8BIT
SYNTH WORKSHOP

SUPER KEWL

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DUSJAGR
MANTICORE
ANYMA
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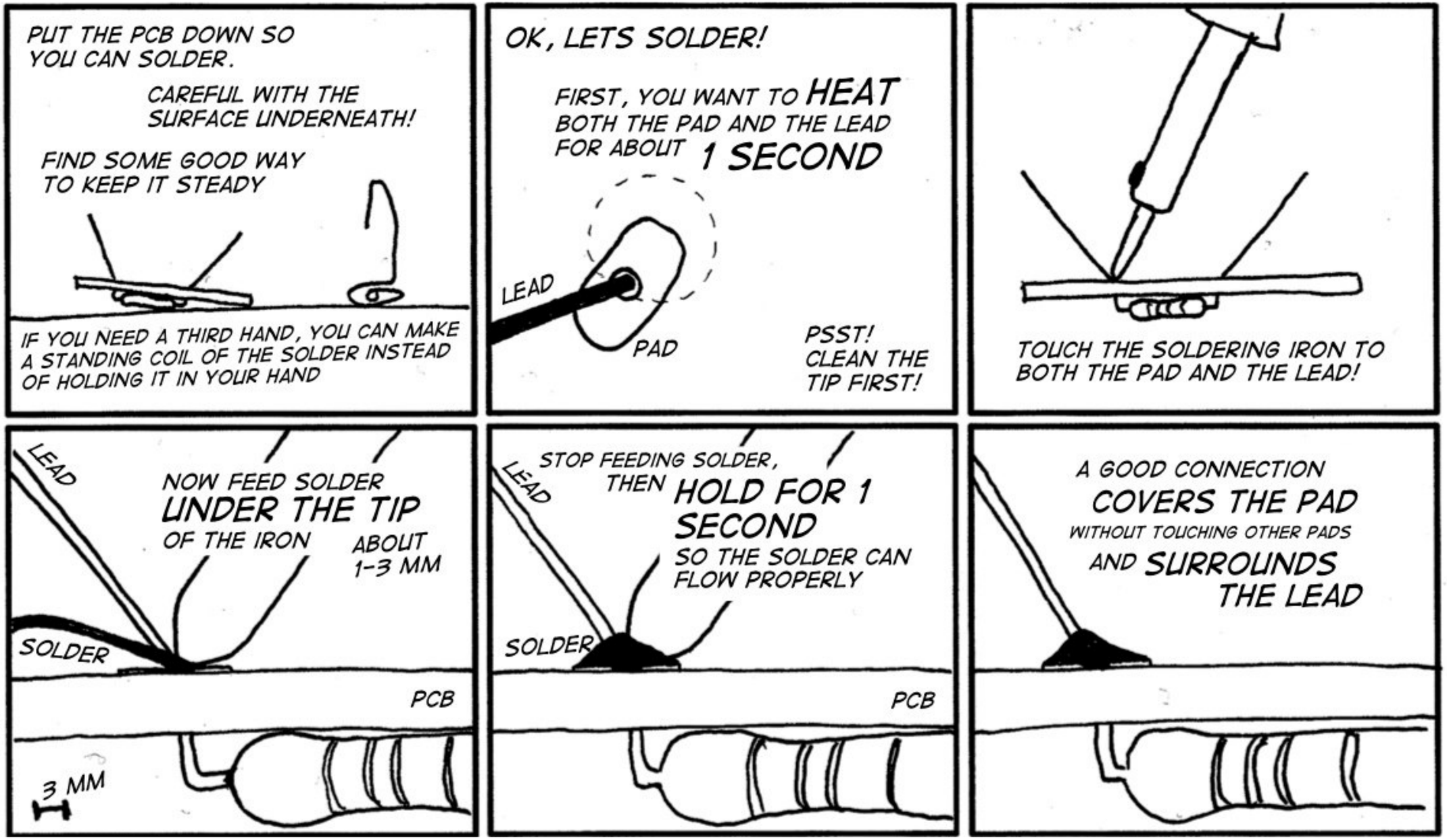
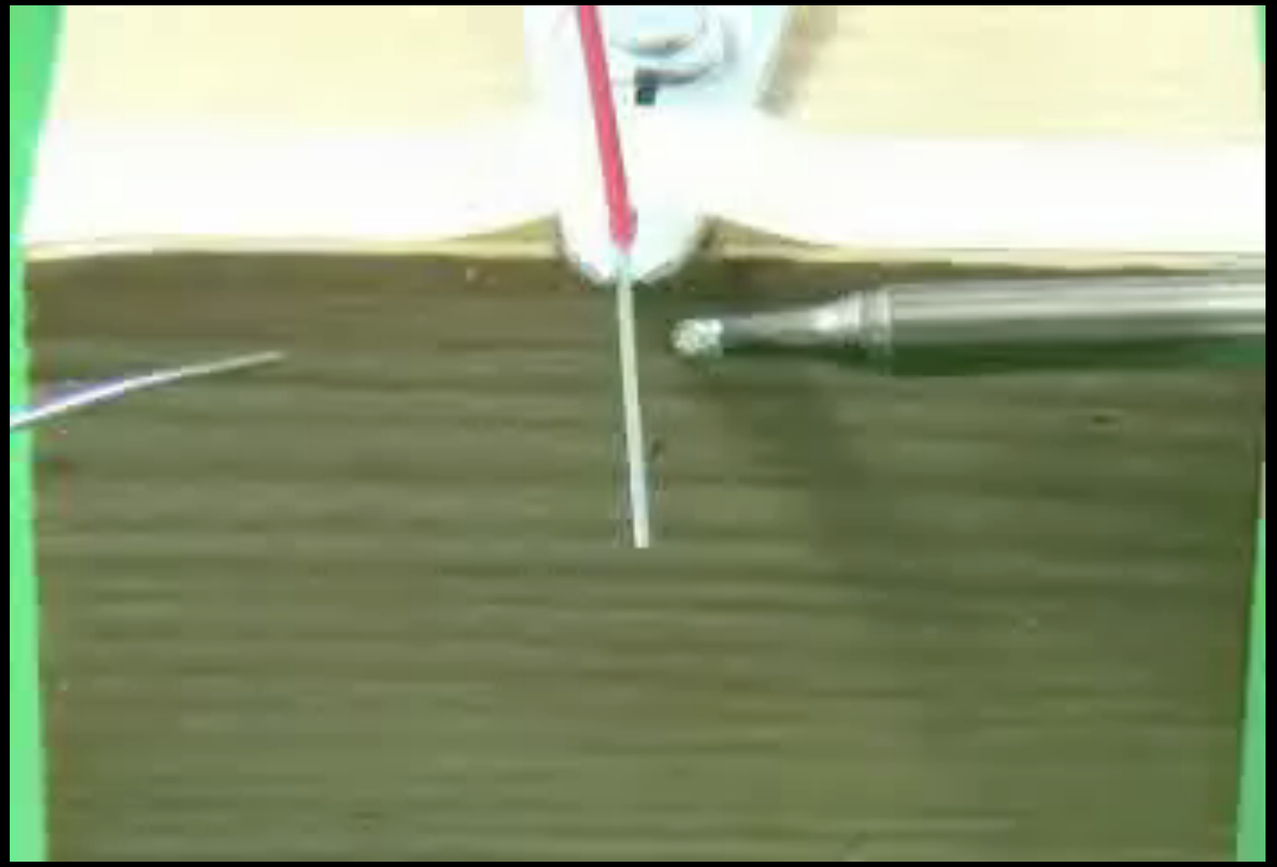
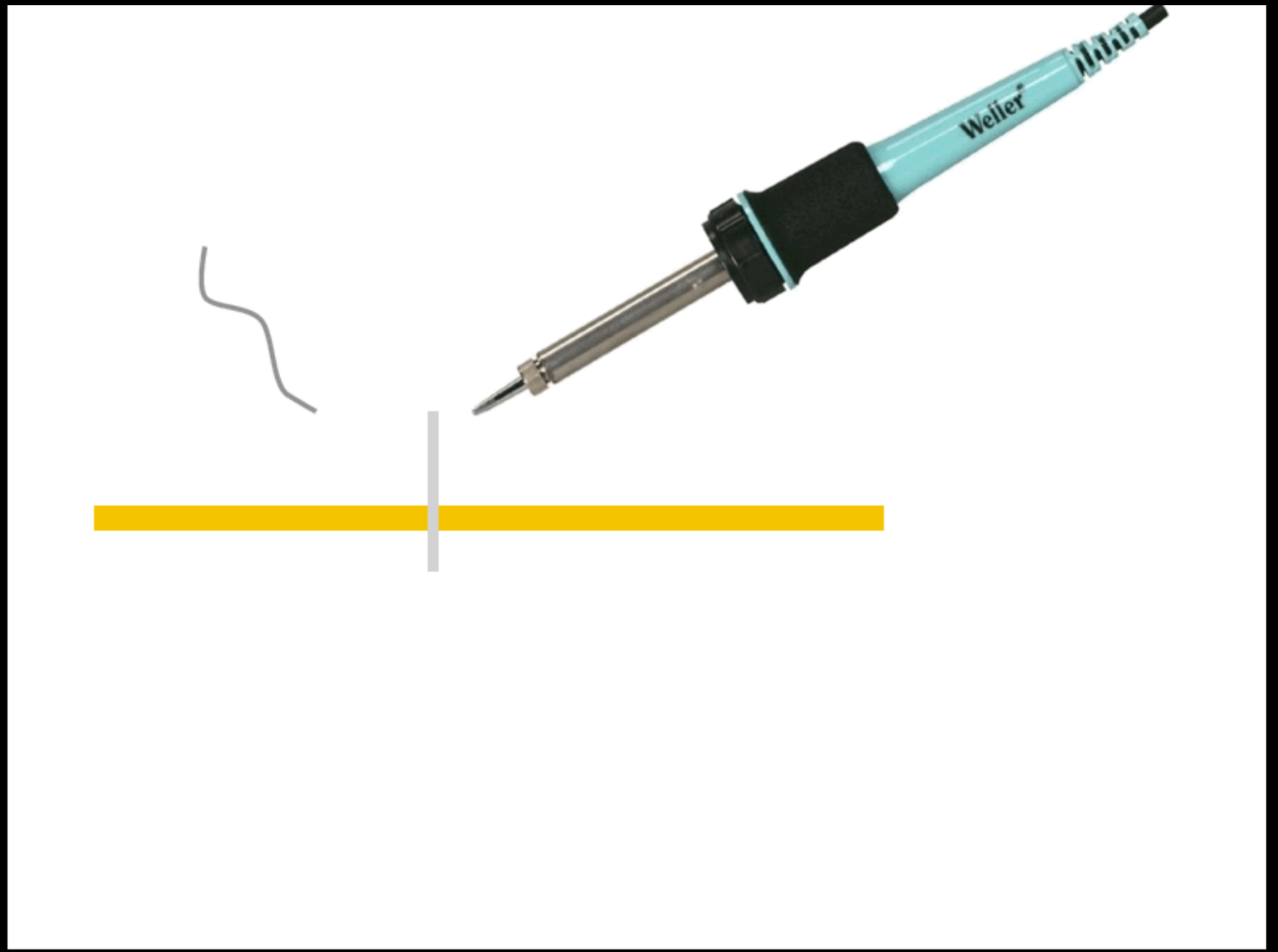
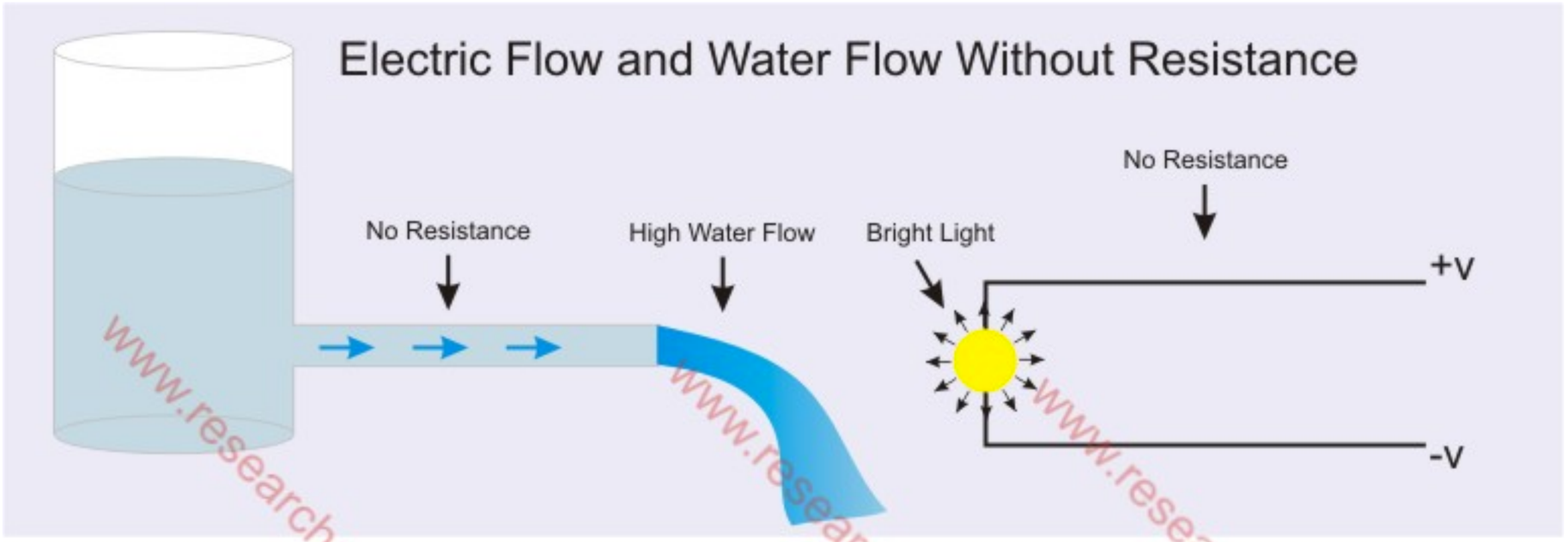
how to solder






Weller


Electric Flow and Water Flow Without Resistance
No Resistance
High Water Flow
Bright Light
No Resistance
+v
-v
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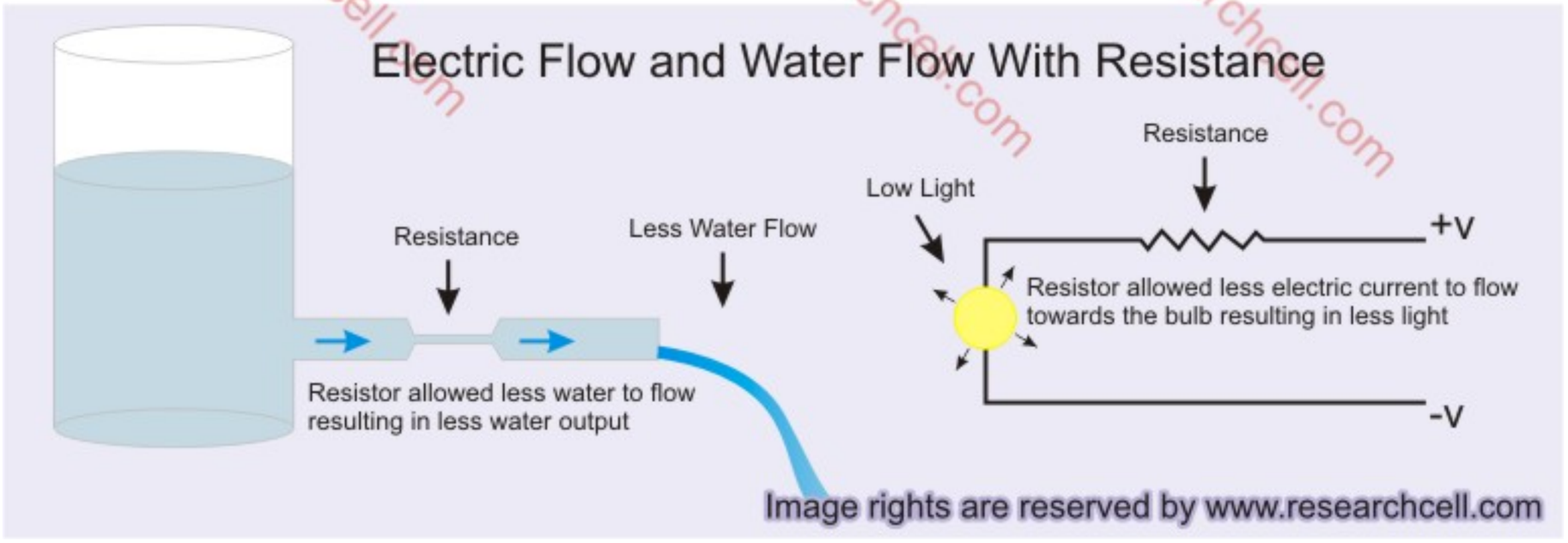
Electric Flow and Water Flow With Resistance
Resistance
Less Water Flow
Resistor allowed less water to flow
resulting in less water output
Low Light
Resistance
+v
-v
Resistor allowed less electric current to flow
towards the bulb resulting in less light
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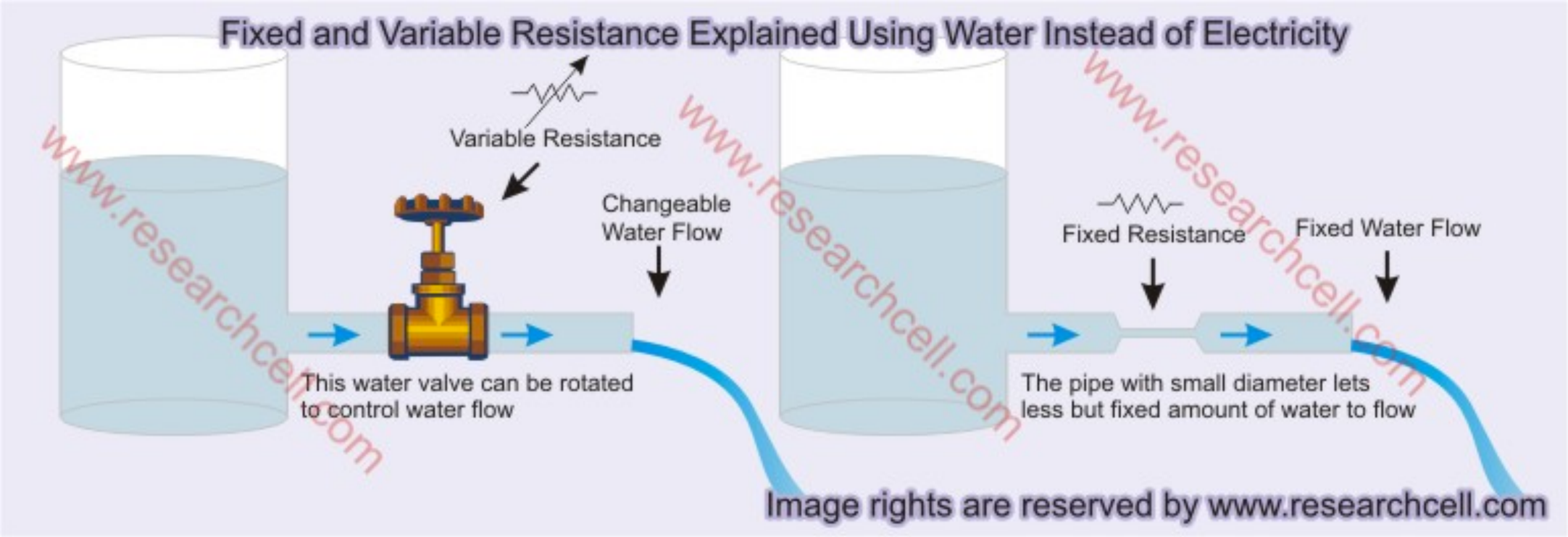
Fixed and Variable Resistance Explained Using Water Instead of Electricity
Variable Resistance
Changeable
Water Flow
This water valve can be rotated
to control water flow
Fixed Resistance
Fixed Water Flow
The pipe with small diameter lets
less but fixed amount of water to flow
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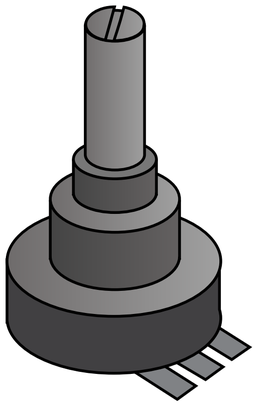
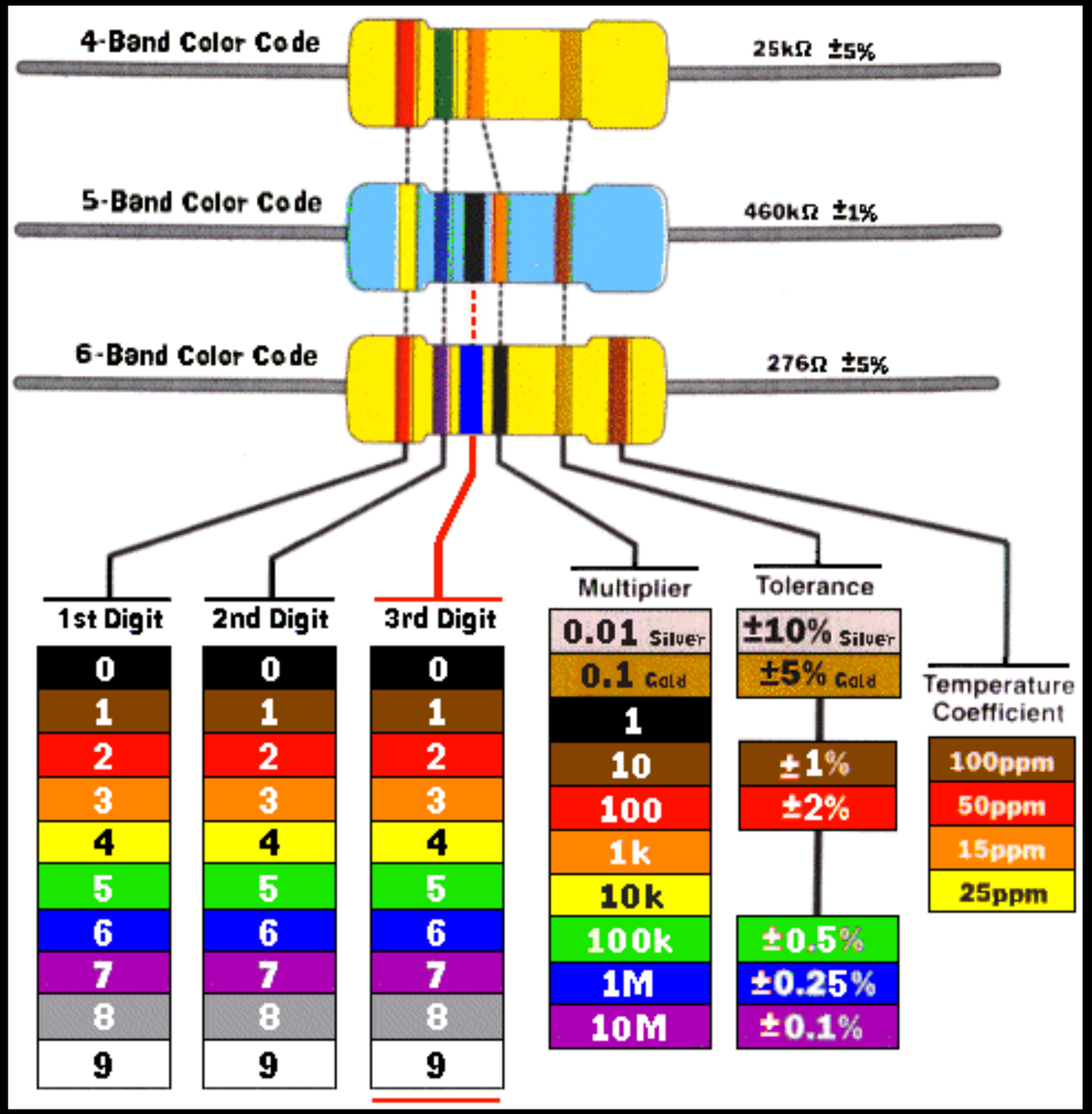
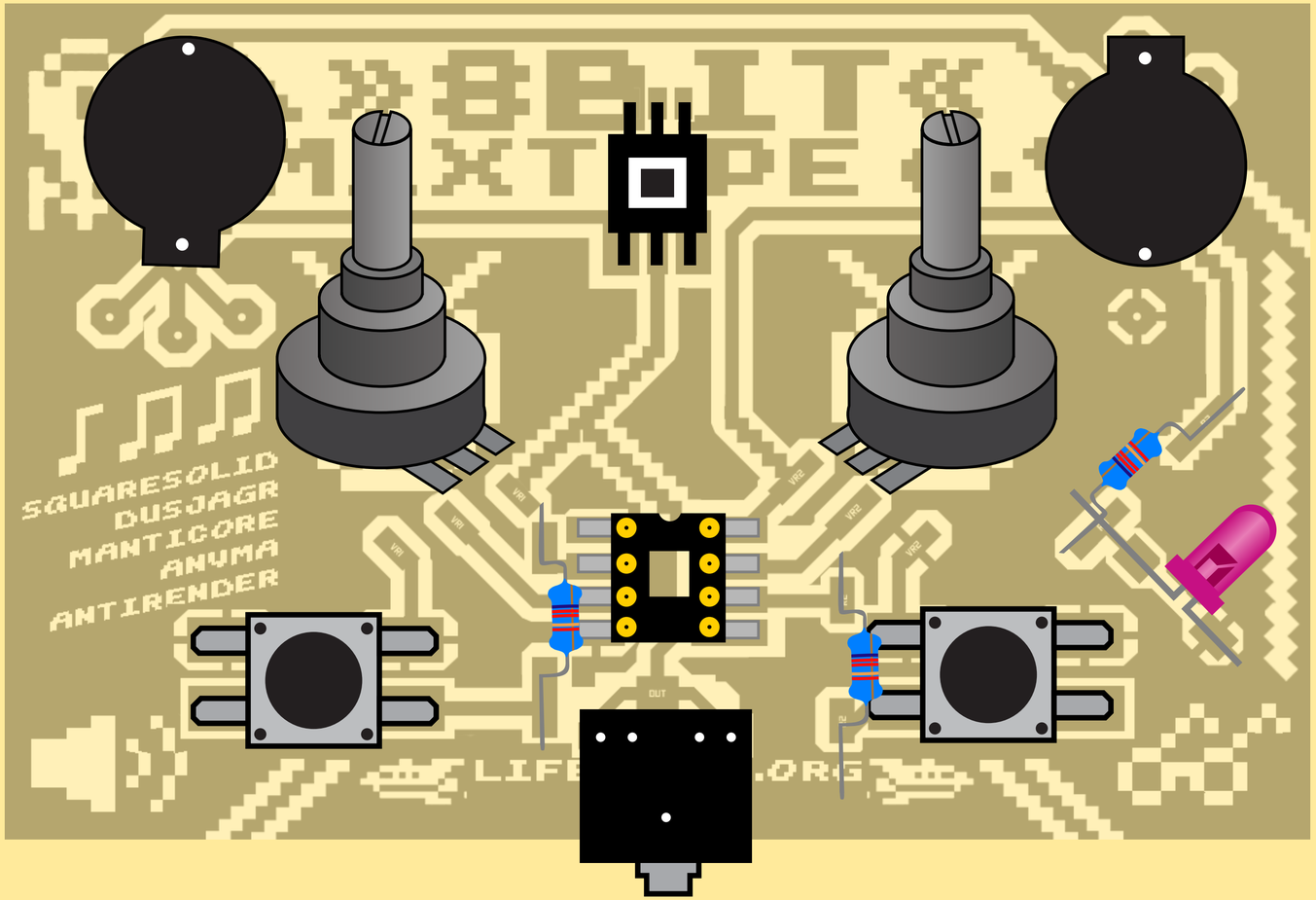
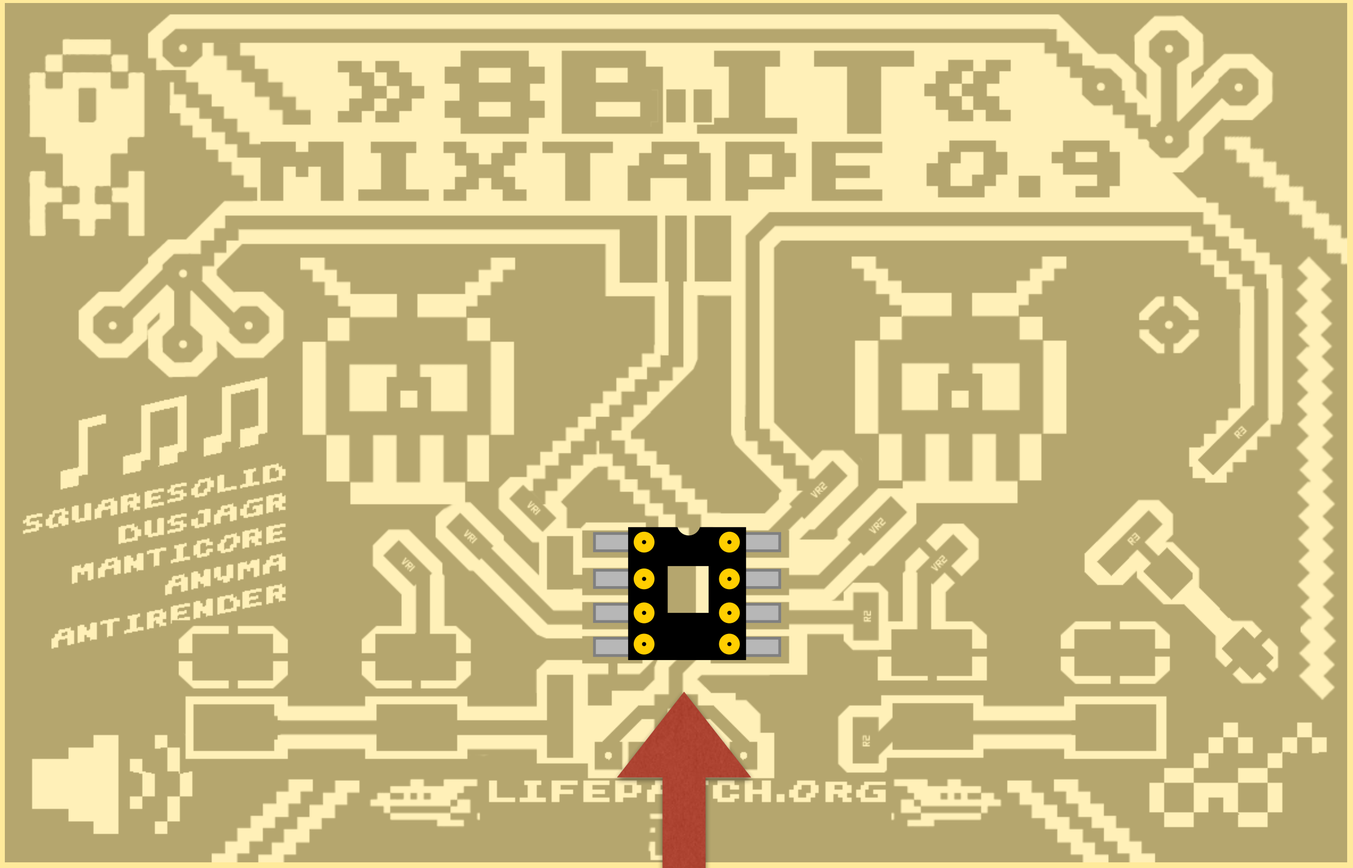


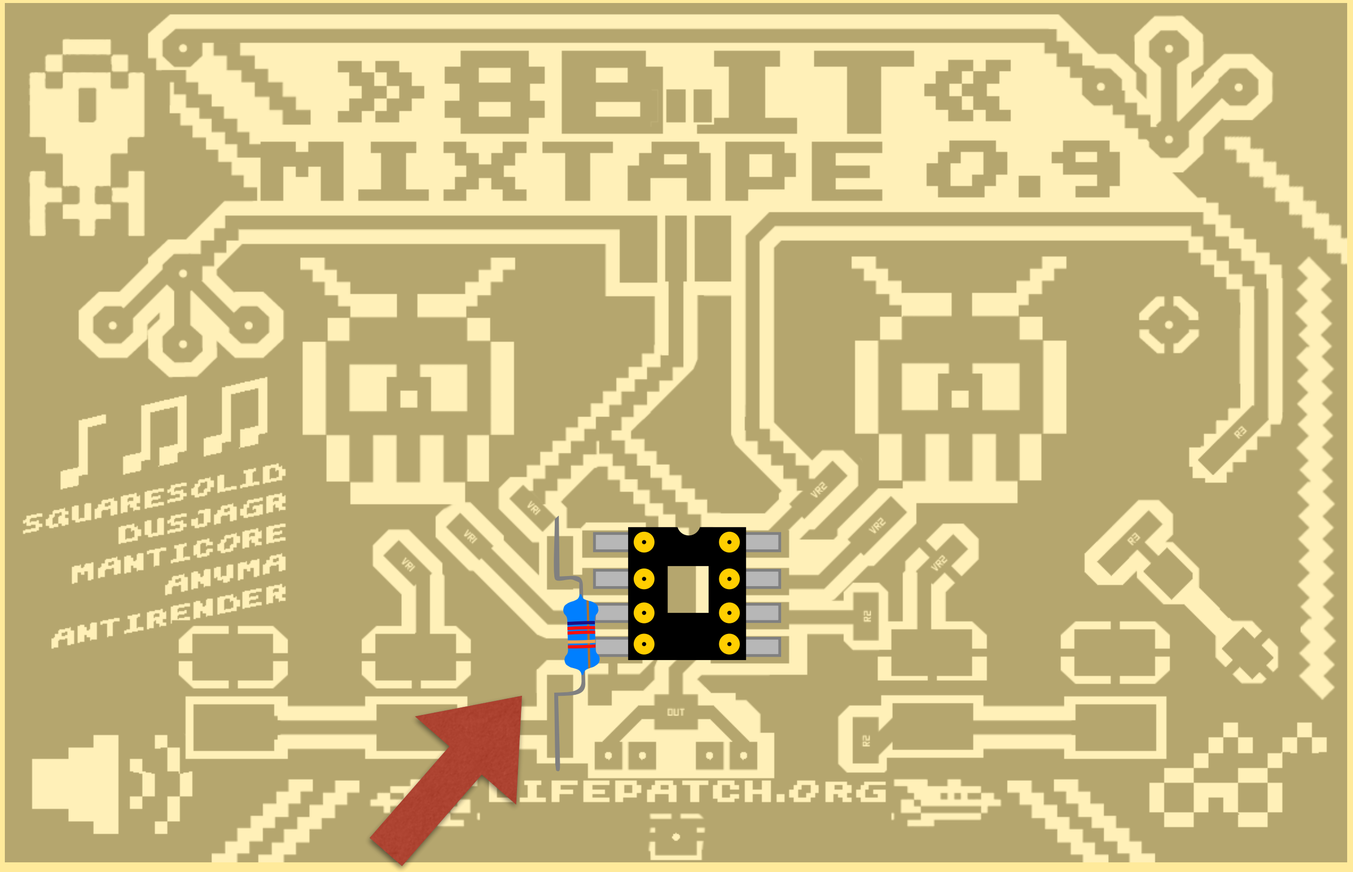

4-Band Color Code
25kΩ ±5%
5-Band Color Code
460kΩ ±1%
6-Band Color Code
276Ω ±5%
1st Digit
2nd Digit
3rd Digit
Multiplier
Tolerance
Temperature Coefficient
0
1
2
3
4
5
6
7
8
9
0.01 Silver
0.1 Gold
1
10
100
1k
10k
100k
1M
10M
±10% Silver
±5% Gold
±1%
±2%
±0.5%
±0.25%
±0.1%
100ppm
50ppm
15ppm
25ppm


SQUARESOLID
DUSJAGR
MANTICORE
ANUMA
ANTIRENDER
VR1
VR2
DUT

»8B.IT«
MIXTAPE 0.9
SQUARESOLID
DUSJAGR
MANTICORE
ANUMA
ANTIRENDER
LIFEPATCH.ORG

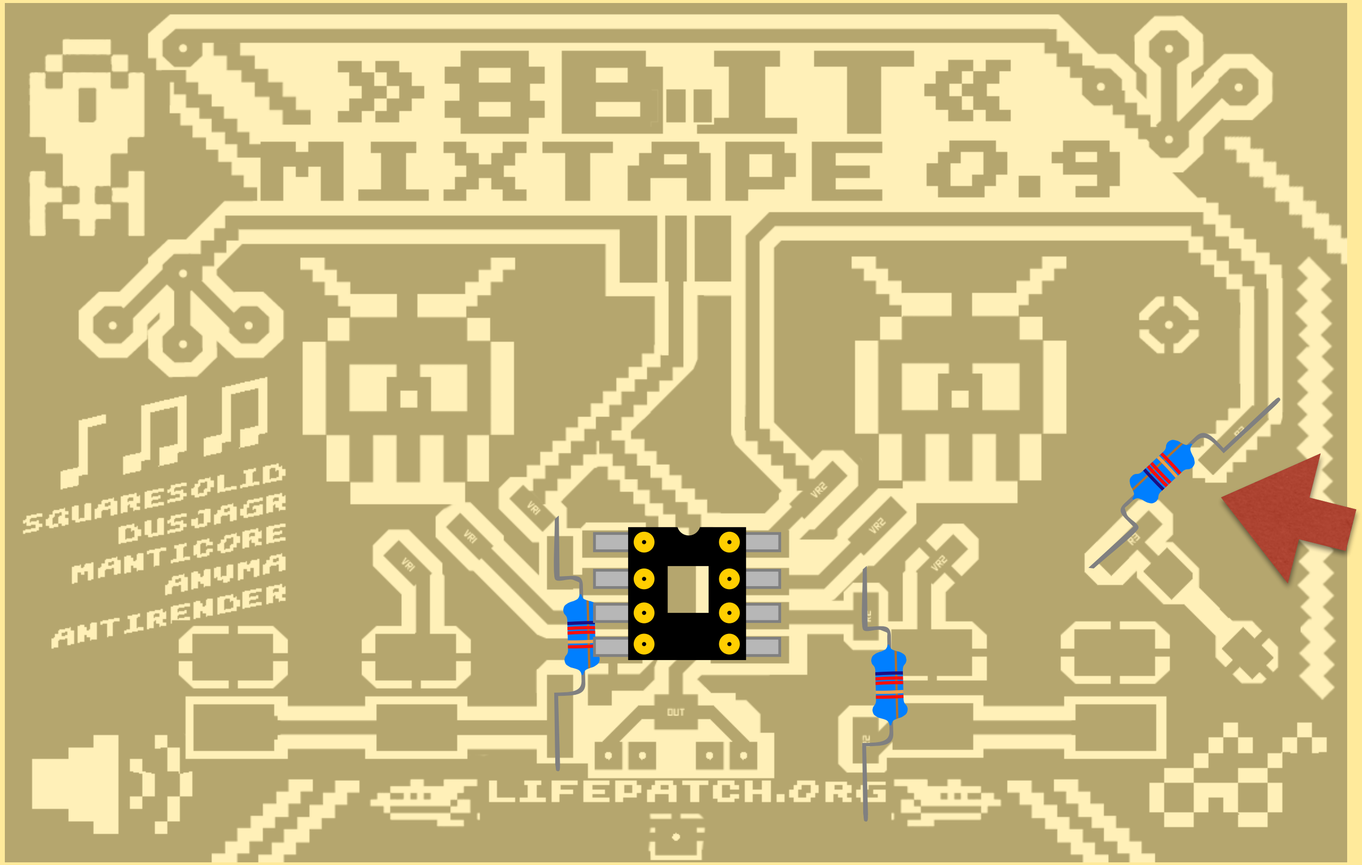

»8B.IT«
MIXTAPE 0.9
SQUARESOLID
DUSJAGR
MANTICORE
ANUMA
ANTIRENDER
LIFEPATCH.ORG

IC socket

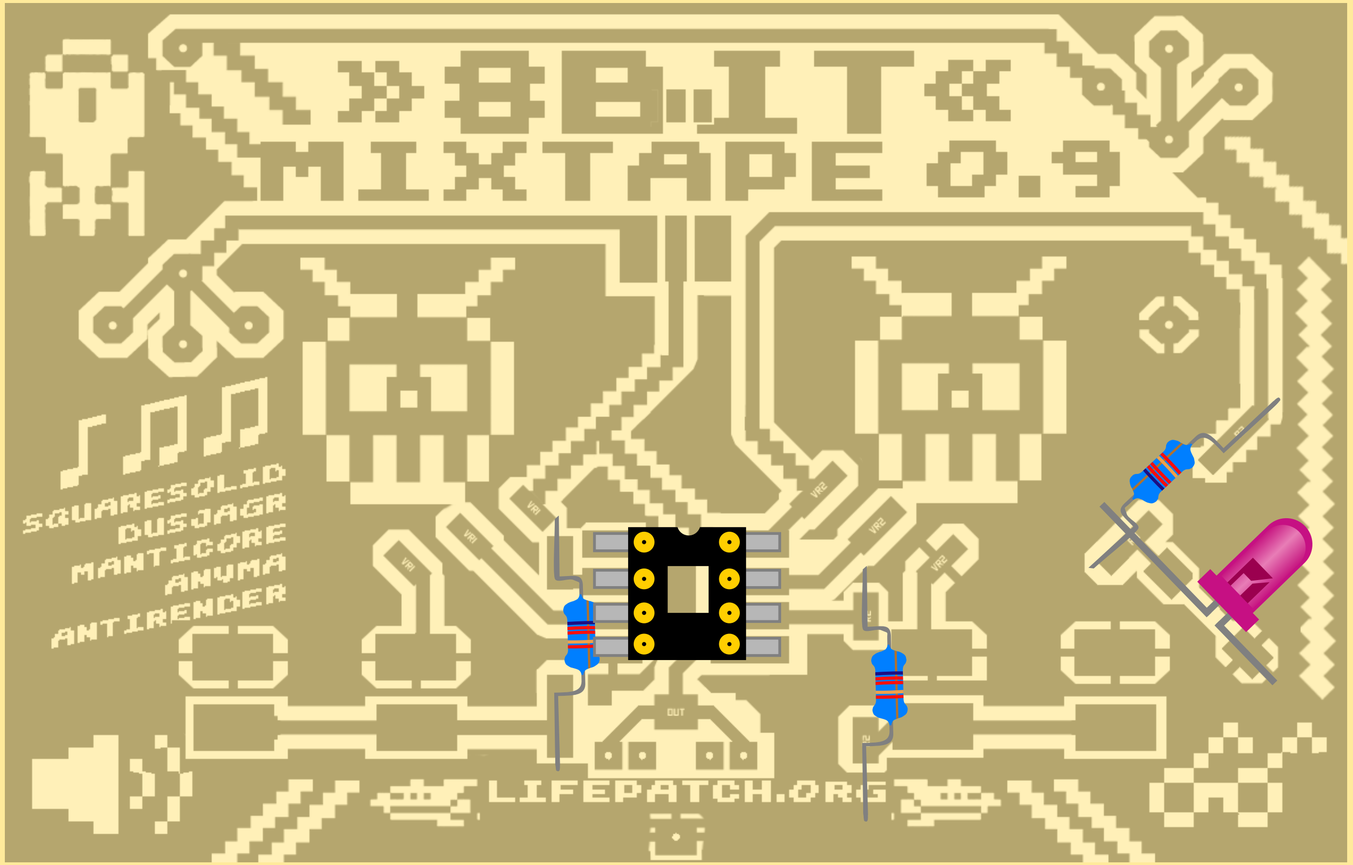


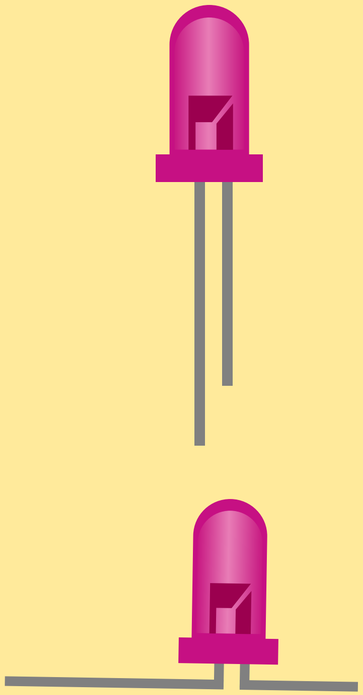
12K Resistor

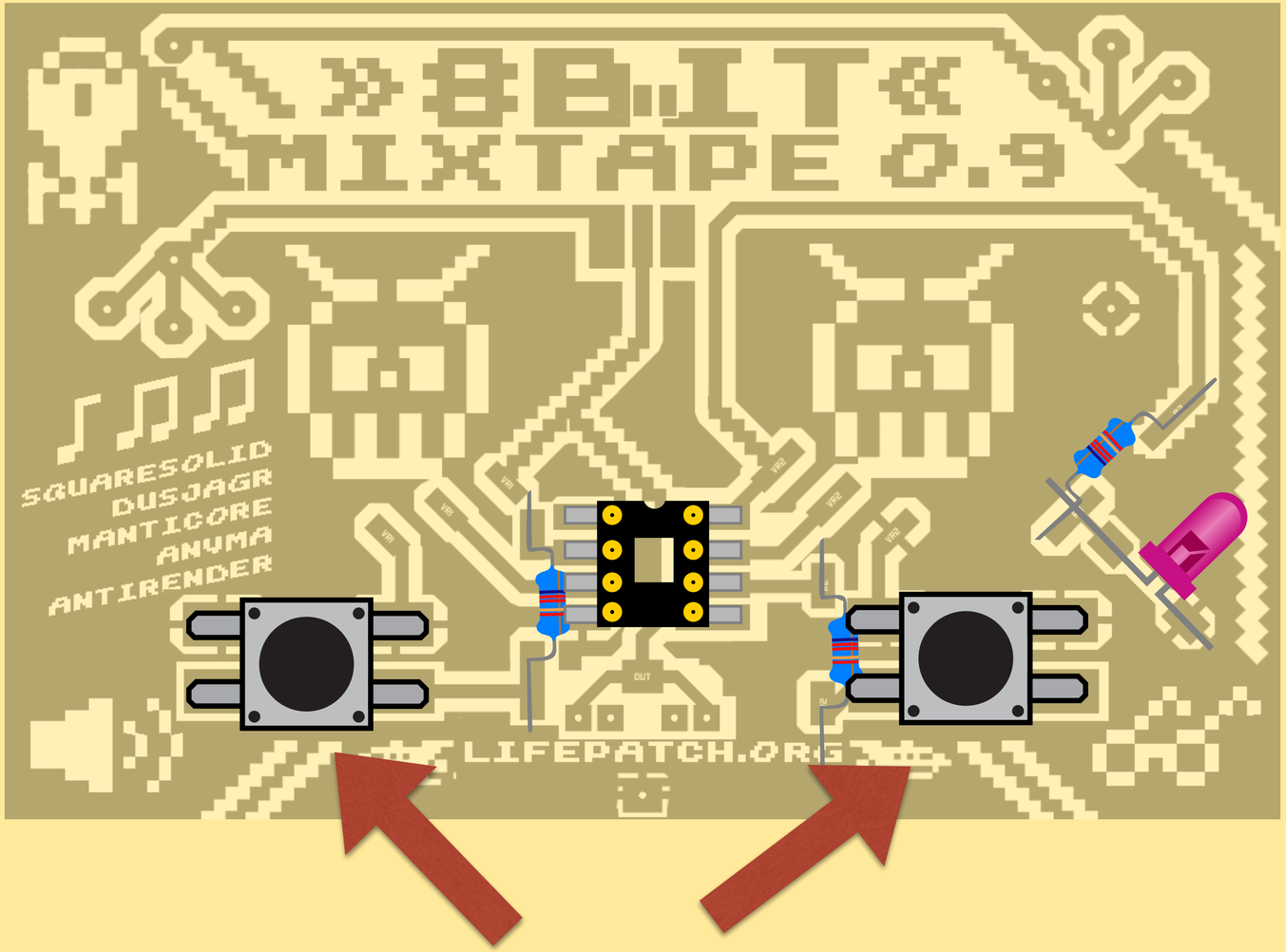
12K Resistor



200 Ohm Resistor

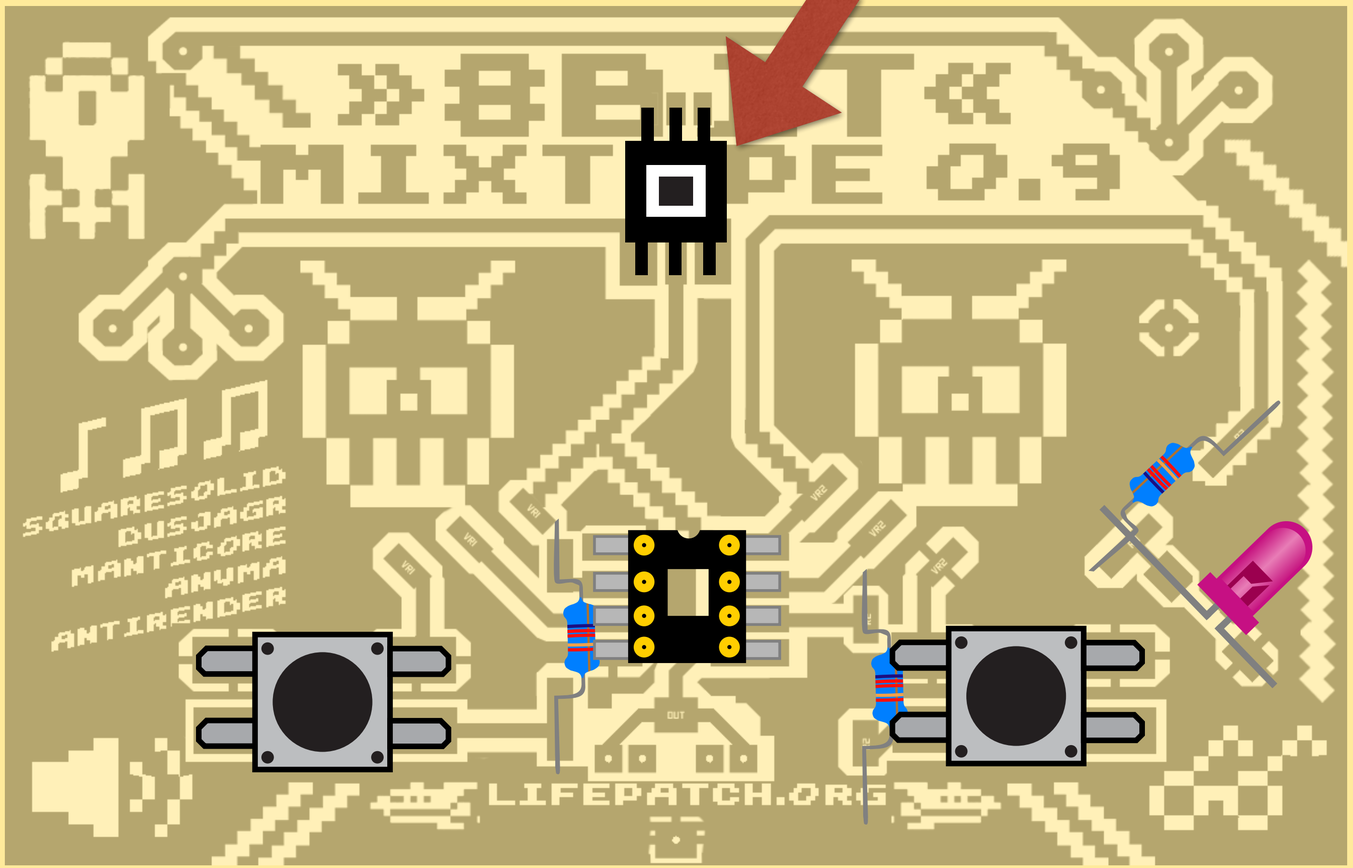

»8B.IT«
MIXTAPE 0.9
SQUARESOLID
DUSJAGR
MANTICORE
ANUMA
ANTIRENDER
VR1
VR2
DUT
LIFEPATCH.ORG



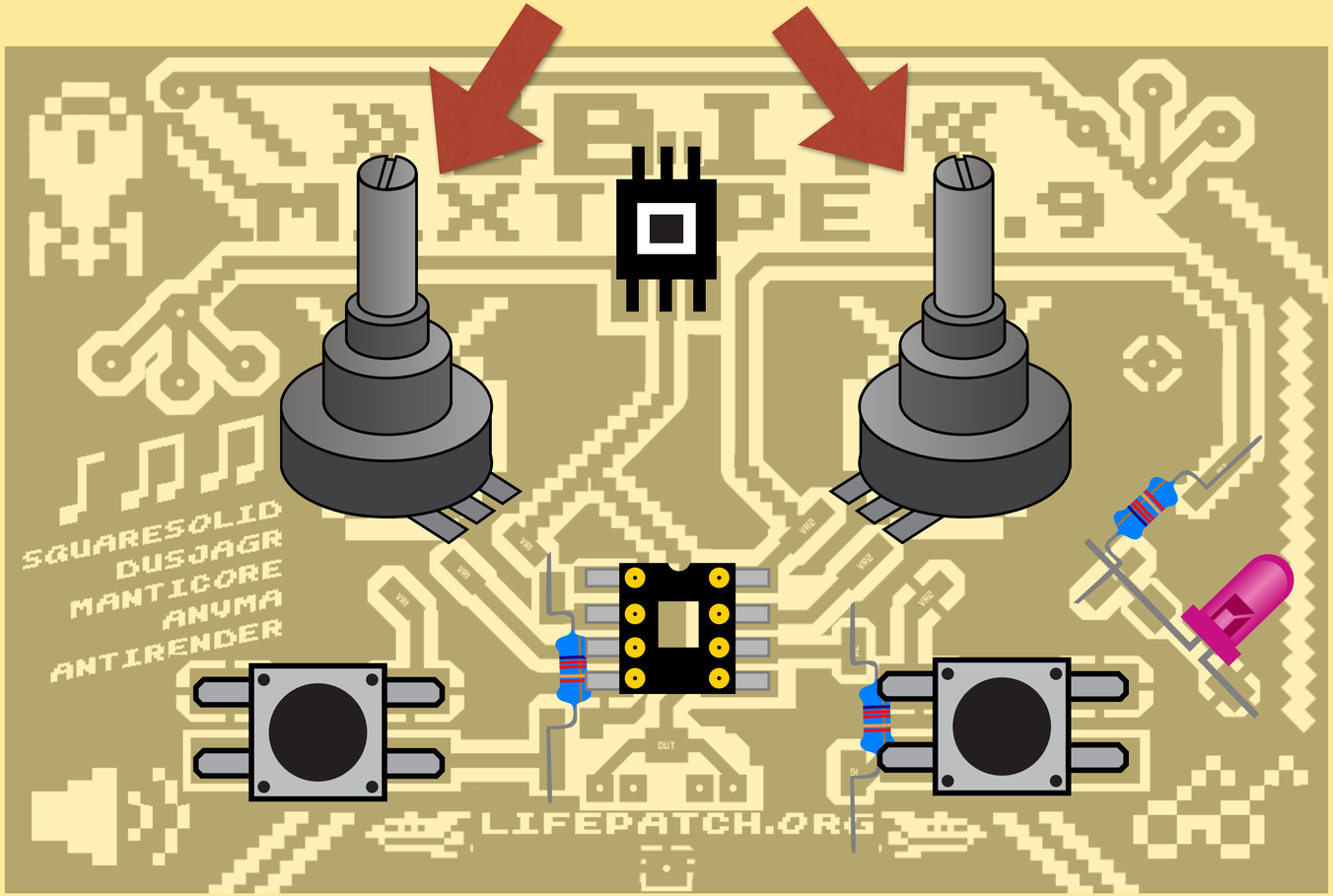


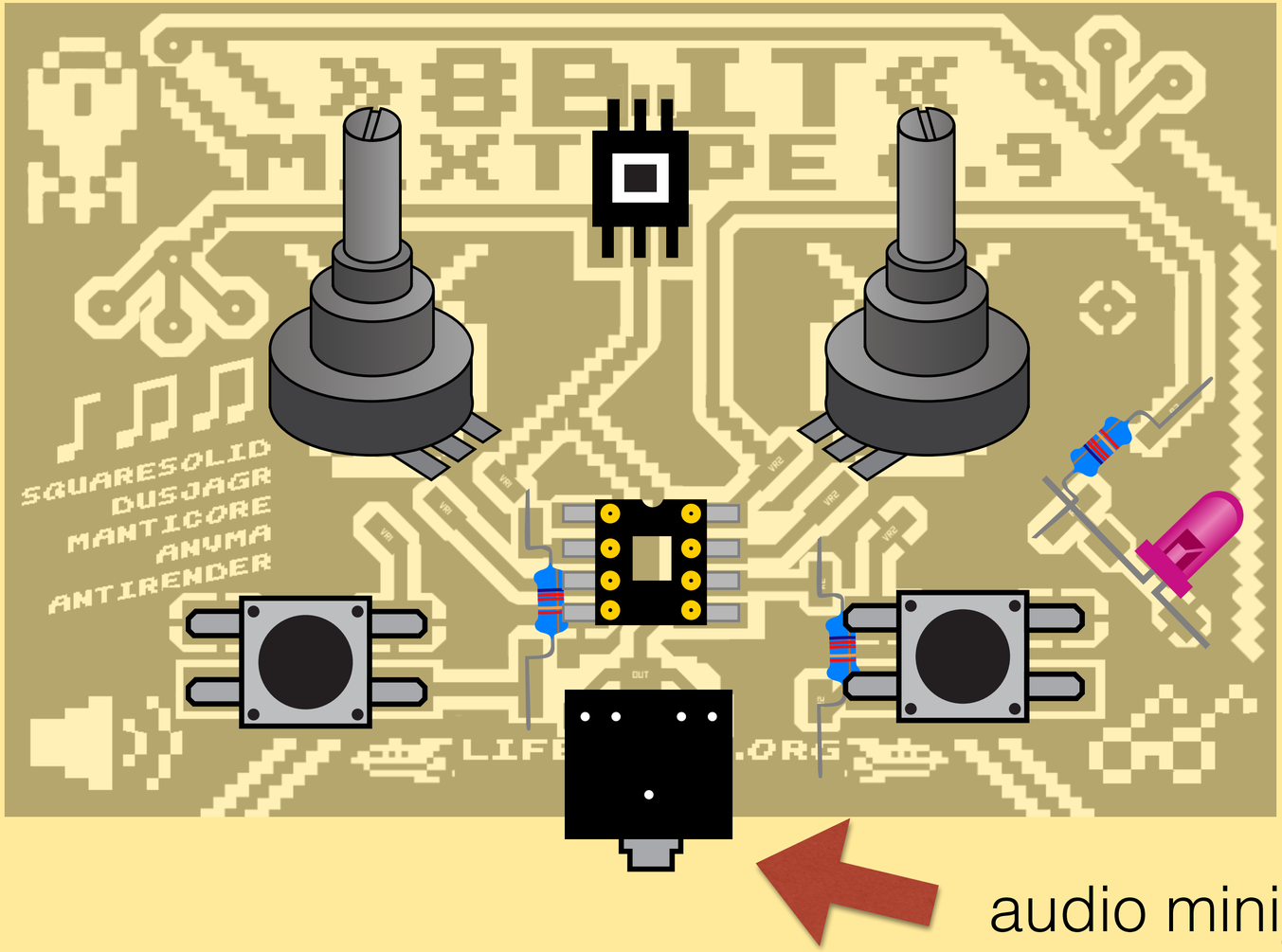
Momentary Button

on off switch



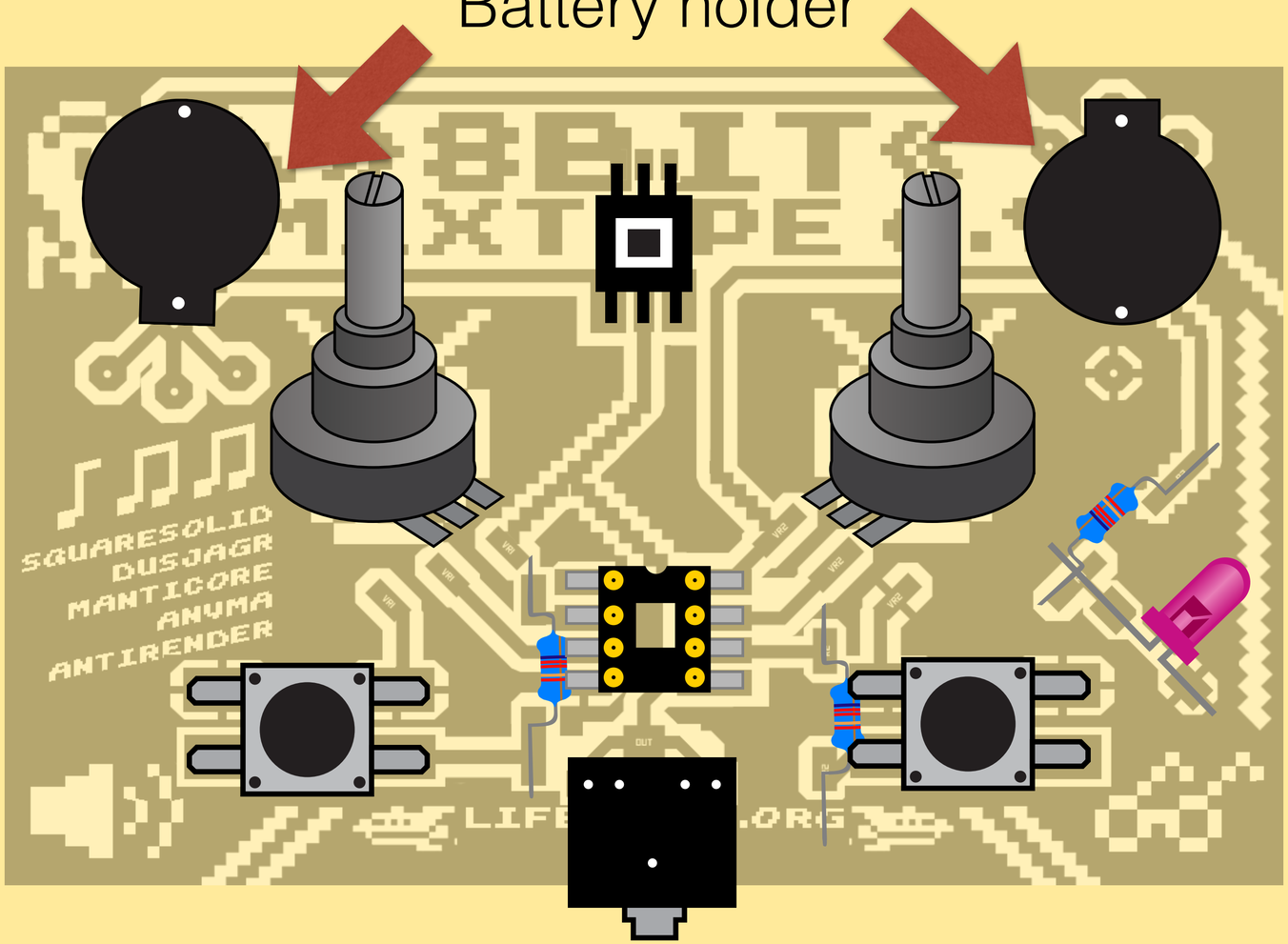
10K Potentiometer

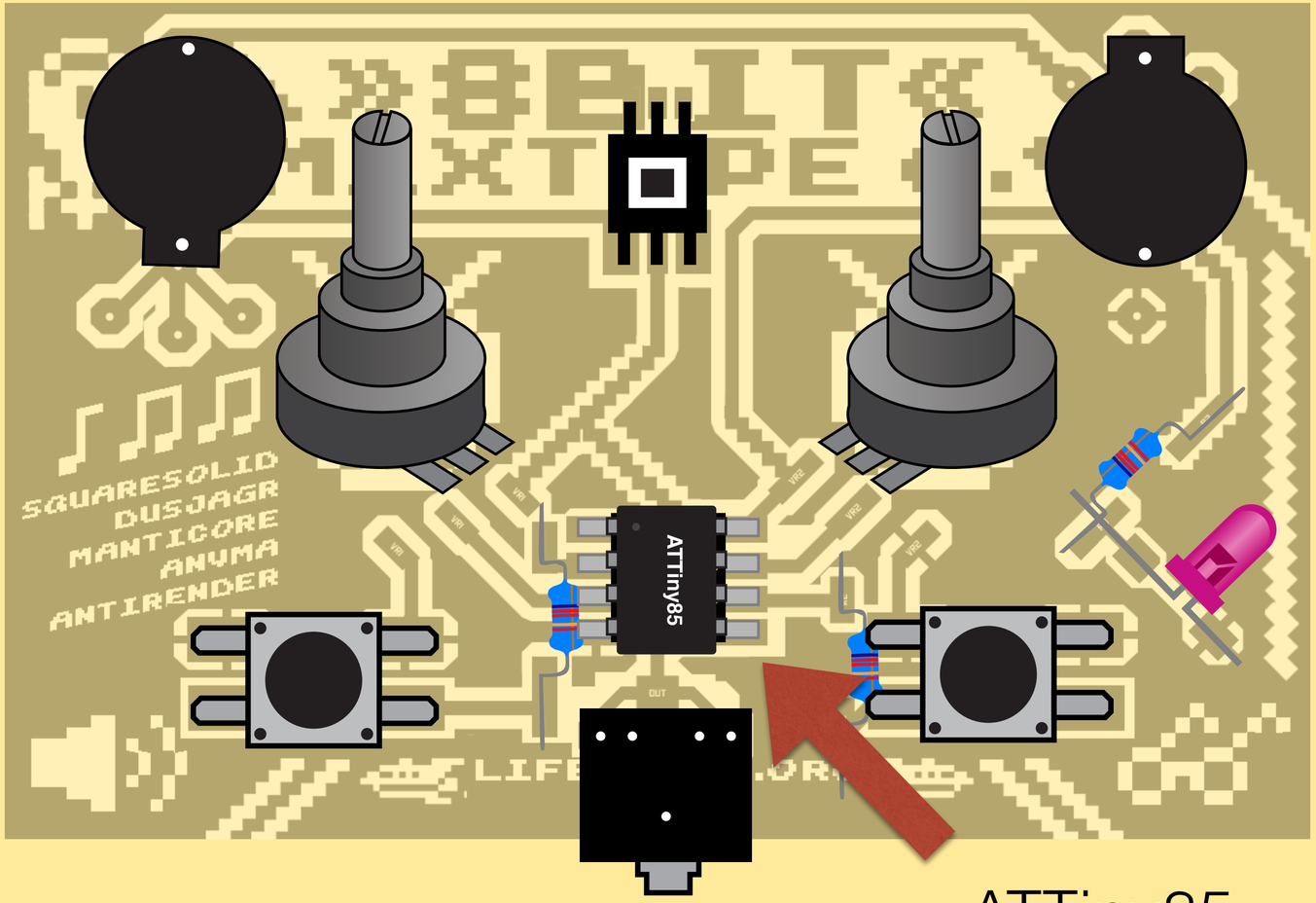




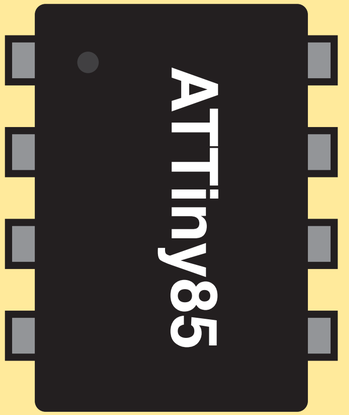
audio minijack

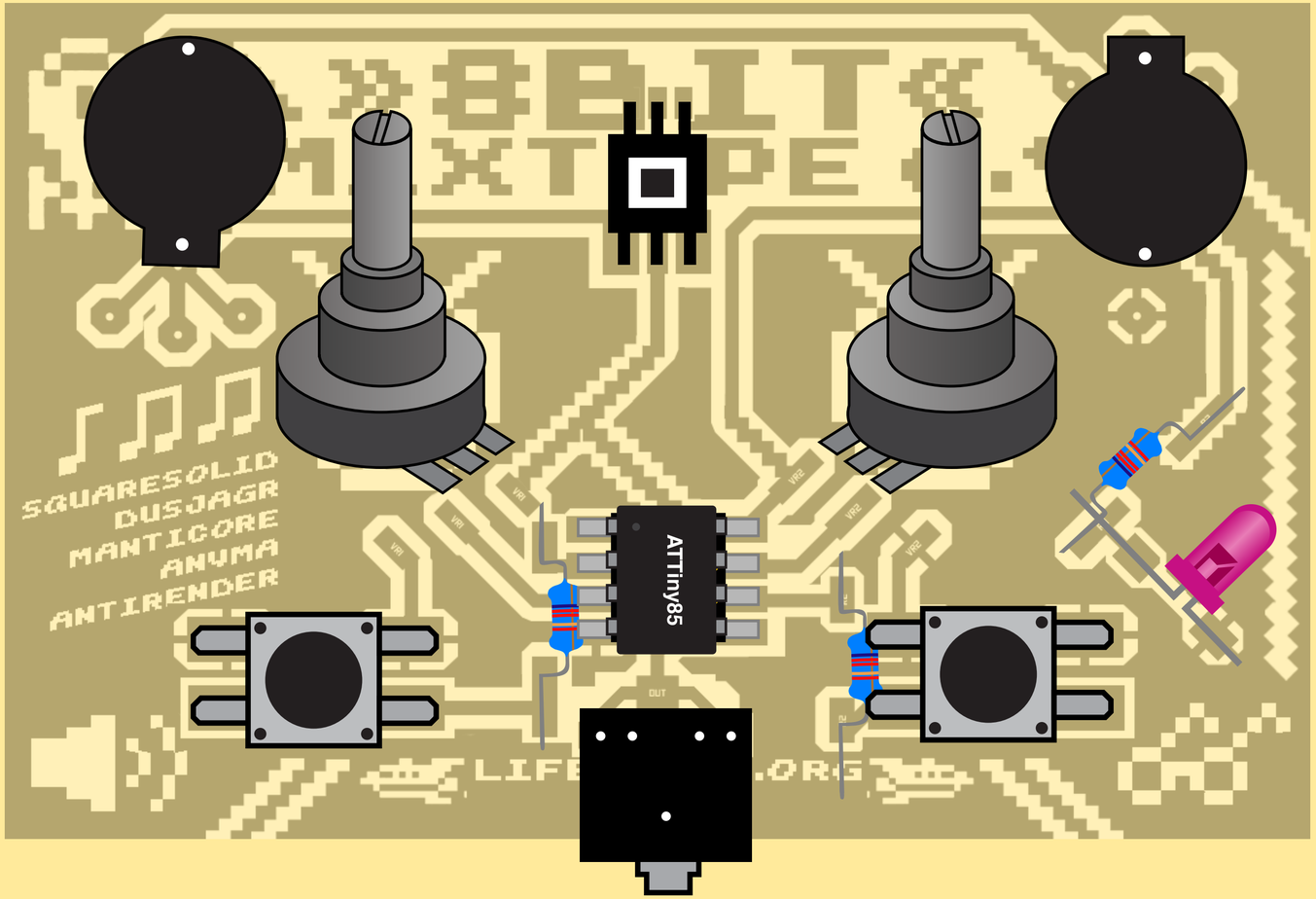
Battery holder



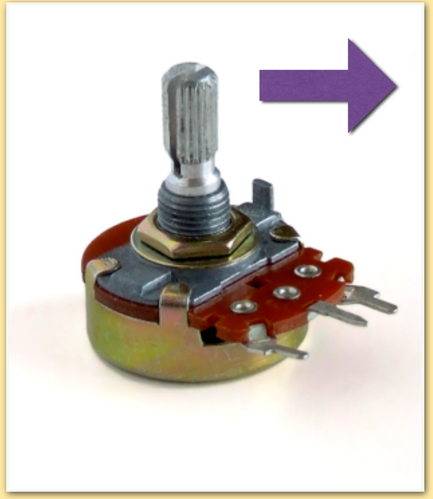


ATTiny85
Microcontroller



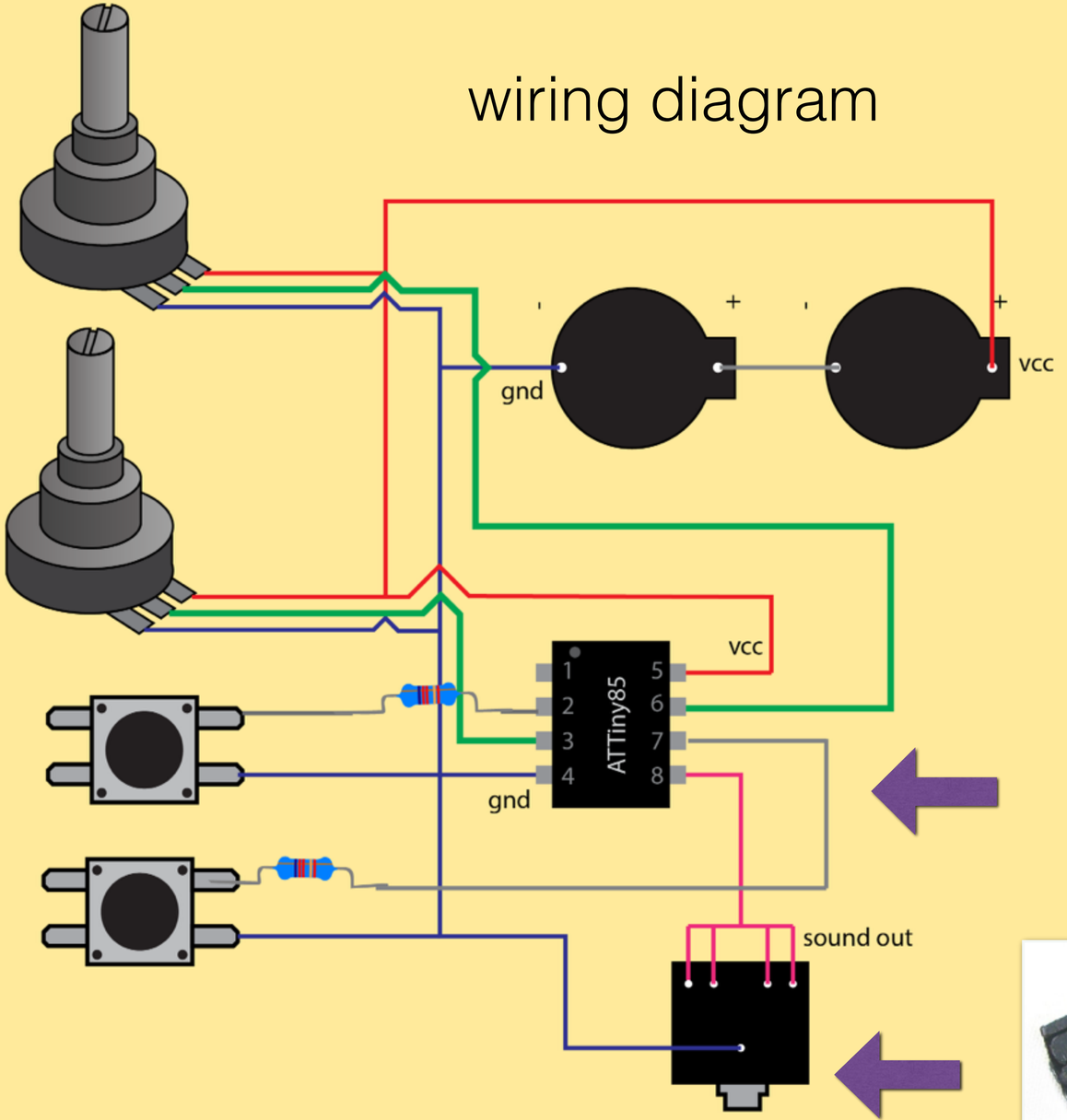

SQUARESOLID
DUSJAGR
MANTICORE
ANUMA
ANTIRENDER
ATTiny85
VR1
VR2
DUT

wiring diagram

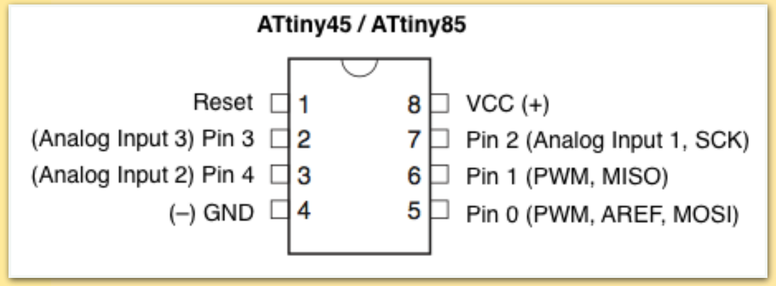


potentiometer

momentary button

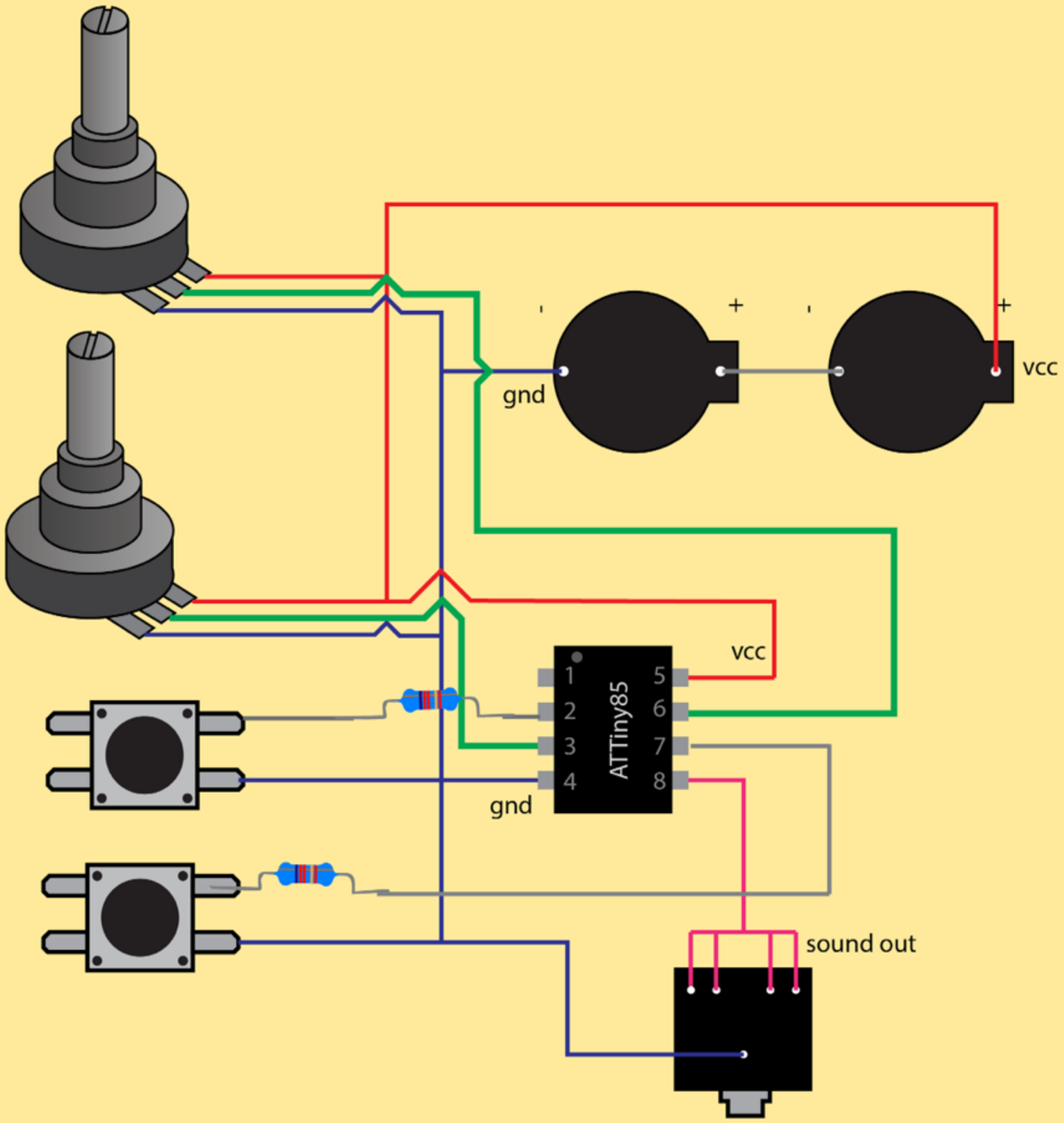


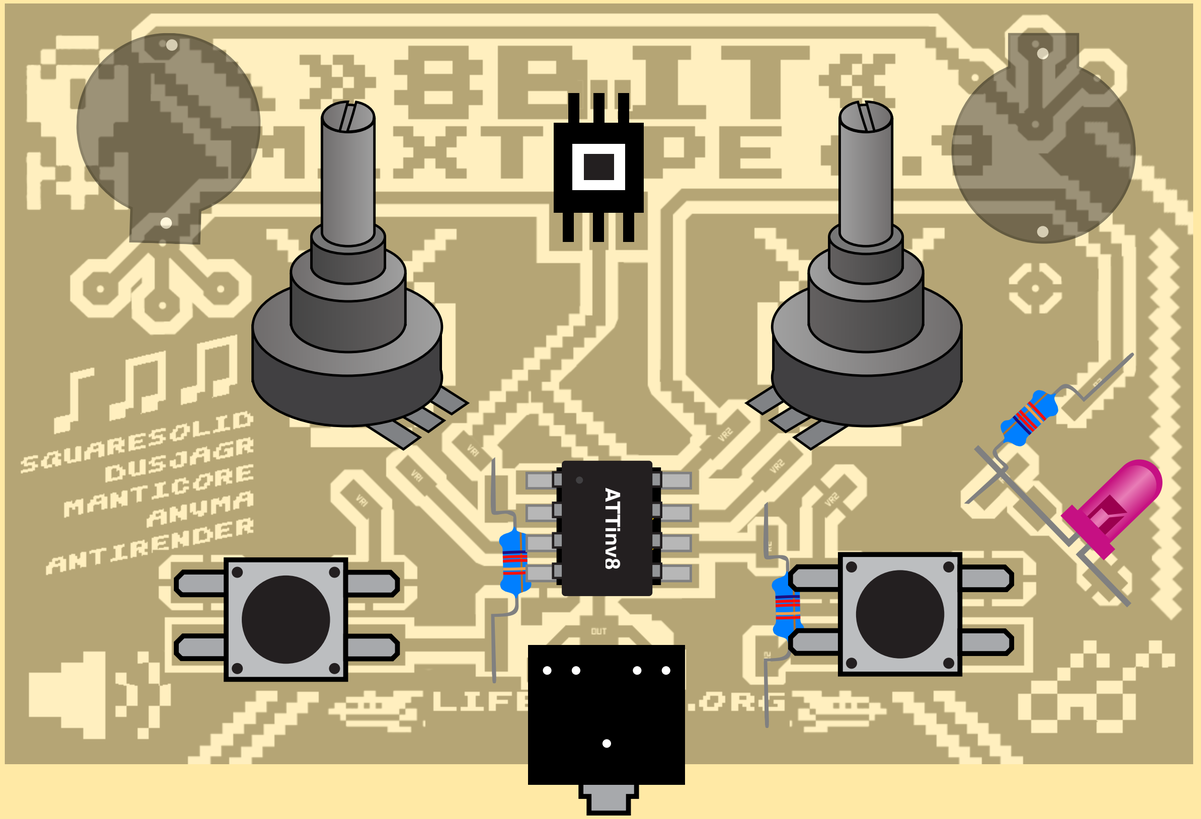
CR2032 Battery holder



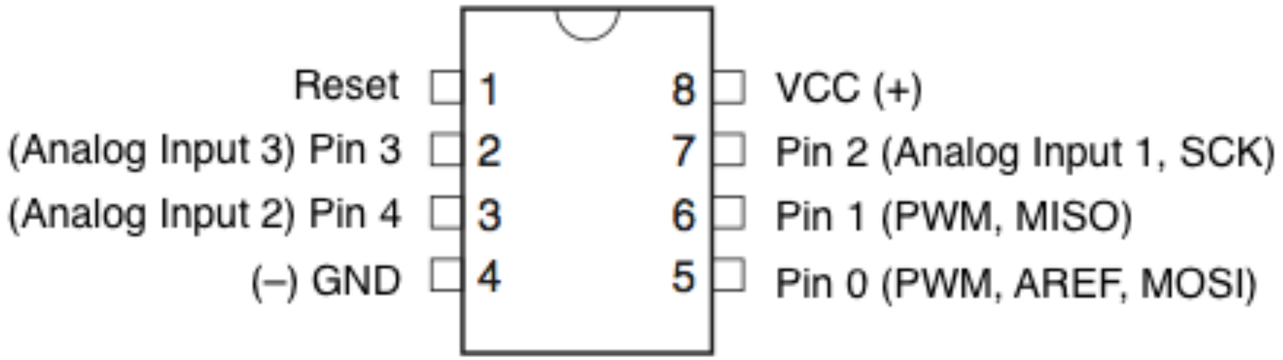
ATTiny85 Microcontroller

Stereo Minijack


gnd
vcc
vcc
ATTiny85
1
2
3
4
5
6
7
8
gnd
sound out
gnd
vcc


SQUARESOLID
DUSJAGR
MANTICORE
ANUMA
ANTIRENDER
ATTinv8

ATtiny45 / ATtiny85



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Programming an ATtiny w/ Arduino 1.0

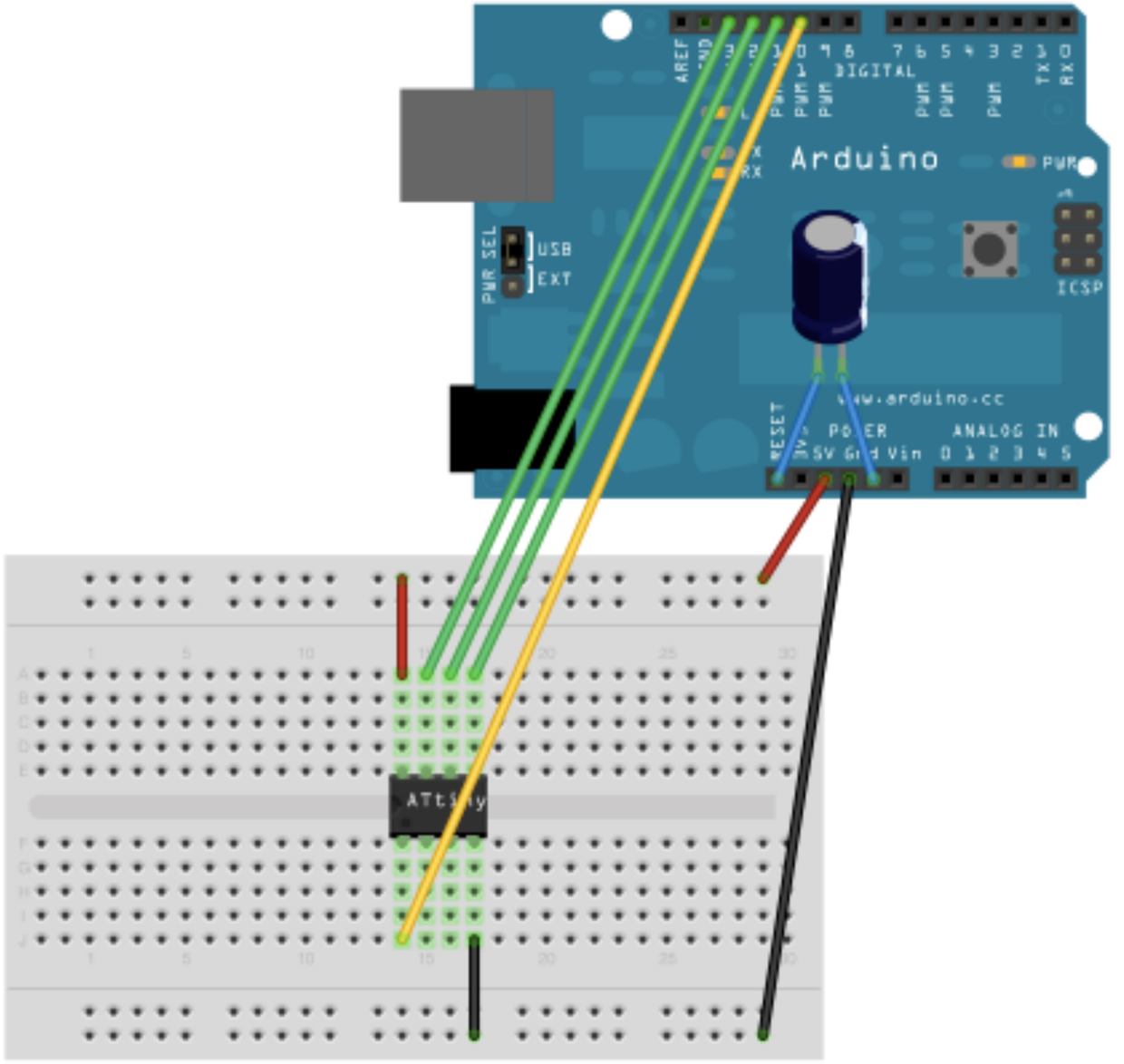
This tutorial shows you how to program an ATtiny45, ATtiny85, ATtiny44 or ATtiny84 microcontroller using the Arduino software. These are small, cheap ($2-3) microcontrollers that are convenient for running simple programs. The ATtiny45 and ATtiny85 have eight legs and are almost identical, except that the ATtiny85 has twice the memory of the ATtiny45 and can therefore hold more complex programs. The ATtiny44 and ATtiny84 have 14-legs and more inputs and outputs. *Thanks to Mark Sproul for his work on making the Arduino core portable across processors.*

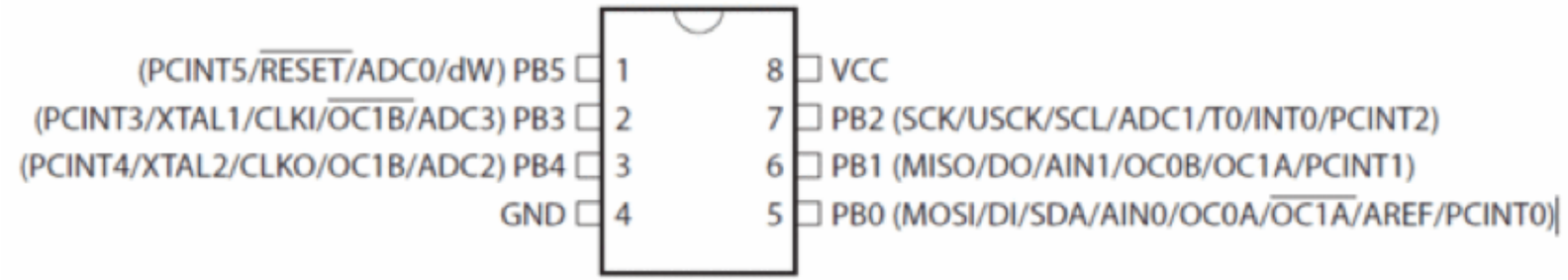
ATtiny45/85 vs. an Arduino Board

The ATtiny45 or 85 is a great option for running simple Arduino programs: it's small, cheap and relatively easy to use. It does, however, have some limitations relative to the ATmega328P on an Arduino Uno. There are fewer pins, meaning you can't connect as many components. There's less flash memory (4KB or 8KB instead of 32KB), meaning your programs can't be as big. There's less RAM (256 or 512 bytes instead of 2KB), meaning you can't store as much data. And there's no hardware serial port or I2C port (Wire library), making communication trickier. (There are workarounds, like the SoftwareSerial library or the TinyWire library, but they're not as robust and flexible.)

In short, then, if your project requires only a few simple inputs and/or outputs, you're probably fine using an ATtiny. If you're trying to hook up more components or do more complex communication or data processing, though, you're probably better off with something like the ATmega328P on an Arduino Uno. If you want something smaller and cheaper than a full Arduino board, you might try using an ATmega328P on a breadboard instead.

http://highlowtech.org/?p=1695


Arduino
PWR
PWR SEL
USB
EXT
ICSP
DIGITAL
ANALOG IN
www.arduino.cc
ATtiny


(PCINT5/RESET/ADC0/dW) PB5
1
(PCINT3/XTAL1/CLKI/OC1B/ADC3) PB3
2
(PCINT4/XTAL2/CLKO/OC1B/ADC2) PB4
3
GND
4
8
VCC
7
PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)
6
PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)
5
PB0 (MOSI/DI/SDA/AIN0/OC0A/OC1A/AREF/PCINT0)