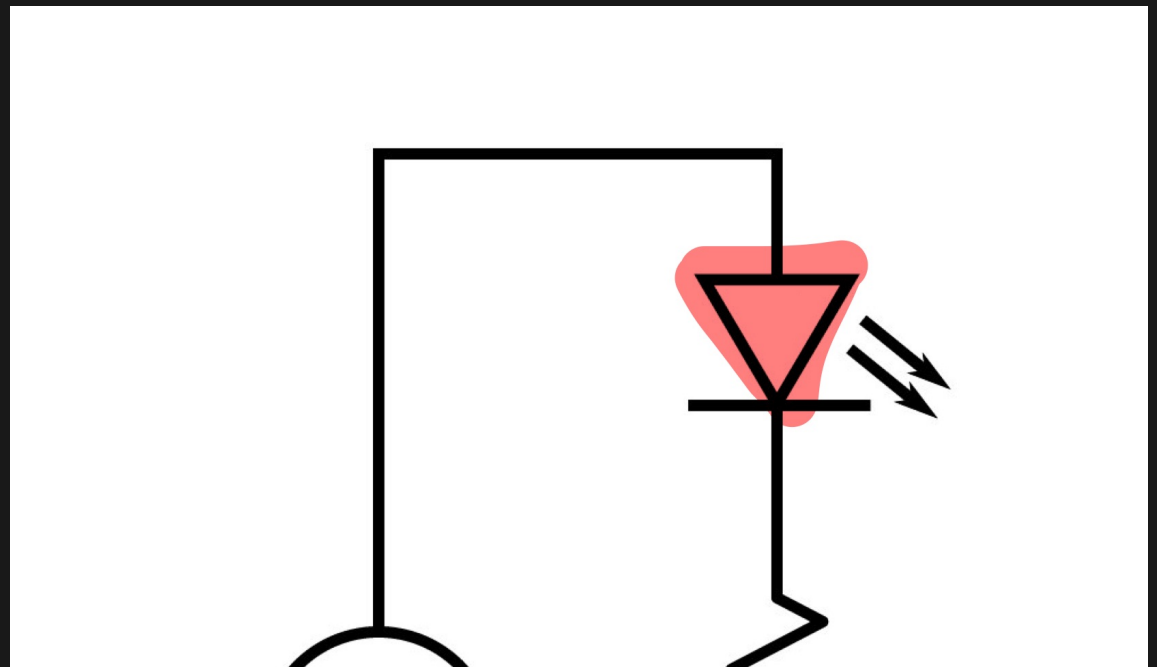


LED

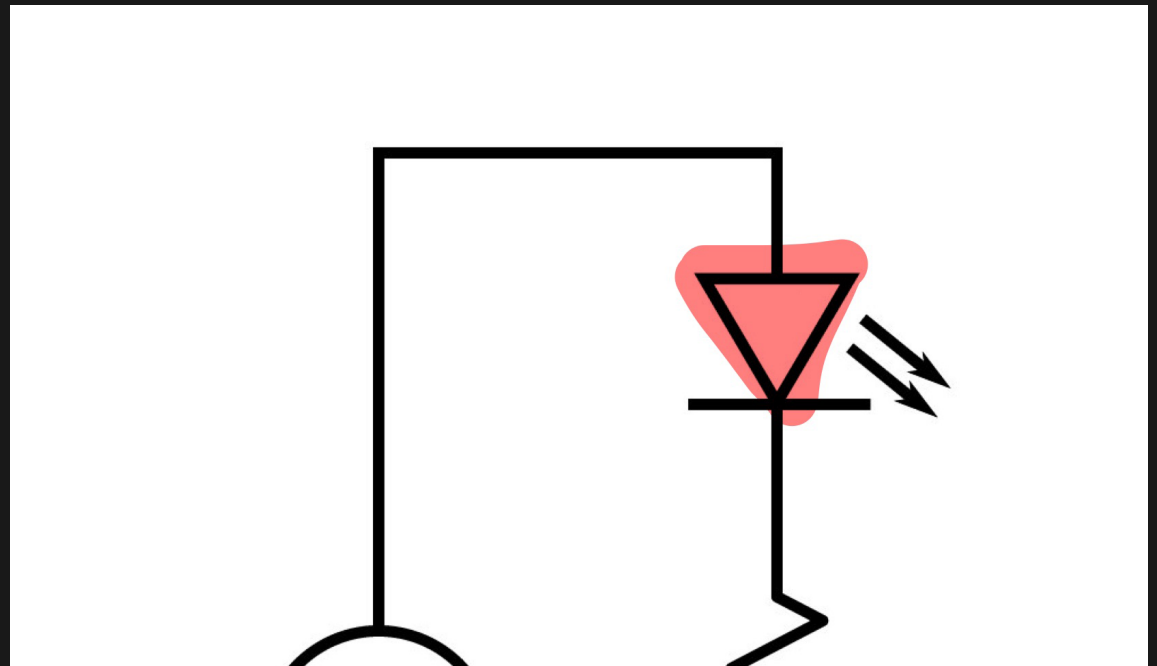
Diode

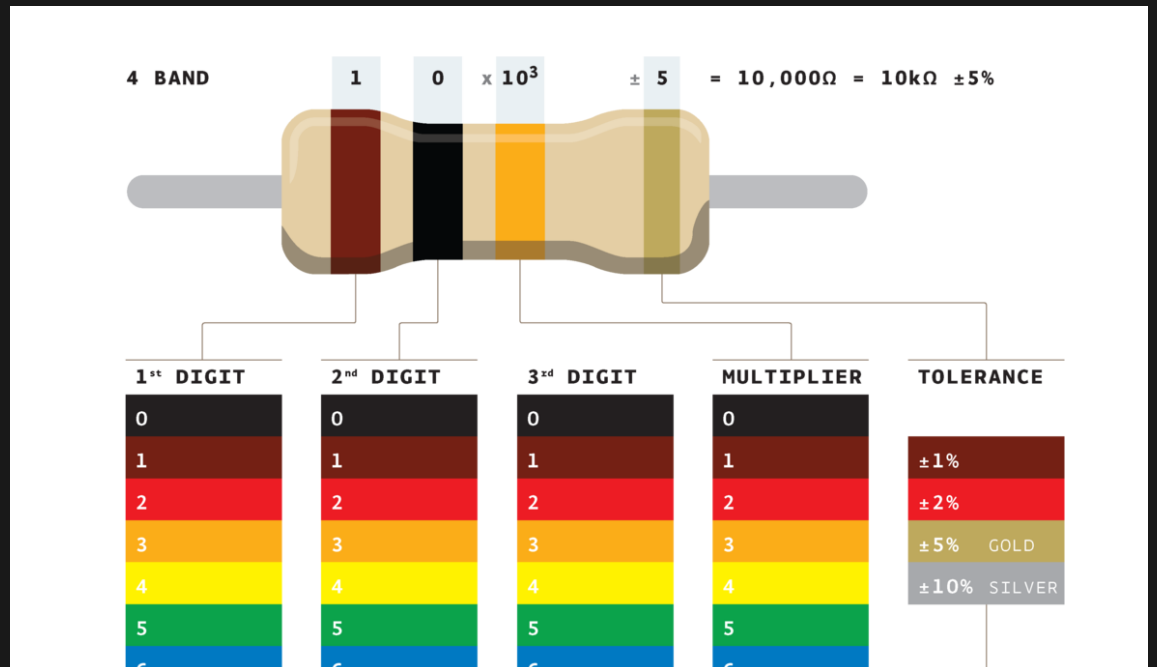






LED Resistor Calculator




4 BAND
1
0
x 10³
± 5
= 10,000Ω = 10kΩ ±5%
1st DIGIT
2nd DIGIT
3rd DIGIT
MULTIPLIER
TOLERANCE
0
1
2
3
4
5
±1%
±2%
±5% GOLD
±10% SILVER

Potentiometer

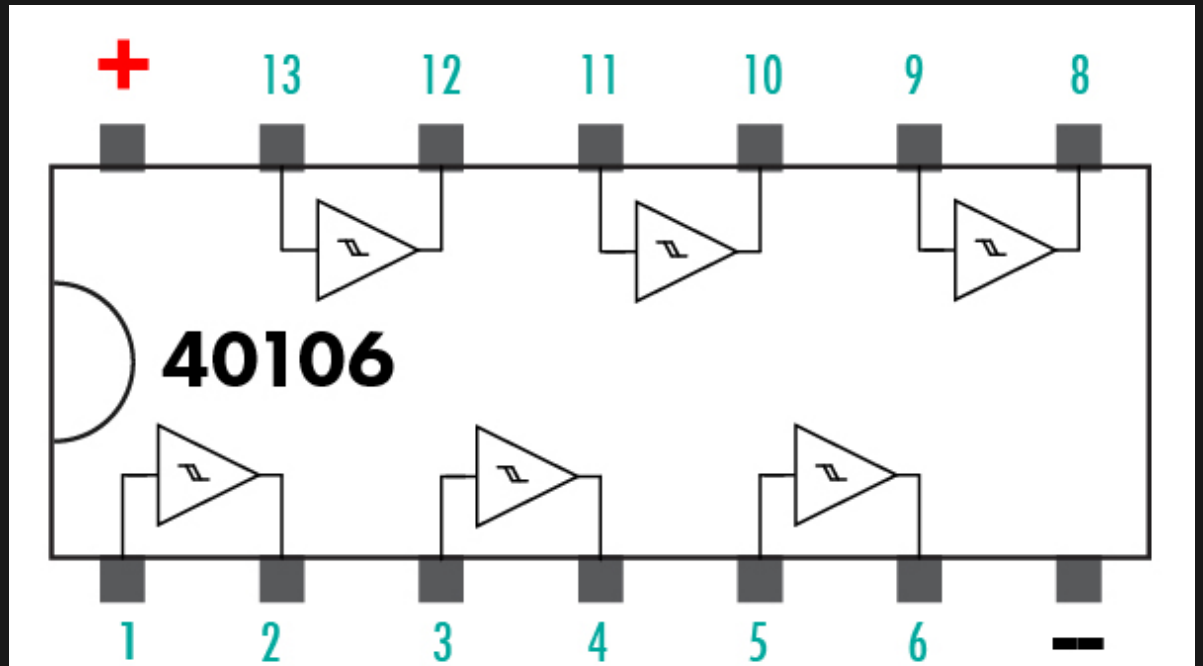
Photocell Resistor

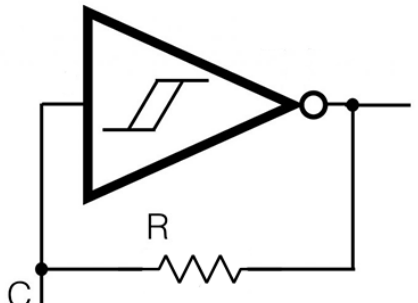
Variable

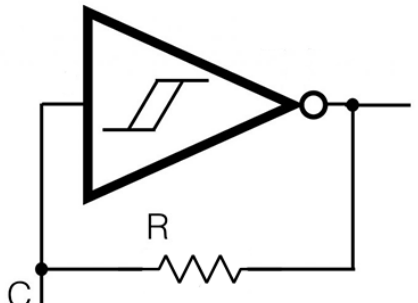

nichicon
4700μF 35v
VITAMIN Q
CAPACITOR
193-10 8216
189-505-5
1.03K
5.000
151

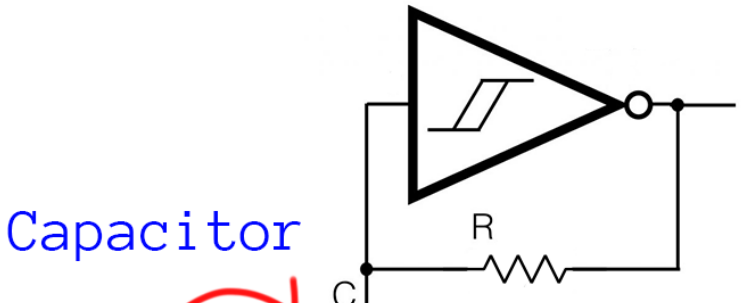
Capacitor

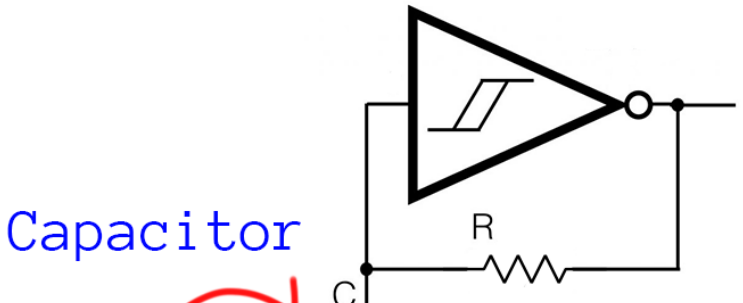
Datasheet is your friend

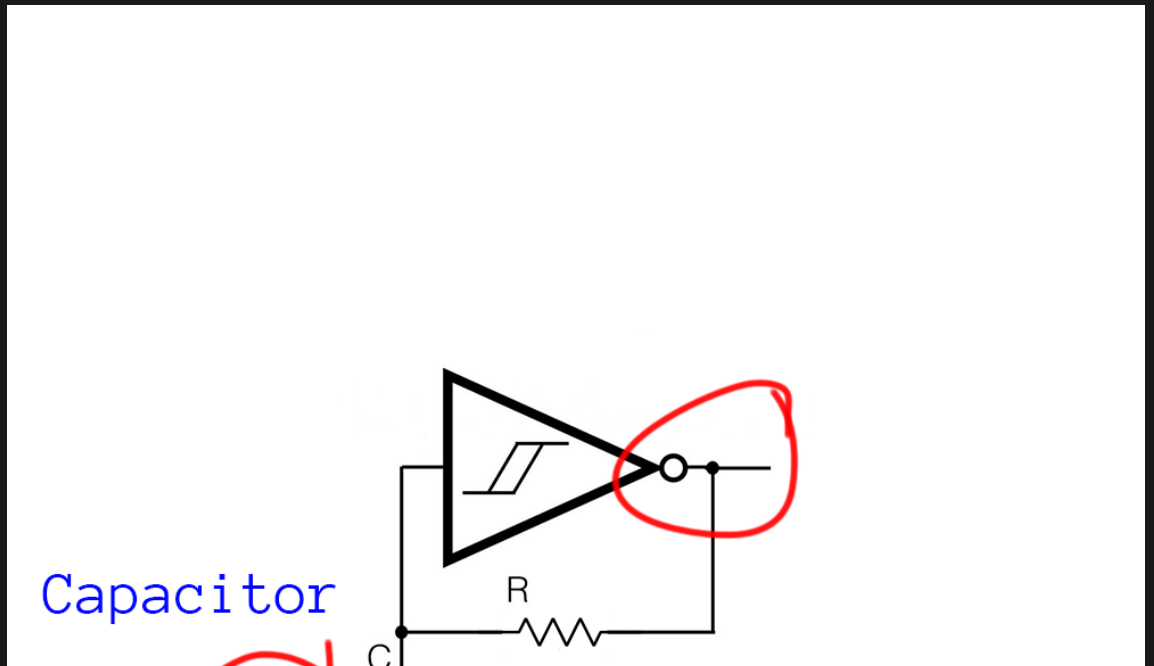


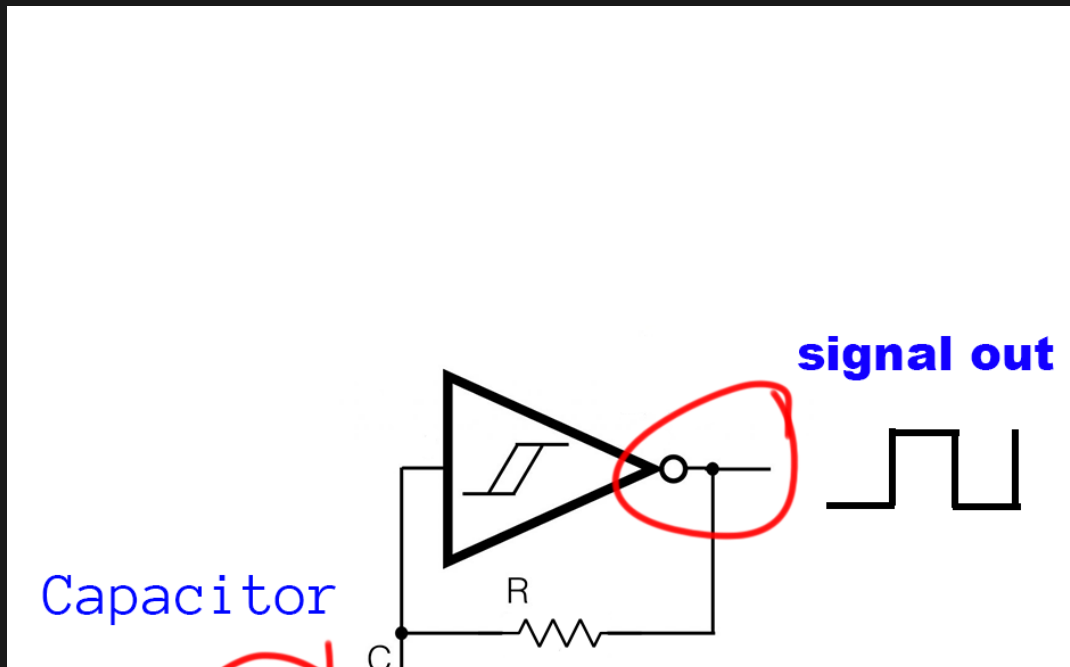

R
C

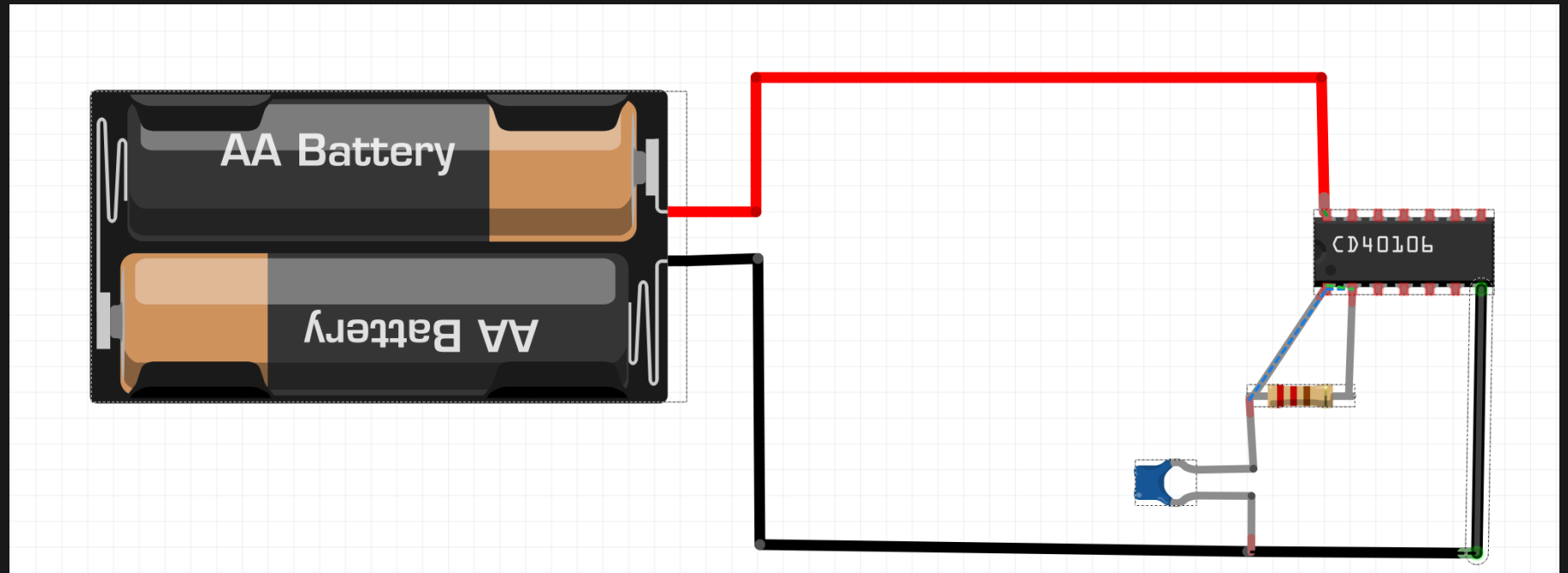

R
C

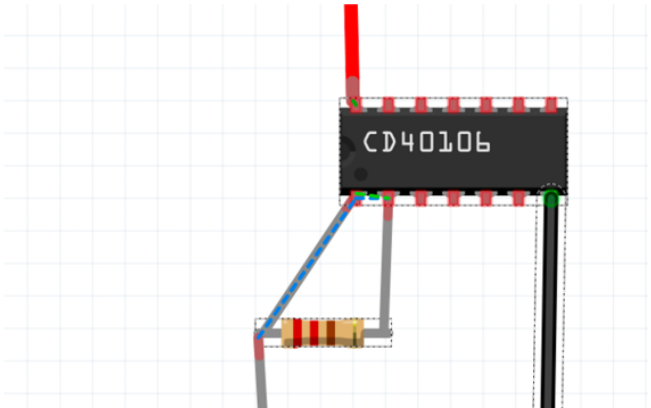

Capacitor
R
C

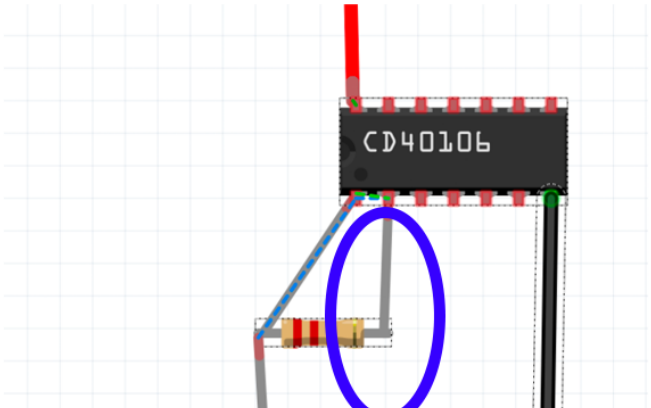

Capacitor
R
C


Capacitor
R
C


signal out
Capacitor
R
C


AA Battery
AA Battery
CD40106


CD40106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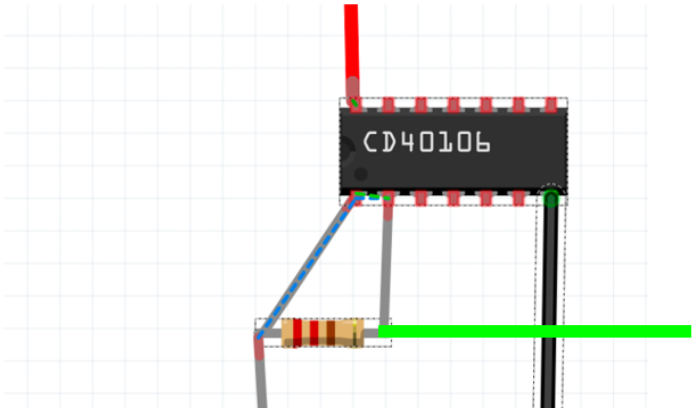
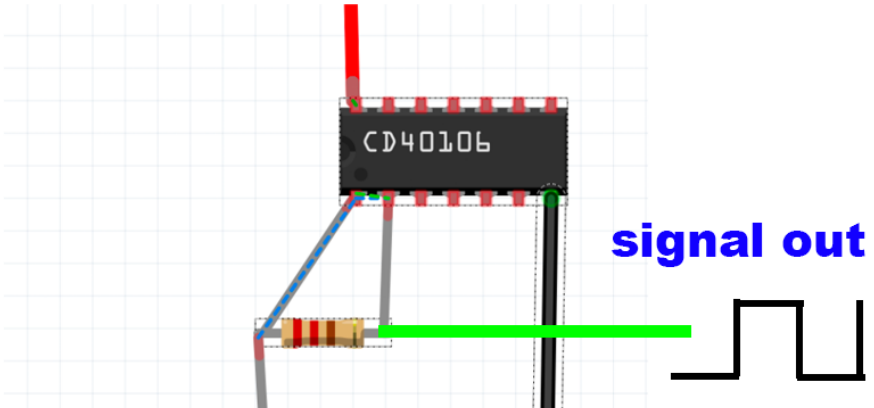
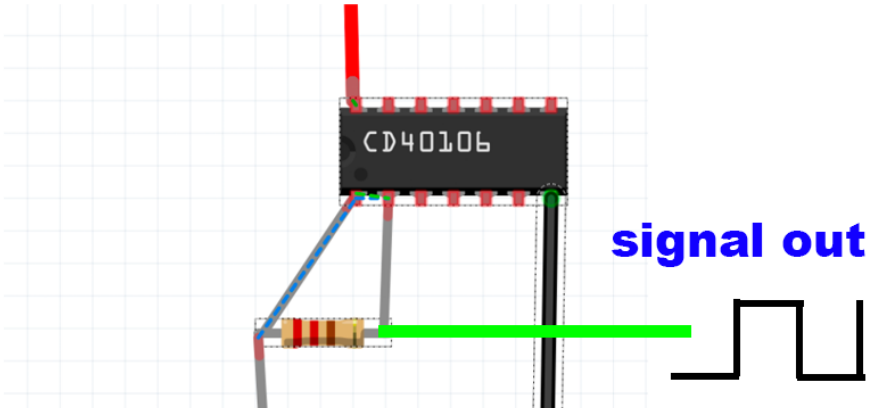
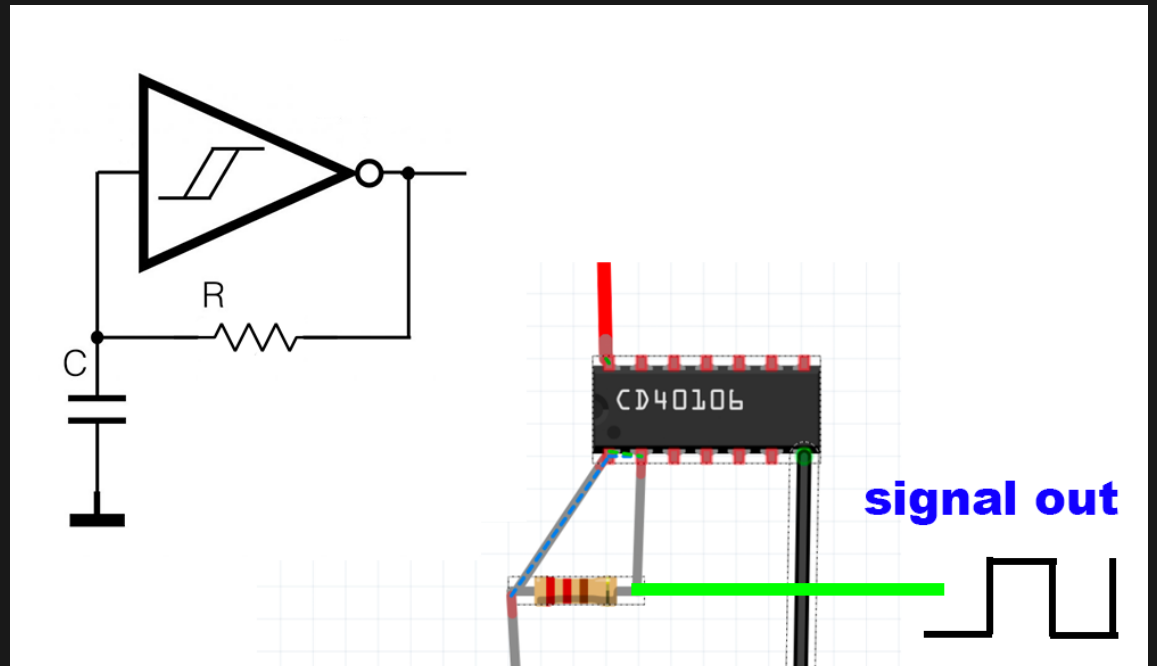

CD40106


CD40106
signal out


CD40106
signal out


R
C
CD40106
signal out