

**IMCA 222**  
**Electronics for Artists**  
**Fall 2025**

**dr lee wilkins**  
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**Class is on Zoom even in the classroom  
for sharing, find the details on Moodle**  
<https://moodle.concordia.ca/>

**Download the slides!**

# Introduce Yourself

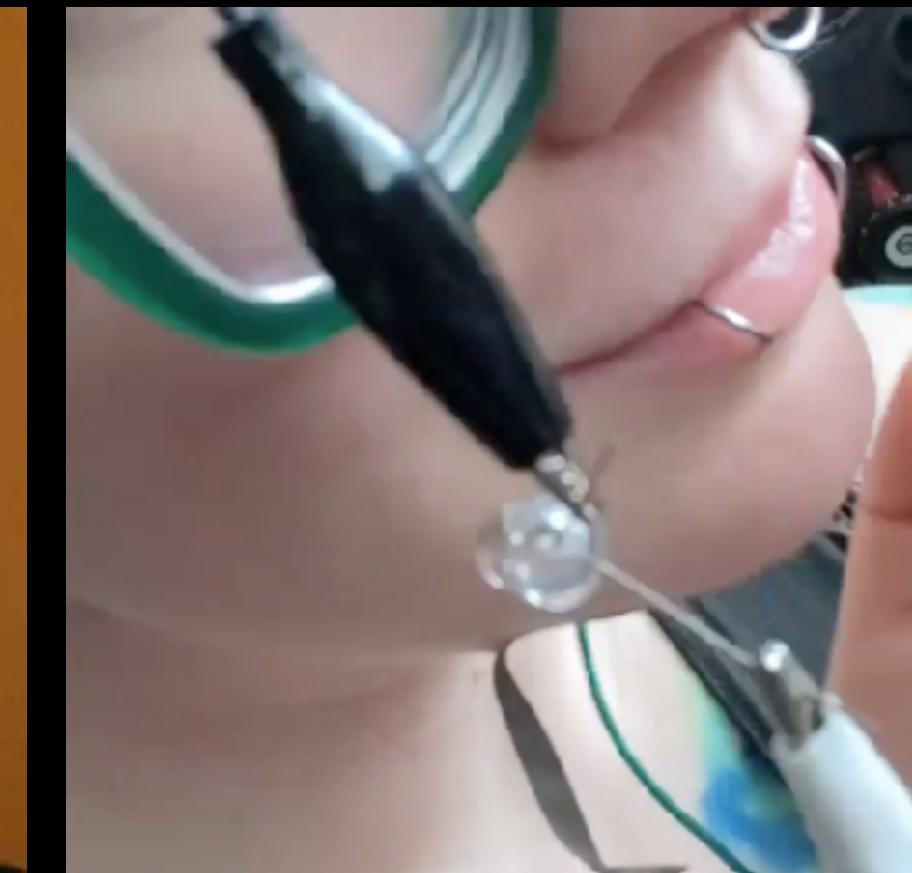
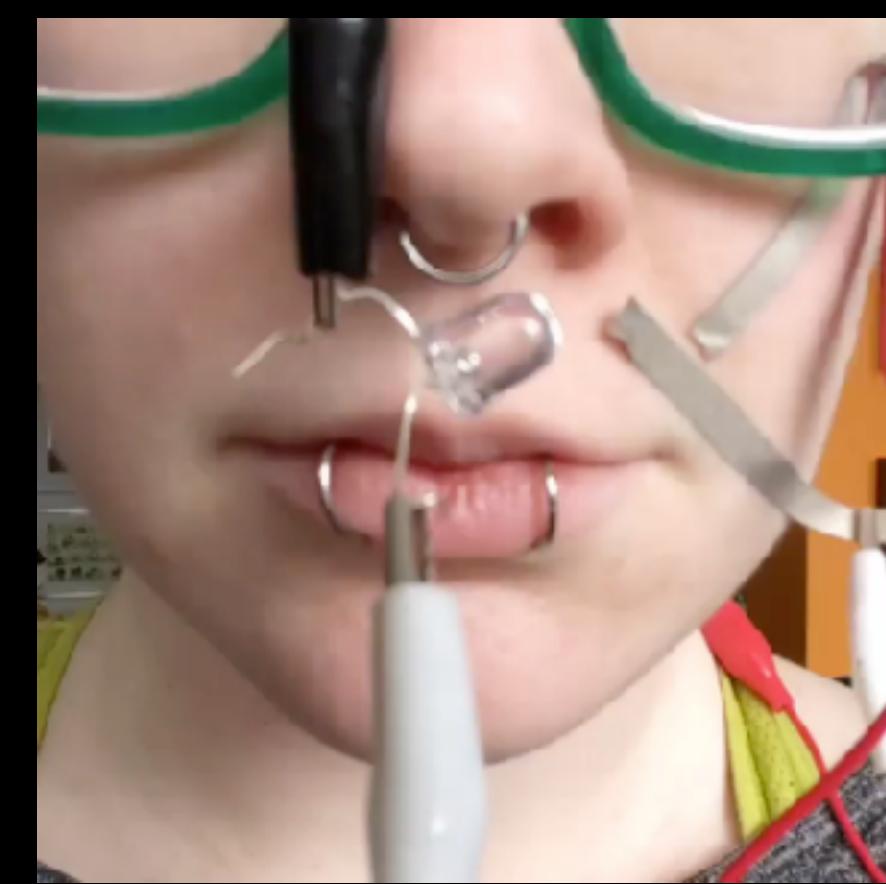
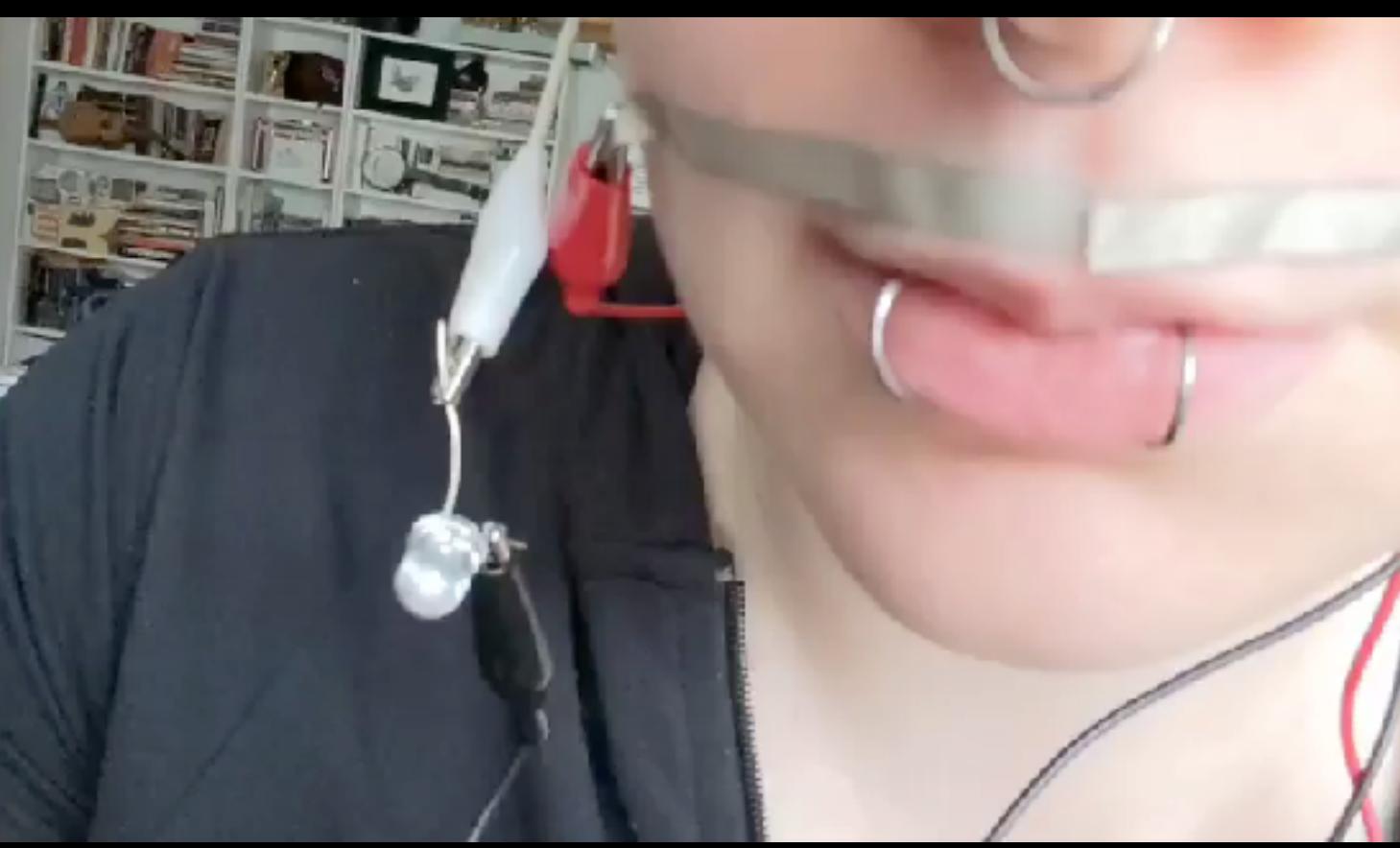
Your Name/pronouns:

Your program/year:

What are you interested in learning this year? It can be anything!

What is your experience with electronics?

What is your favourite animal?









YES

ARCANA

NO

A B C D E F G H I J K L M N O  
P Q R S T U V W X Y Z

X  
1 2 3 4 5 6 7 8 9 0

.....  
GOOD BYE





POWER

ALL  
ABOUT  
WIRES

LED  
LOVE

# Open Source Hardware Association





# HYBRID LAB SCHEDULE

## FALL SEMESTER

TIME	MON	TUE	WED	THU	FRI
8:30					
9:00					
9:30					
10:00					
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17:30					

**Reserve private studios / critique spaces  
via the Patron Portal**

<https://www.concordia.ca/finearts/cda/equipment/tutorial.html#gsc.tab=0>

# Accommodations

Center for Students with Disabilities: [https://www.concordia.ca/students/  
accessibility.html](https://www.concordia.ca/students/accessibility.html)

You need to tell me if you need an extension!

Student Success Center: <https://www.concordia.ca/students/success.html>

Mental Health Services: [https://www.concordia.ca/health/mental-health/  
services.html#appointments](https://www.concordia.ca/health/mental-health/services.html#appointments)

Health Services: <https://www.concordia.ca/health/medical/clinic.html>

# Learning Objectives

- Learn the basics of electrical circuits
- Apply electronics concepts to artistic work
- Learn about contemporary and historical electronics artists

Many electronics classes will teach you about programming, or about math, or about electrical theory. We will focus mostly on how electronics can fit inside your work intuitively, exploring hands-on. This class does not involve any code or microcontrollers!

# Grade Outline

**Beautiful Circuit 15% Sept 18**

**Silly Sensor 15% Oct 2**

**Salvage 20% Oct 23**

**Final Project 40% Nov 27**

**Participation: 10%**

## **Handing in work**

**All exercise and projects should be handed in using the project documentation template on Moodle / GitHub.**

**Bring your work to class for critique, a**

**In general, also, make a PDF should includes:**

- A clear image of your work**
- A parts list & circuit diagram**
- Images of your process**

**Remember: Every time you see someone else's work,  
you're looking at their documentation! Learning good  
documentation is important!**

# Class Structure

**Outside of class: Practice & explore**

**Part 1: Lecture and exercises**

**Part 2: Studio time and exercises**

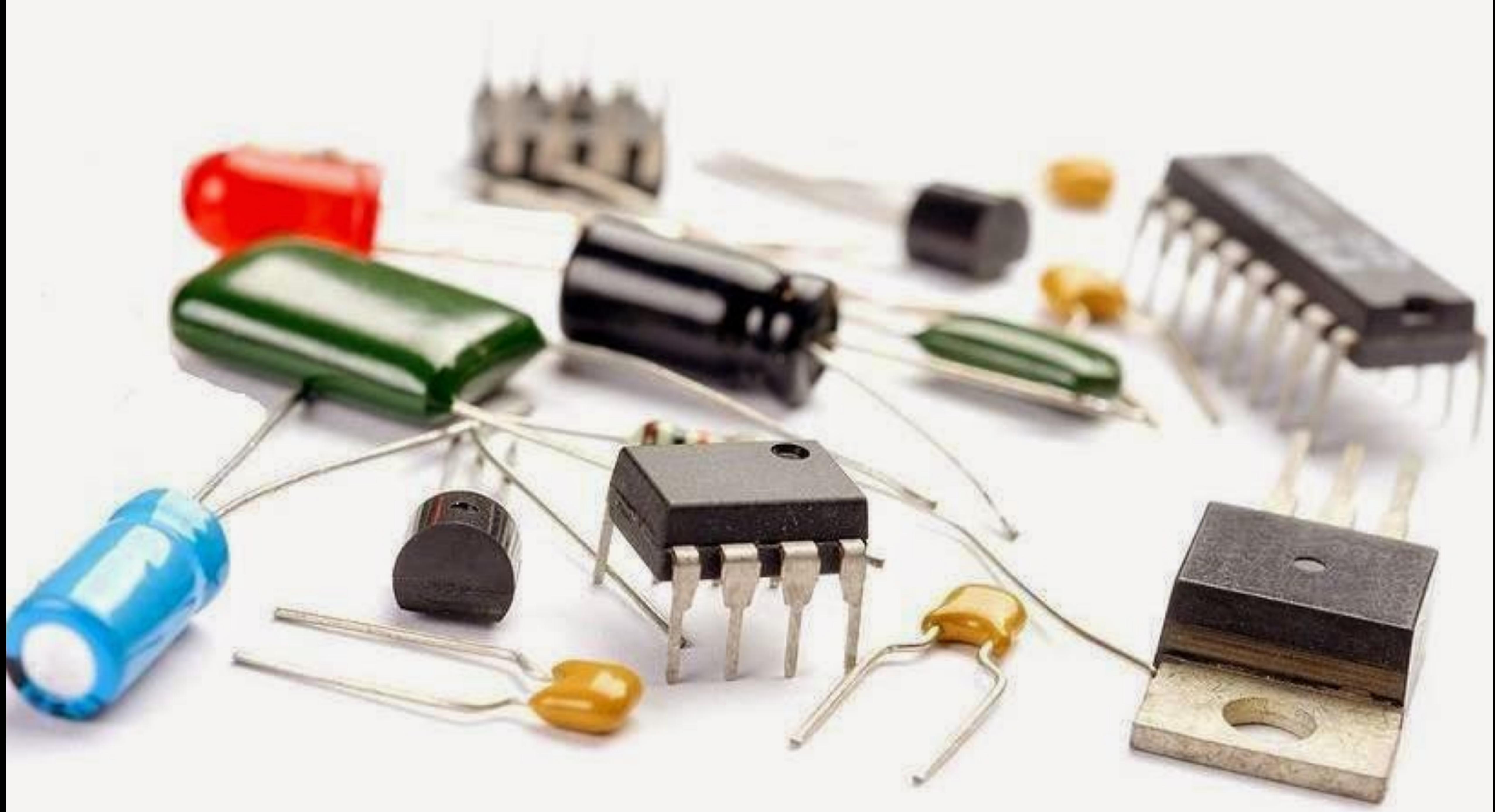
**You are expected to work 1-3 hours  
outside of class time per week.**

## Tools

Your class fee covers a kit full of parts you will need to complete this class.

The fee will be 65\$ (or less) and should be ready soon!

There are other tools and sensors in the lab!



# Weekly Breakdown

September 4 Week 1 – Hello conductive Materials!

September 11 Week 2 – Buttons and switches on Bodies in Places.

September 18 Week 3 - Beautiful Circuit Due, Make a Sensor workshop.

September 25 Week 4 - Working with lights, salvaging, circuit bending.

October 2 Week 5 - Silly Sensor Due Integrated circuits, 555, 4017, and logic chips.

October 9 Week 6 - Soldering! Guest Lecture TBD.

October 16 >> NO CLASS, HAVE A GOOD BREAK! <<.

# **Weekly Breakdown**

**October 23 Week 7 - Salvage Project Due. Movement, mechanisms, and motors**

**October 30 Week 8 - Transistors and Relays**

**November 6 Week 9 - Soft Speaker Workshop, Wireless power transfer and other coil related things.**

**November 13 Week 10 - Studio Session.**

**November 27 Week 12 - Final critique.**

# Critique Policy

**Critiques are critical opportunities for artistic development and growth. Students are expected to be both supportive and constructively critical with each other. You are expected to engage actively in critique and be prepared to engage deeply with concept and technical aspects of projects.**

**There are both technical and conceptual aspects to a class like this. We should be prepared to discuss both during critique.**

# Late Work Policy

All projects are expected to be handed in by midnight of the due date. Feel free to make changes after critique or finish documentation. Students will be deducted 5% per day after that. If there is any reason why you can't meet the deadline, notify the instructor via email or in class. The sooner you notify the instructor, the sooner they can help you find a solution or avoid late marks. If you need help accessing student services or resources, please reach out.

# On Plagiarism

## In Simple Words:

**Do not copy, paraphrase or translate anything from anywhere without saying where you obtained it.**

**In a class like this, you will frequently use other people's code and examples. This is totally fine, but you should indicate where you get it from AND change it meaningfully. Work that is a direct copy from a tutorial will not be accepted, even if it is cited. Work based on a tutorial should be indicated and linked.**

# PAY YOUR FEES

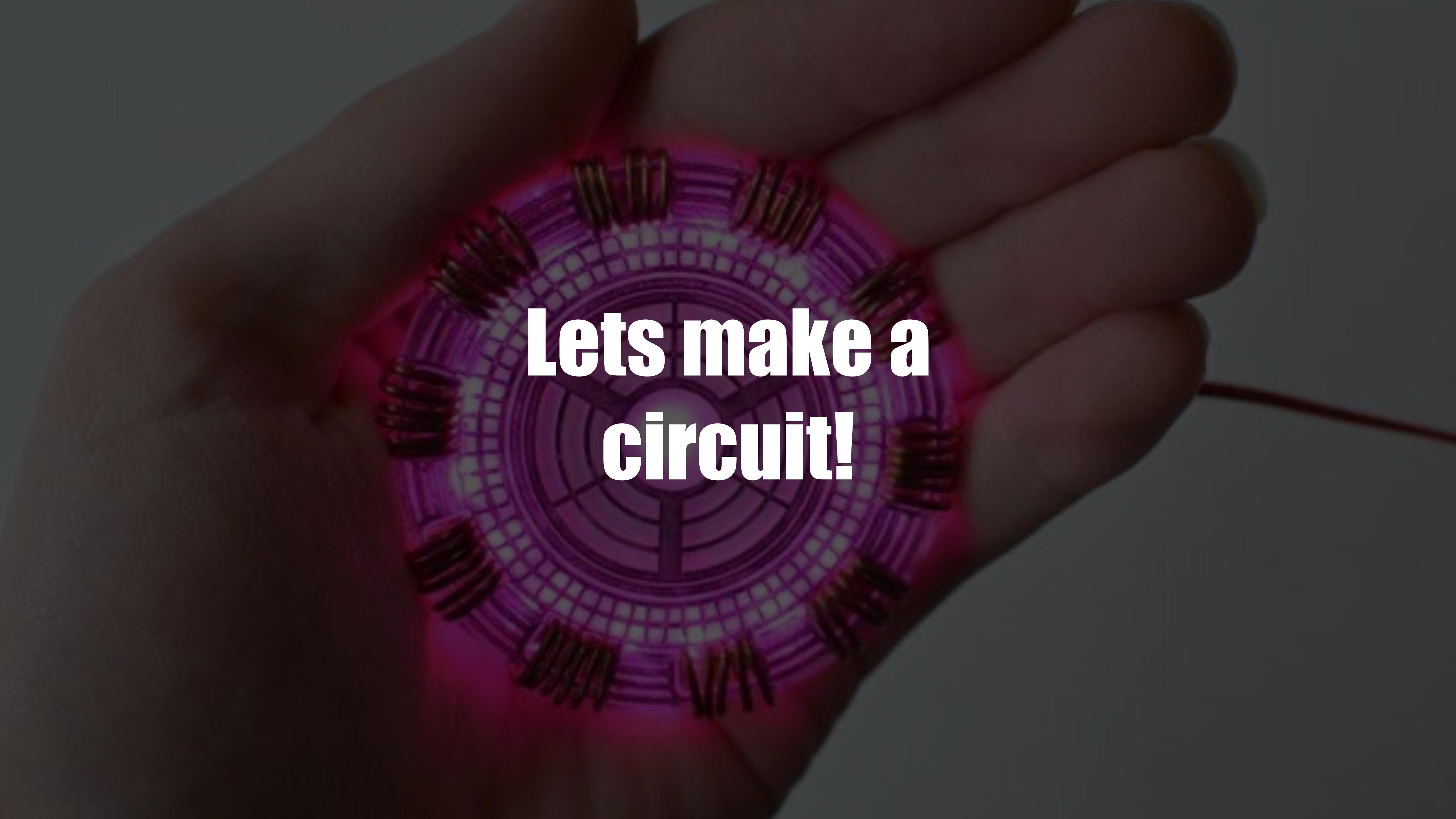
1. Log into the Student Hub OR ([https://adsys2.concordia.ca/0FAF/pages/ Default](https://adsys2.concordia.ca/0FAF/pages/Default))

# Moodle Tour!

Resources:

<https://learn.sparkfun.com/tutorials/>

<https://www.howtogetwhatyouwant.at/>



A close-up photograph of a person's hand holding a small, square-shaped circuit board. The board is densely populated with electronic components, including resistors, capacitors, and a prominent central circular inductor or coil. The colors of the components range from dark purple and black to bright red and yellow. The background is a plain, light-colored surface.

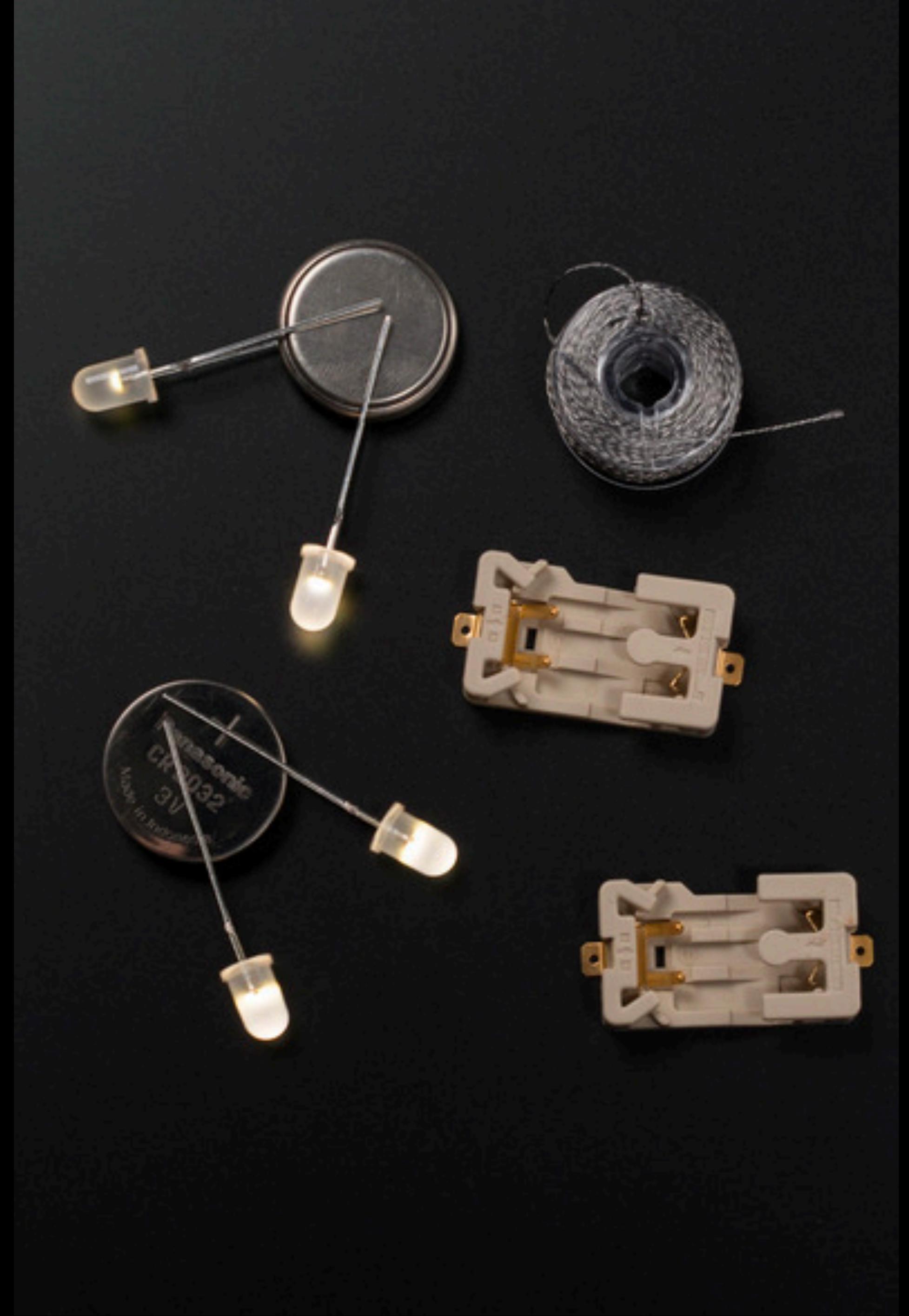
Lets make a  
circuit!



AC



DC





# Polarity

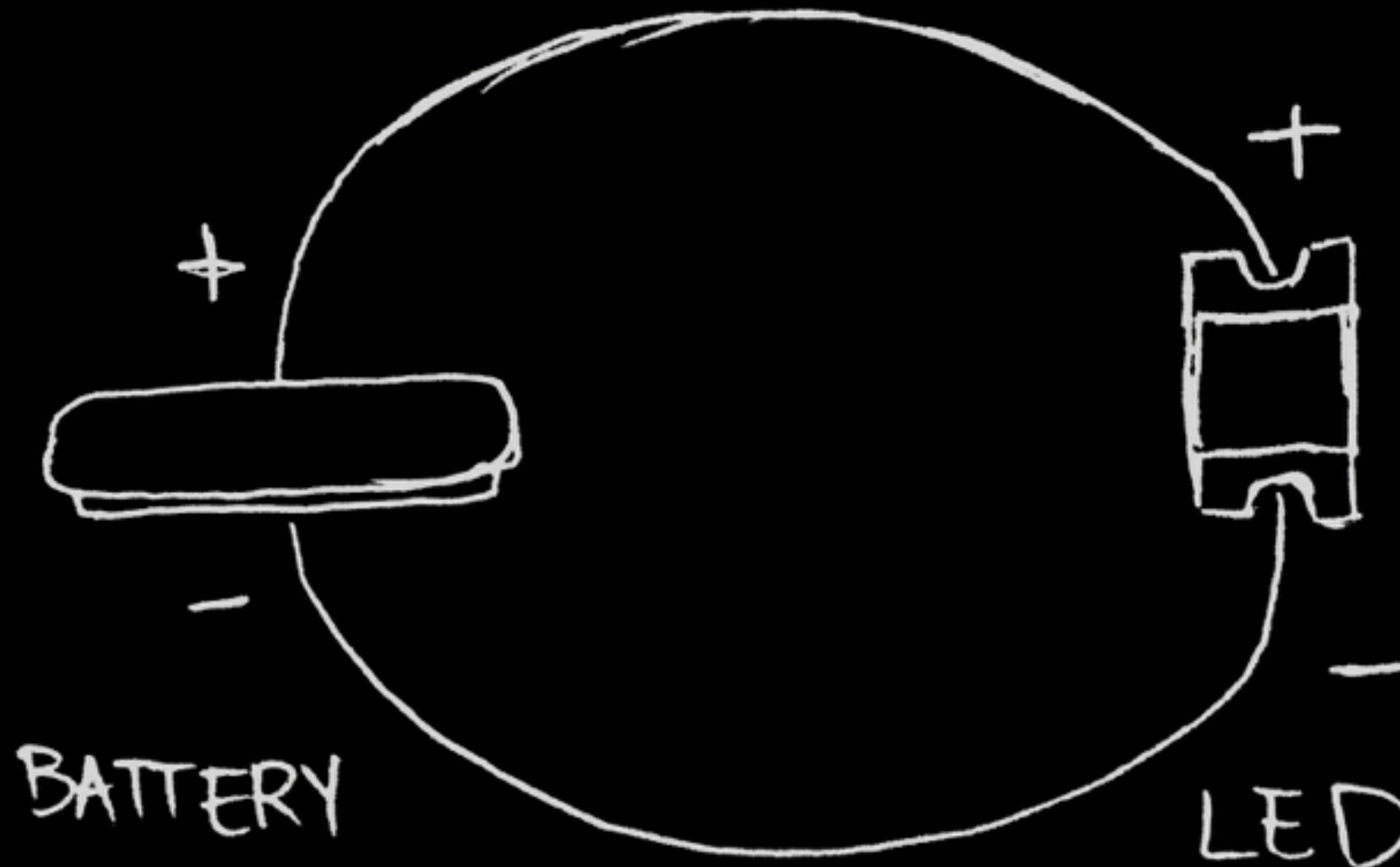
Many, but no all,  
components are “Polarized”

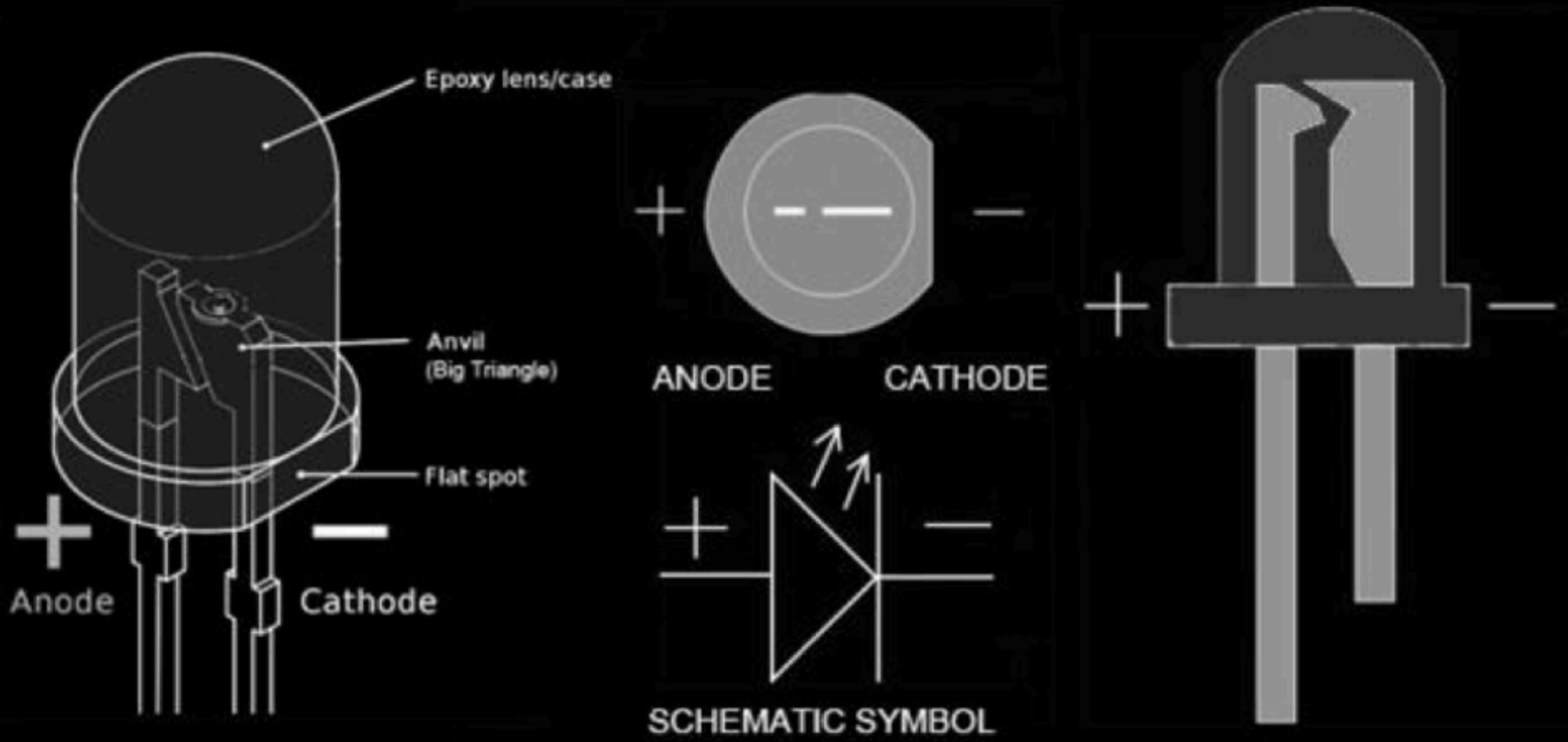
Positive, +, Anode, **red**

Negative, -, Cathode, **black**,  
“ground”

When we use another  
material to connect the  
points, these are called

Traces





The longer leg is positive because you want MORE POSITIVITY!

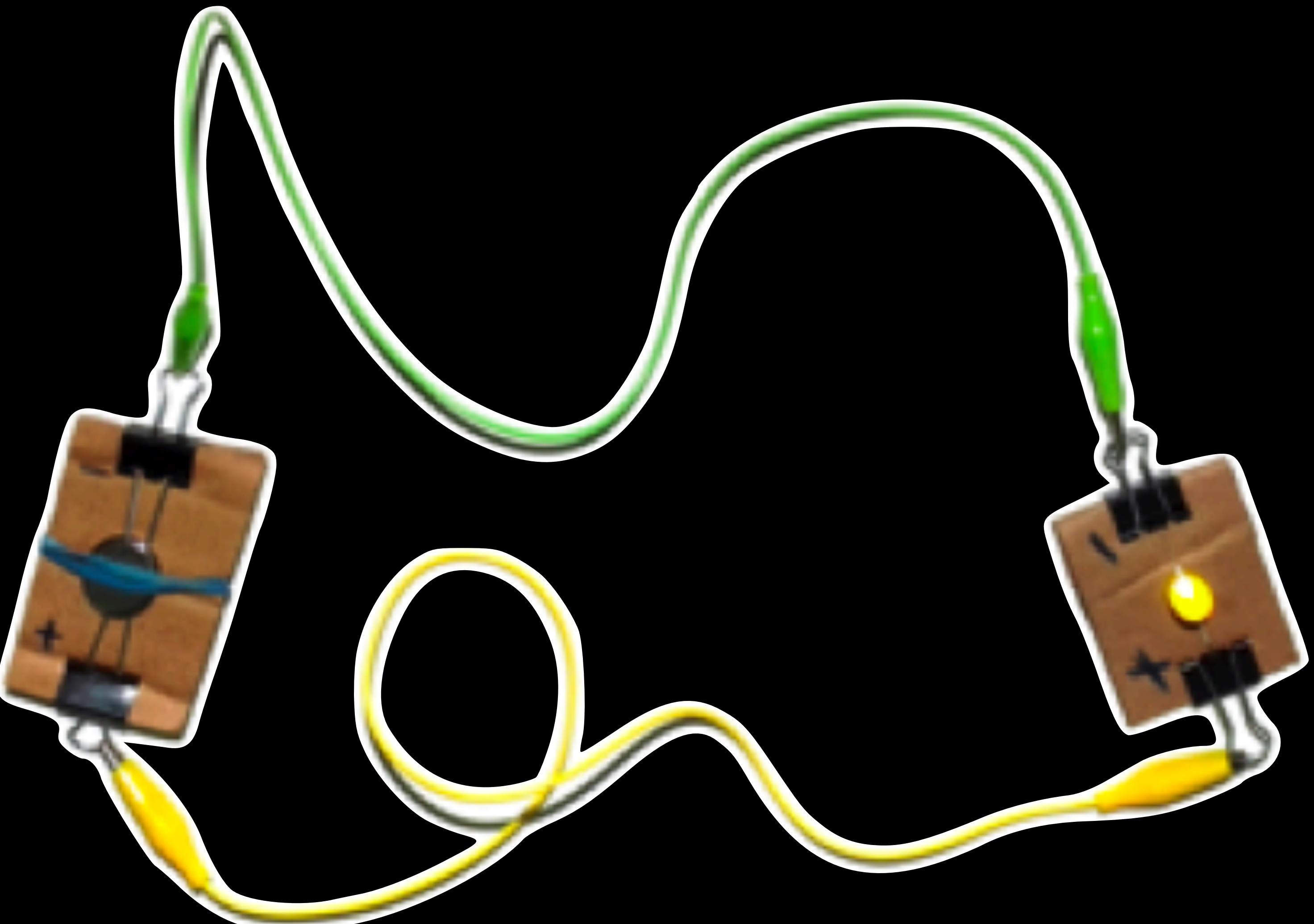
Components in a circuit are connected with **conductors**.

A conductor is anything that will allow electricity to flow through. Usually this is something metallic, but not always!

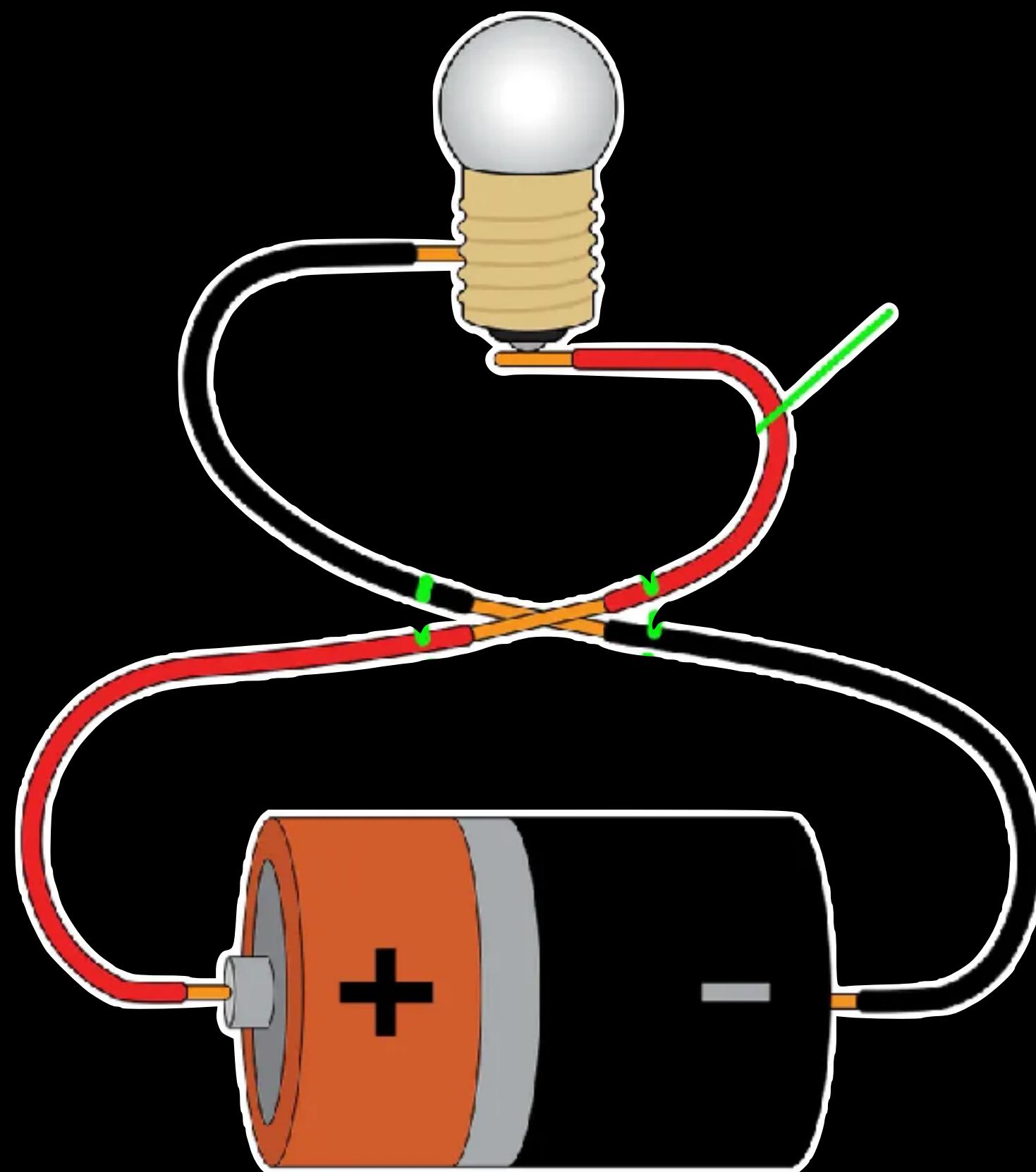
Lets extend the legs of our LED using alligator clips. The wire inside the clips is **conductive**, so the electricity moves through them!

The plastic coating is an **insulator**. It stops the wires from touching.

If the wires touch, you will make a **short circuit**! The electricity won't flow through the LED!



Without insulators, you might accidentally create a short circuit. This is when two conductive paths cross, disrupting the flow of electricity.

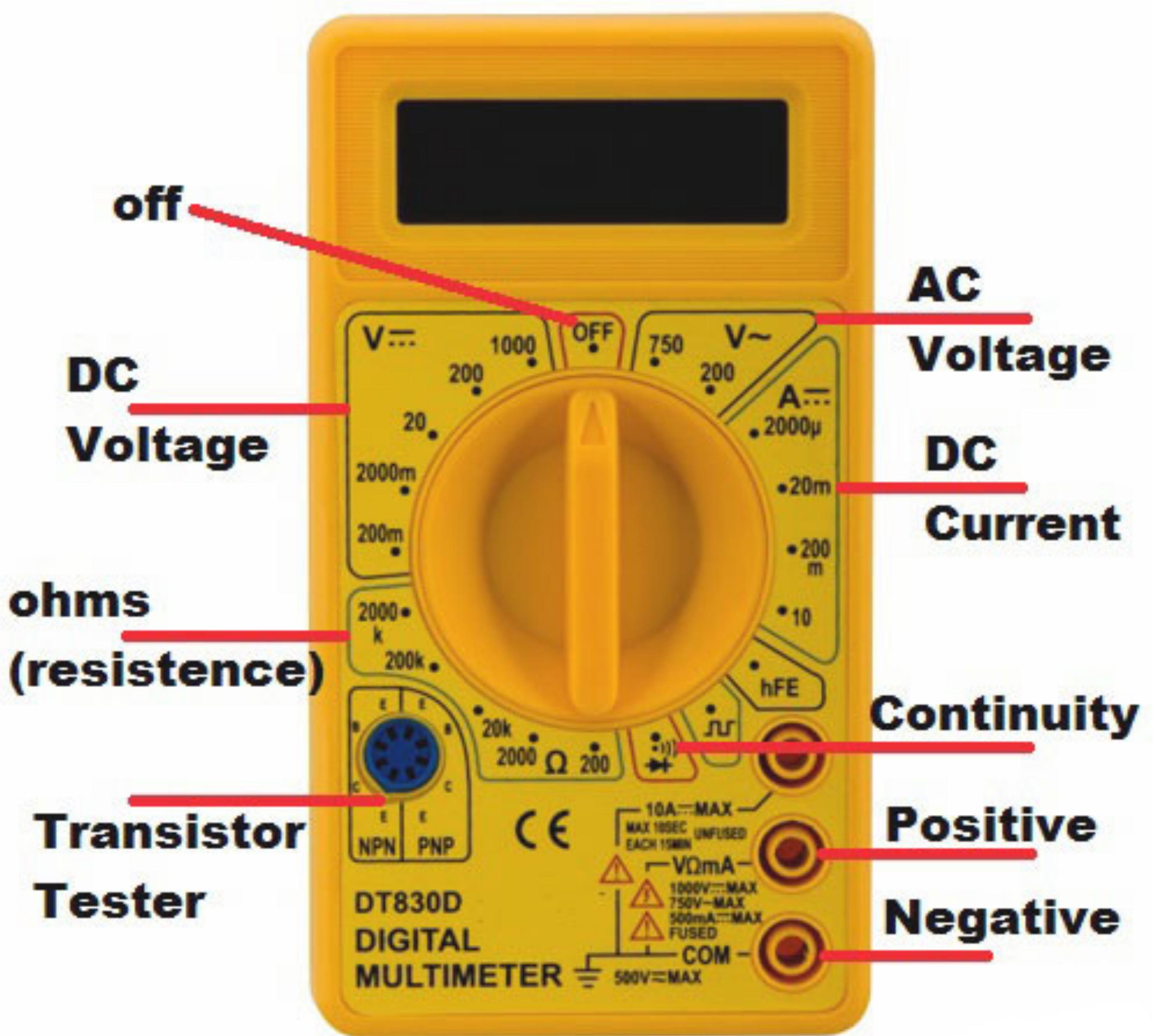


When using alternative conductive materials that may not be insulated, this can become a problem.

Some conductive materials are coated in a clear enamel.



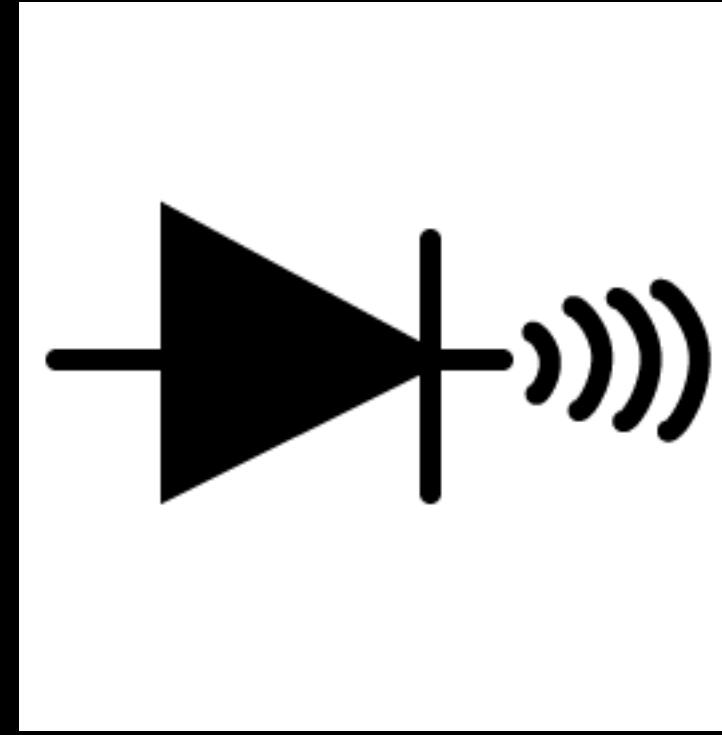
Jiri Praus



A multimeter is a tool to help understand circuits. We're going to use one to explore the environment!

Lets find some  
weird conductive  
materials by using a  
multimeter!

Turn your  
multimeter to  
this setting



Lets take 20 minutes to explore inside and outside the classroom. What is conductive? What isn't ? Is it surprising?

# Beautiful Circuit Assignment

Due September 18, 15%

Create a functional circuit using nontraditional conductive materials (copper tape, conductive thread, aluminum foil, anything else you find etc) where the circuit is incorporated into the aesthetic design of the object. You can use LEDs, motors or buzzers, but the circuit must be visible, with attention paid to the layout and craftsmanship. You should move through at least two (possibly more) iterations of this circuit. Be sure to carefully document your process and design choices, taking photos along the way.

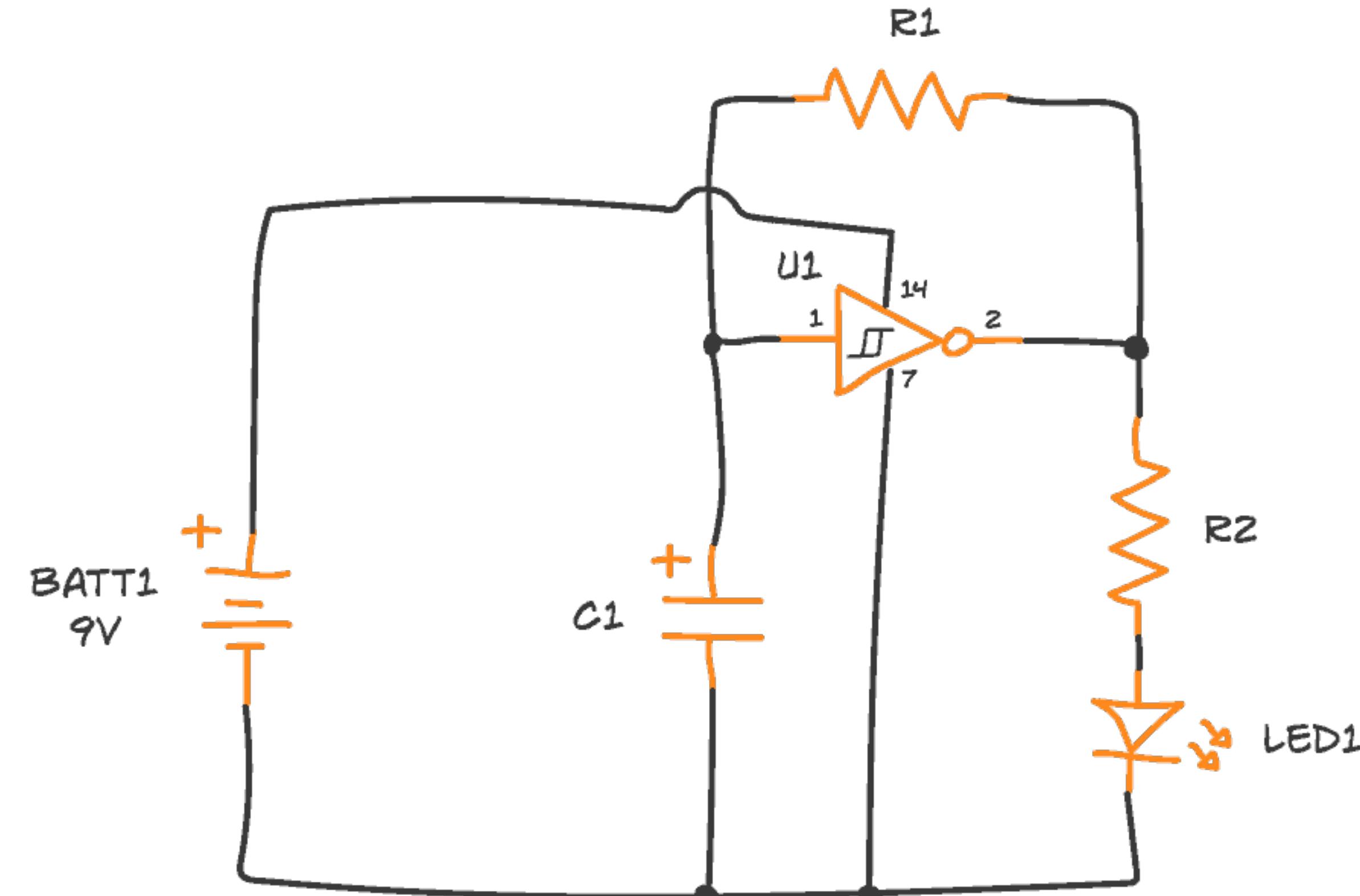
**Bring the final prototype to class and post your project documentation to the Moodle.**

Documentation should include a PDF with:

- A description of the project.
- A material & parts list.
- Images of iteration and process
- A clear, strong image or images of the completed project.
- A list of all materials you tried

# Circuit Diagram

Circuit diagrams use symbols describe circuit construction, but they might not always describe how a circuit looks!

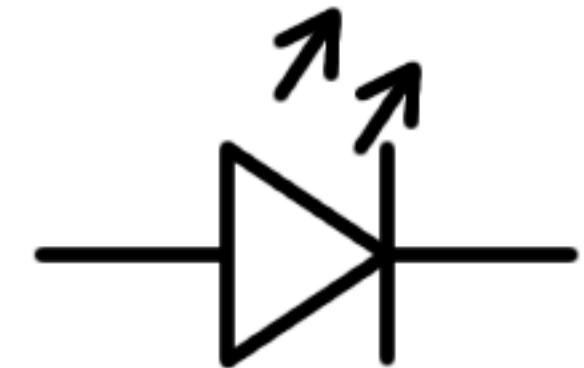


# Circuit Diagram

This is a battery



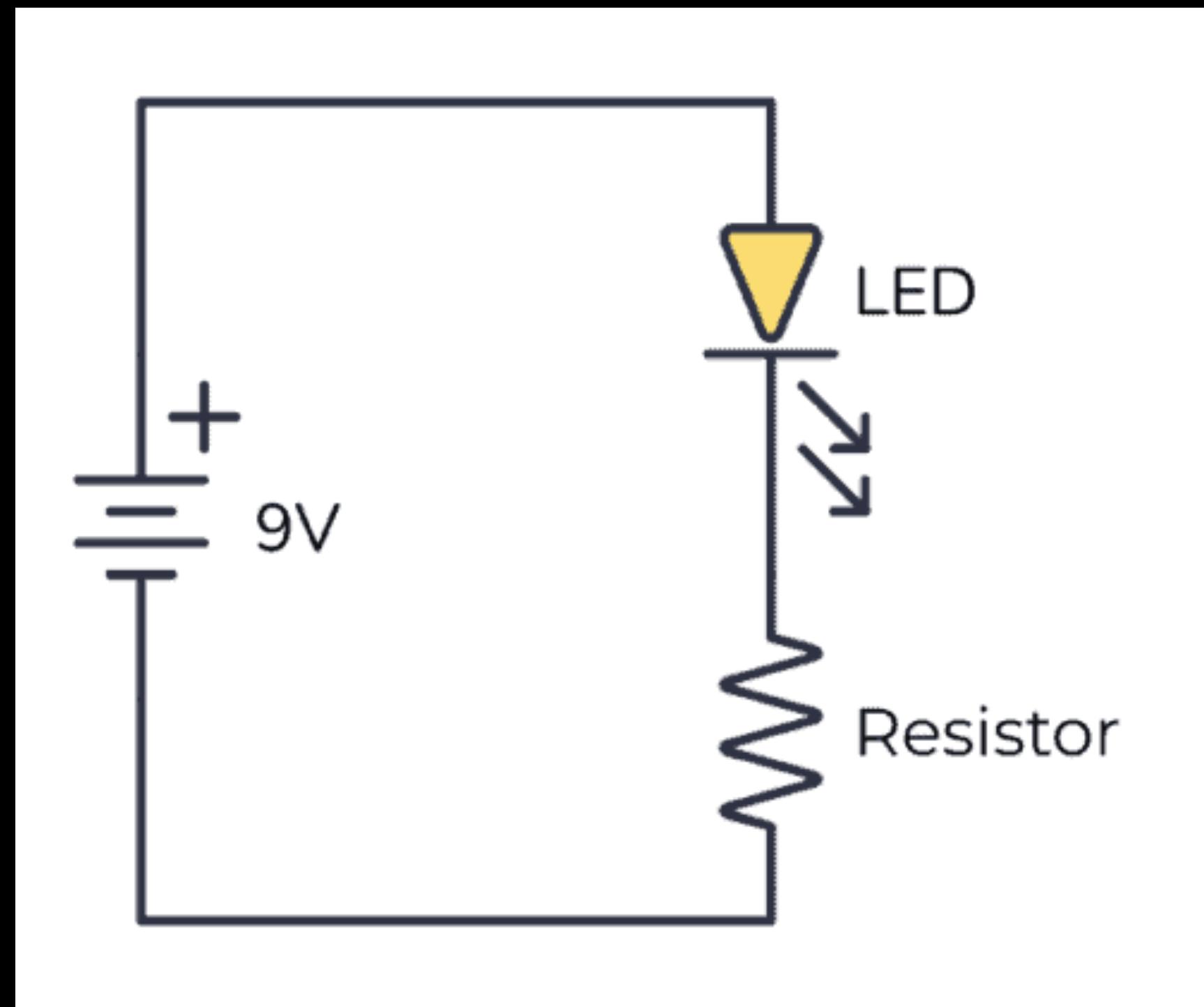
This is an LED



This is a resistor



Your circuit diagram can look like this



And your circuit might look like this

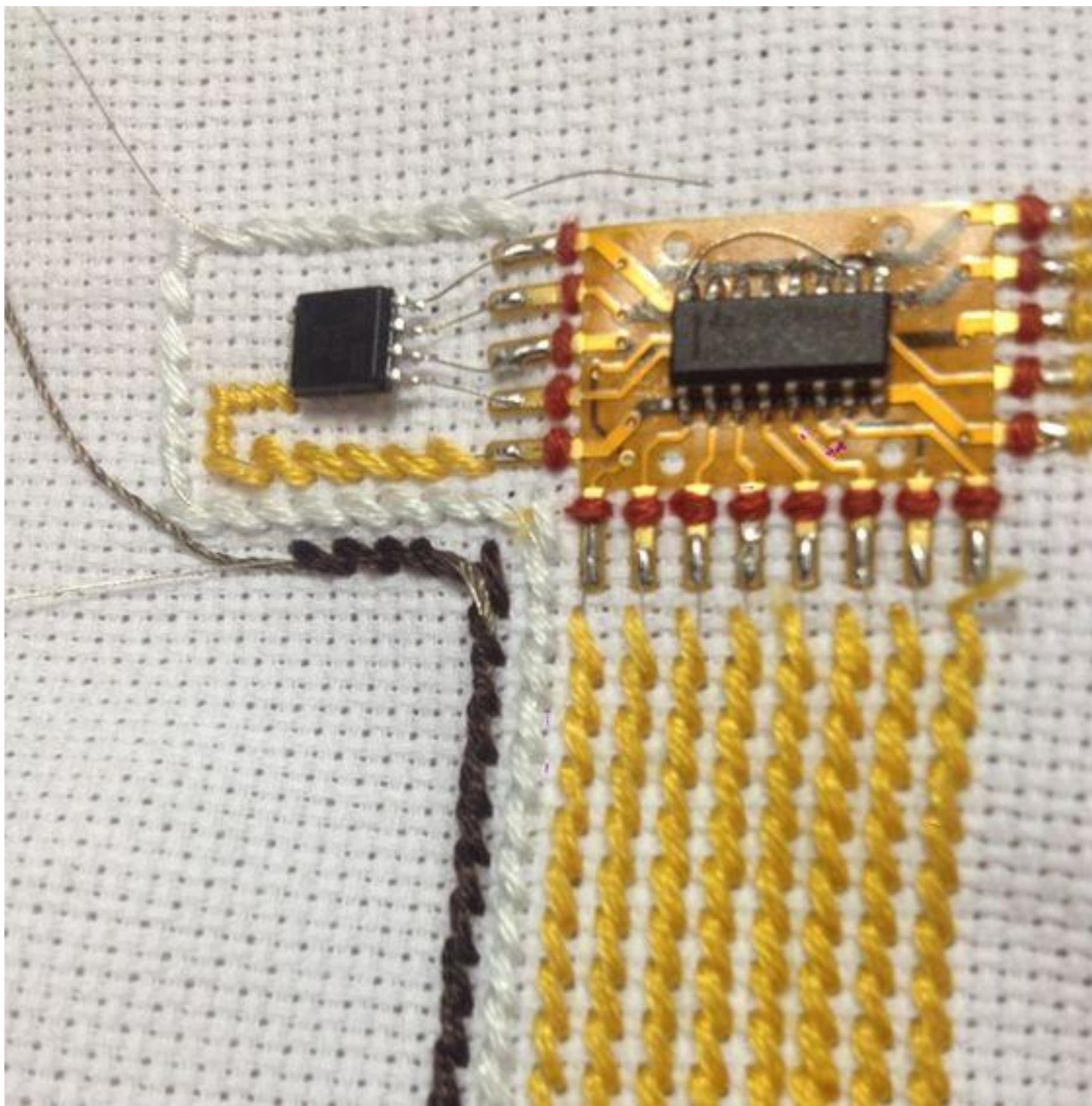


Becky Stern

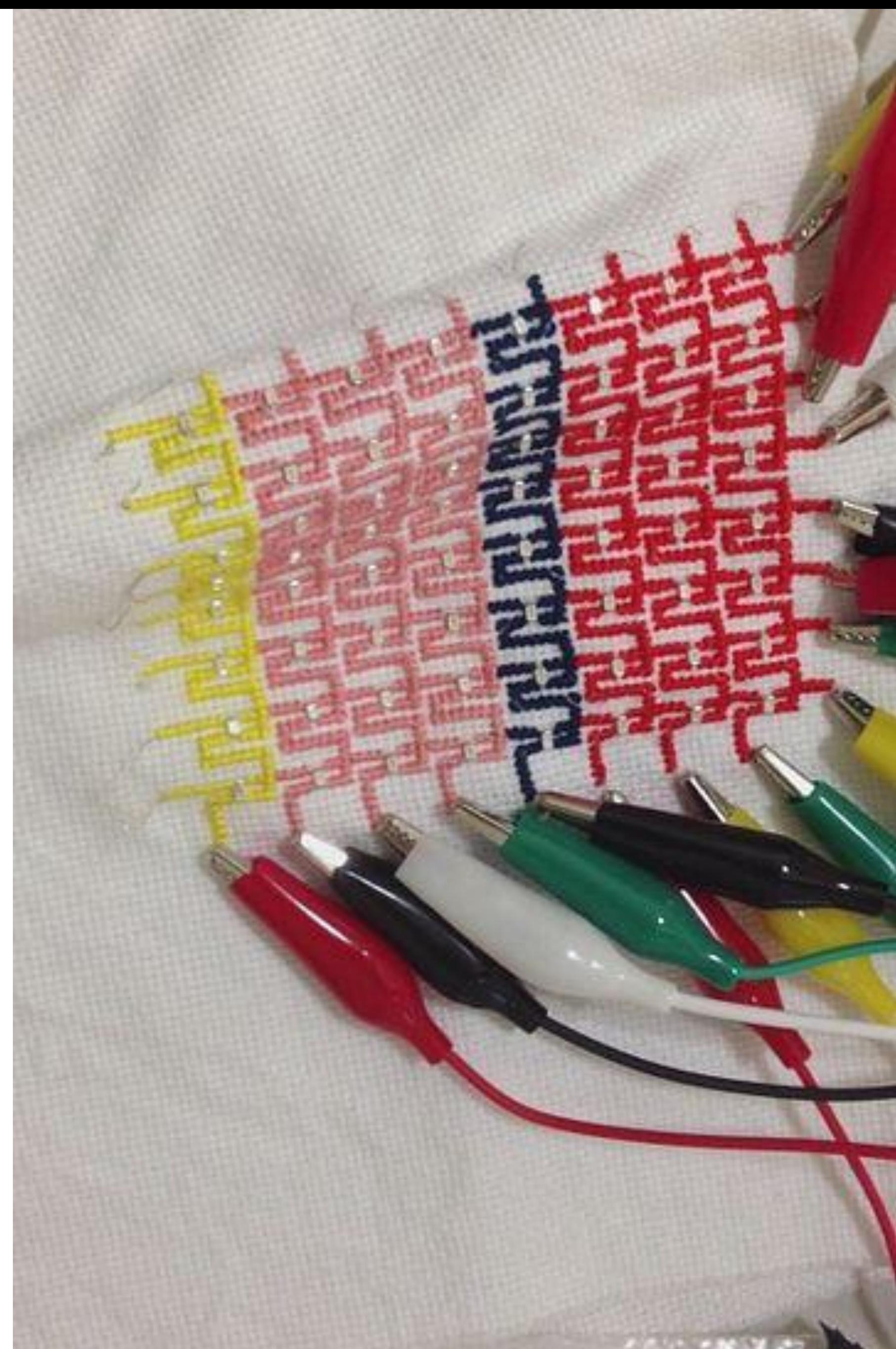
Your documentation should include a circuit diagram as well as a picture of your circuit.

Inspo

# Some Beautiful Circuits



[Wei Chieh Shih \(and another video\)](#)





Anu Koski



Becky Stern



[cosiriferampolles.blogspot.com](http://cosiriferampolles.blogspot.com)



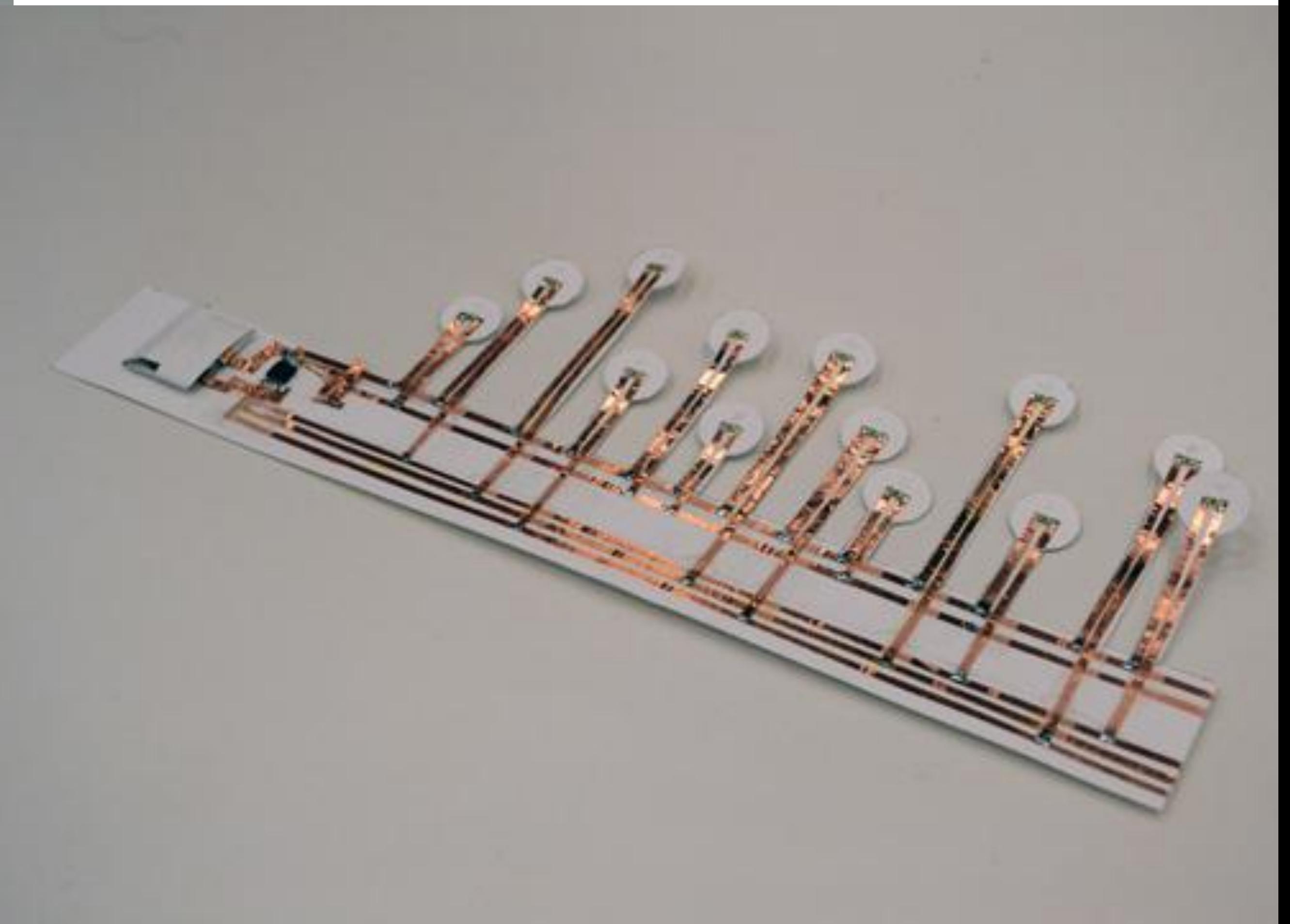
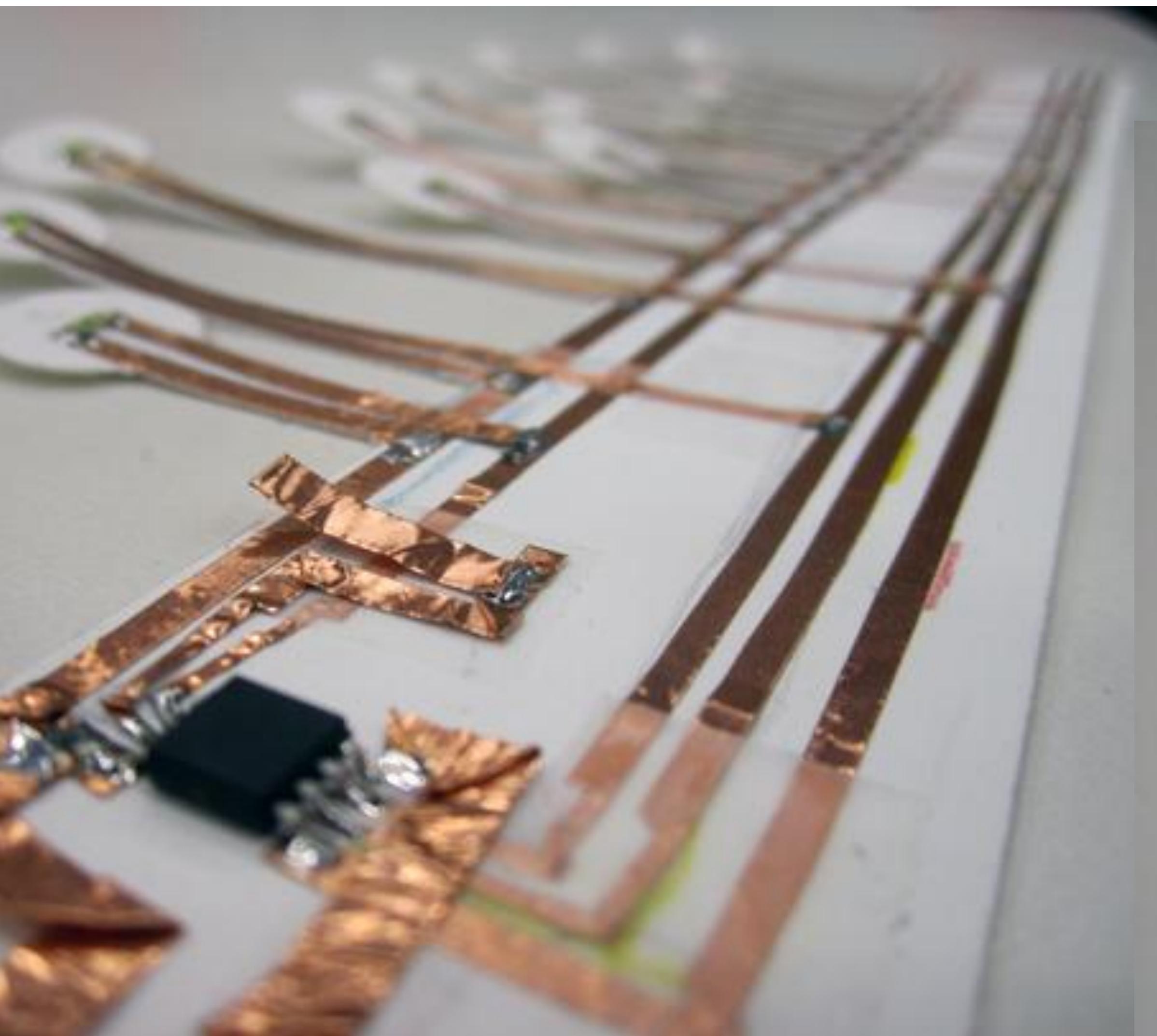
kanai.tetsuo



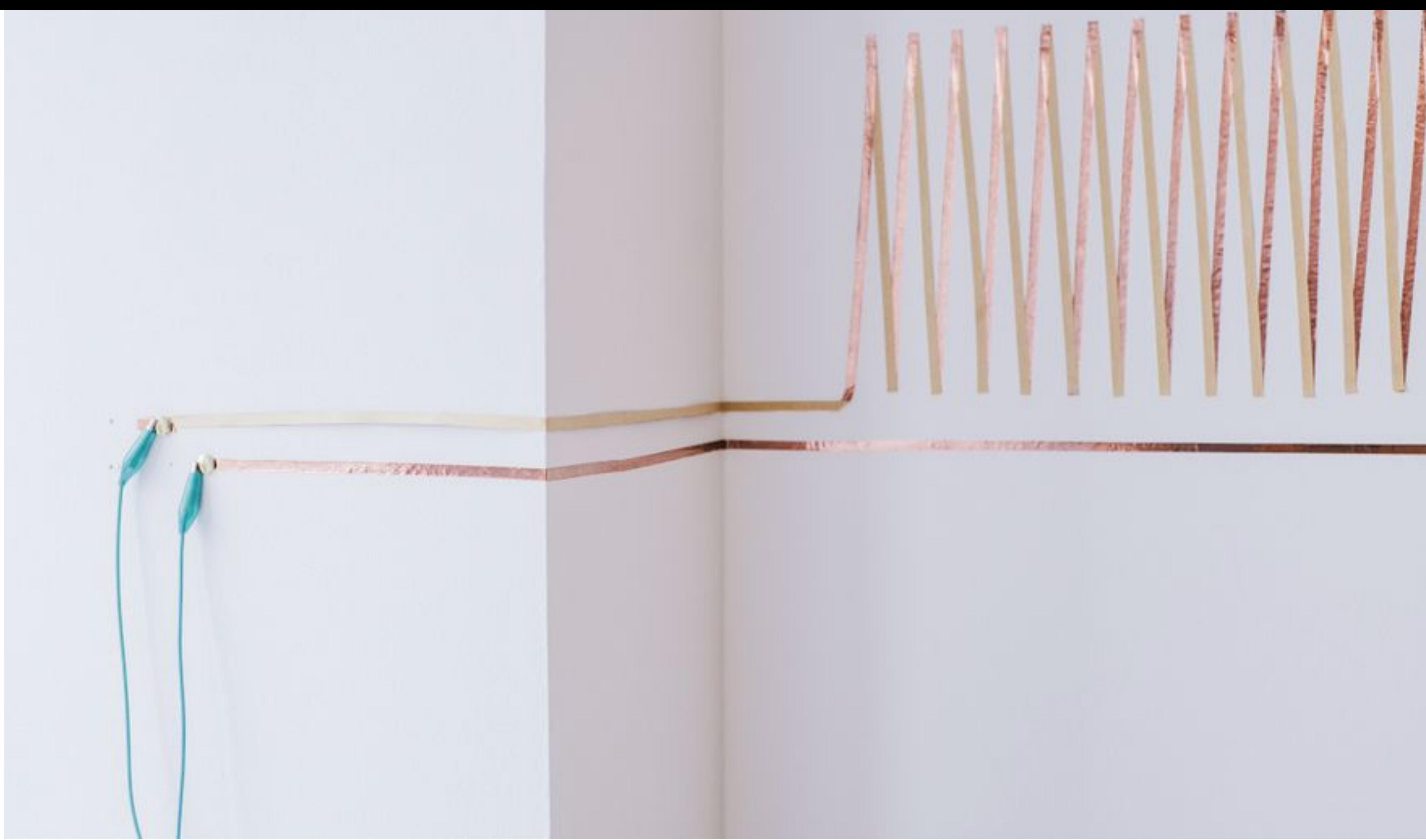
Tory Franklin



High Low Tech Lab



Jennifer Broutin



Coralie Gourguechon



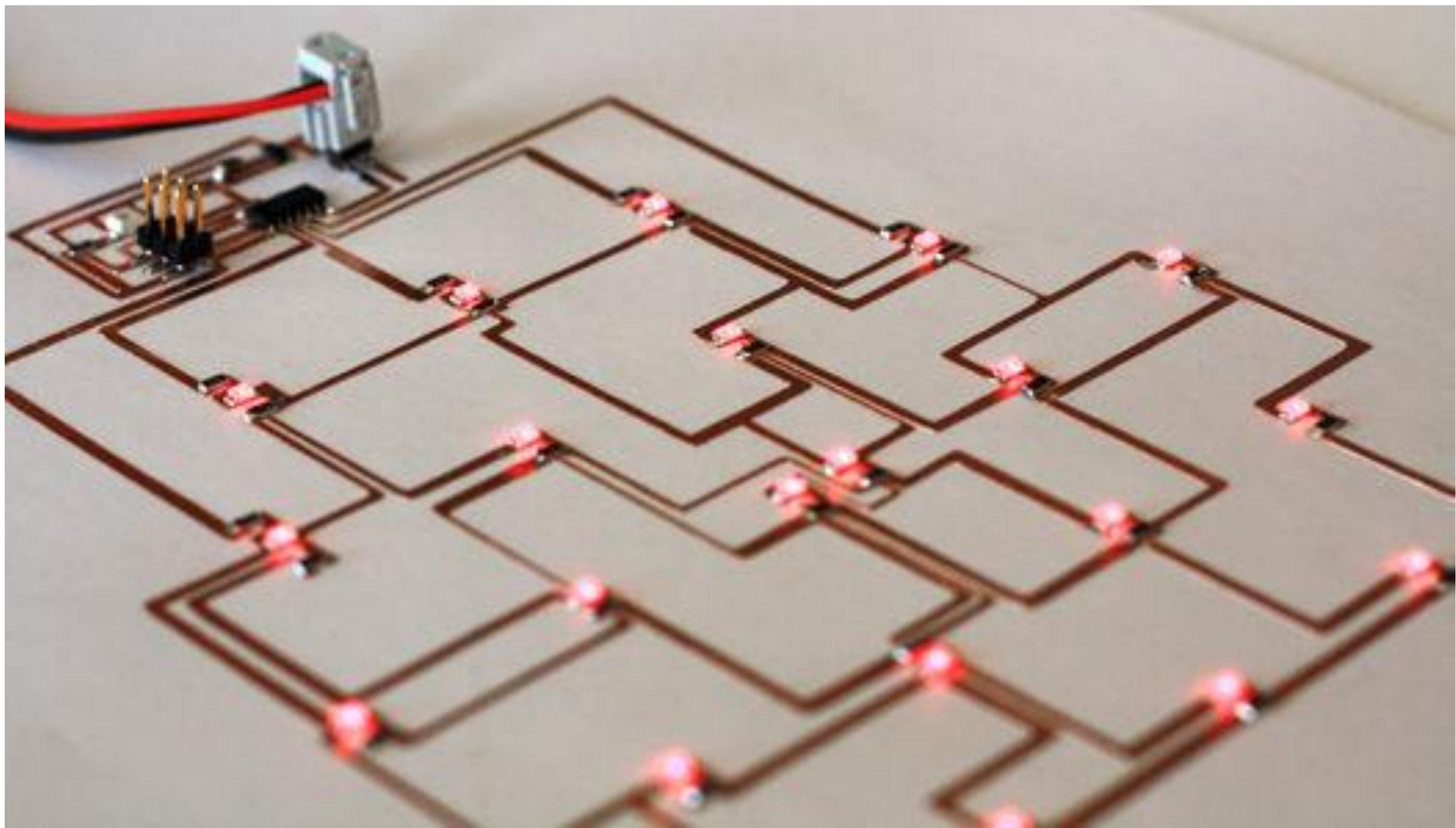
Coralie Gourguechon



Coralie Gourguechon



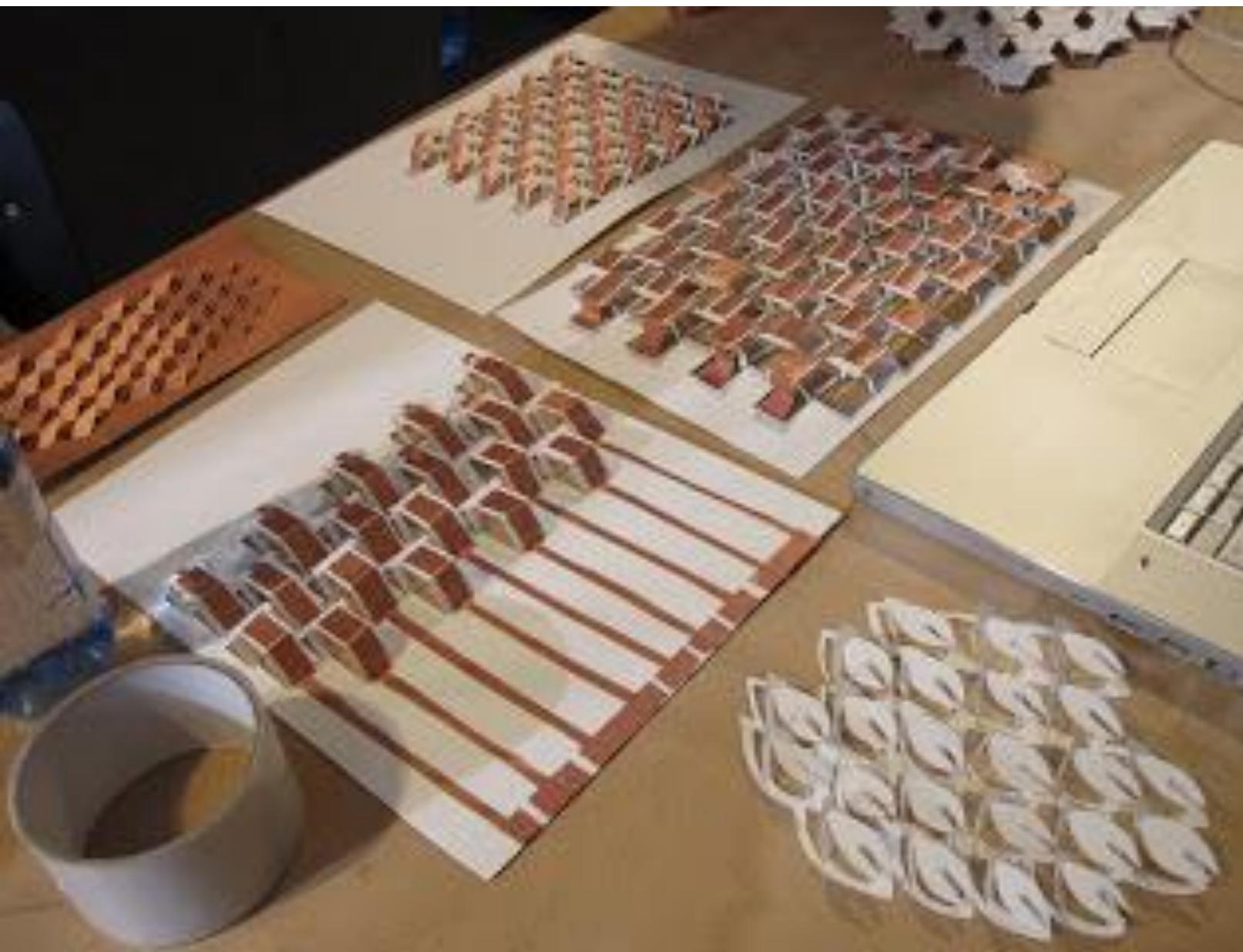
Akira Segawa



The Tinkering Studio



The Fine Art of Electronics



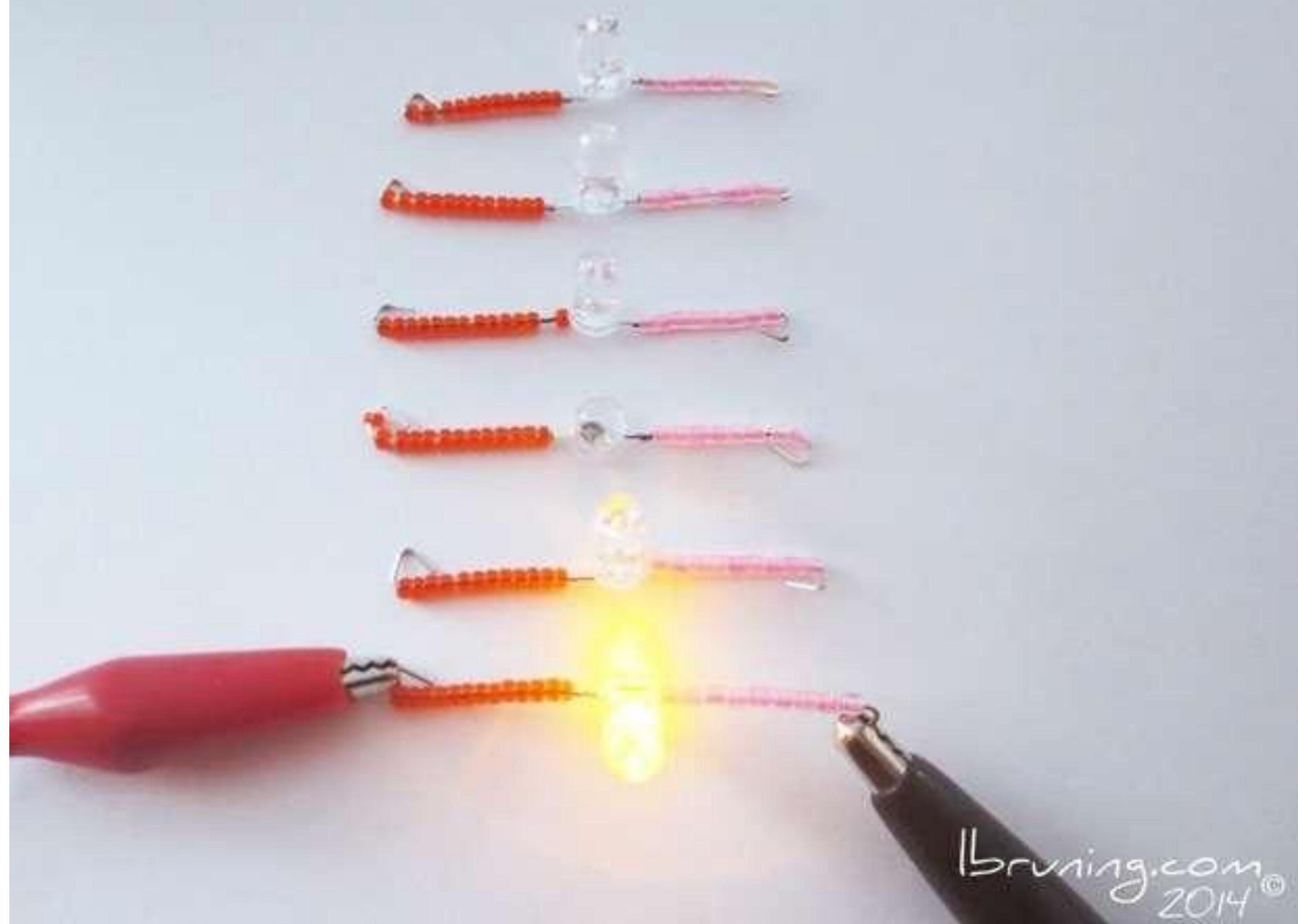
Kunsthochschule Berlin-Weissensee



Lyn Bruning



lbruning.com  
2015



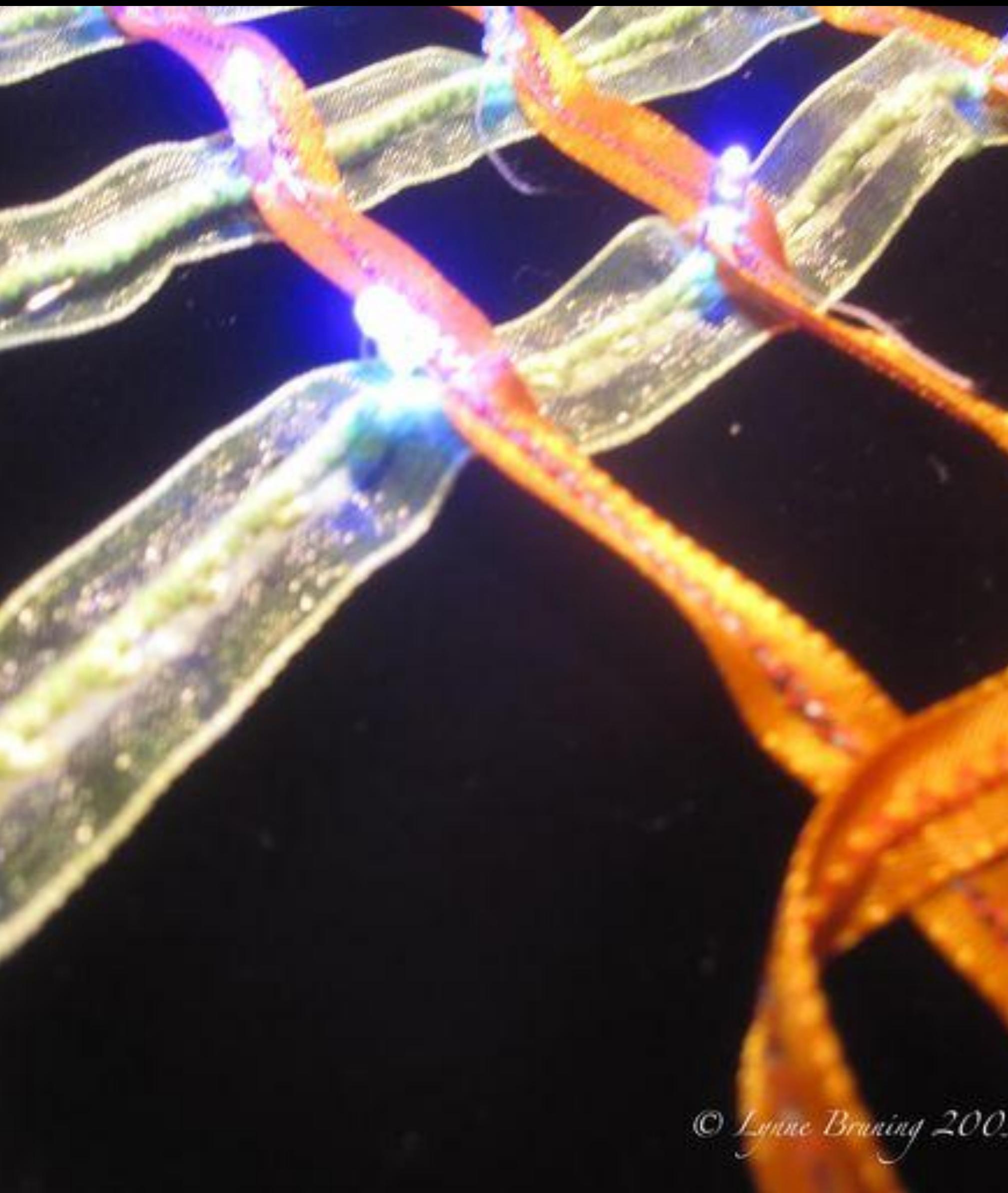
Bruning.com  
2014®

Lyn Bruning

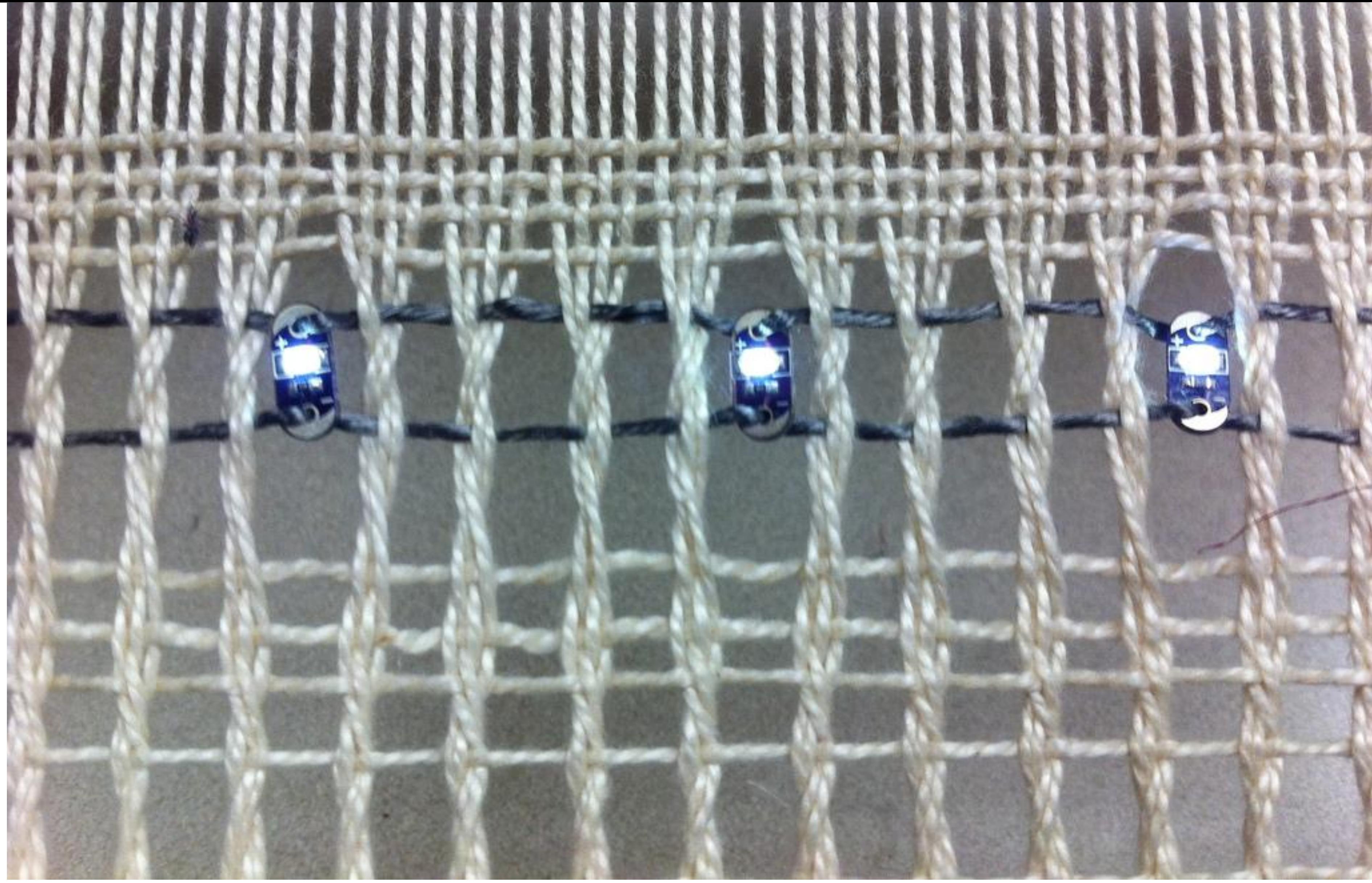




Lyn Bruning



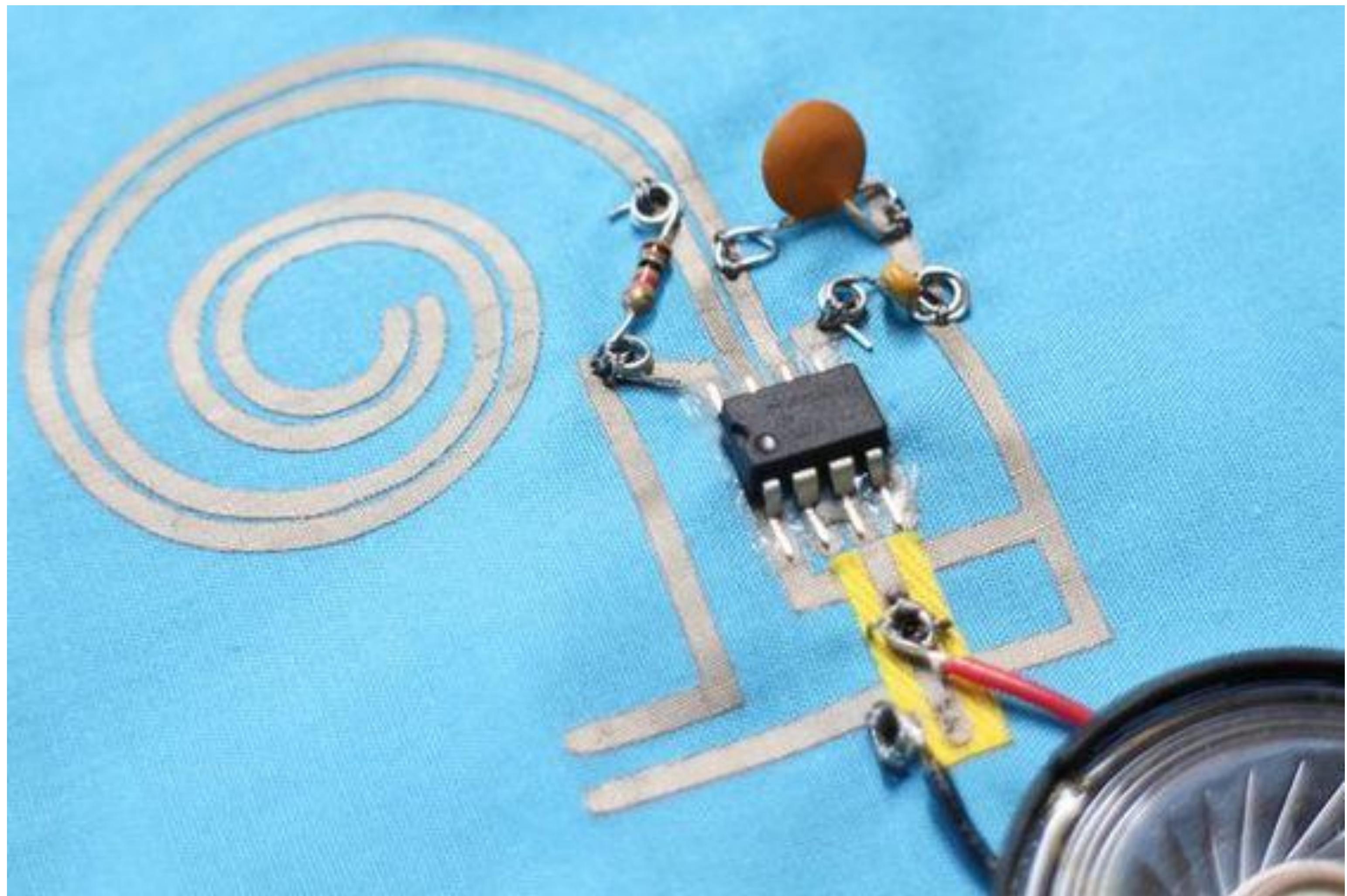
© Lynne Bruning 200...



Lyn Bruning



Meg Grant



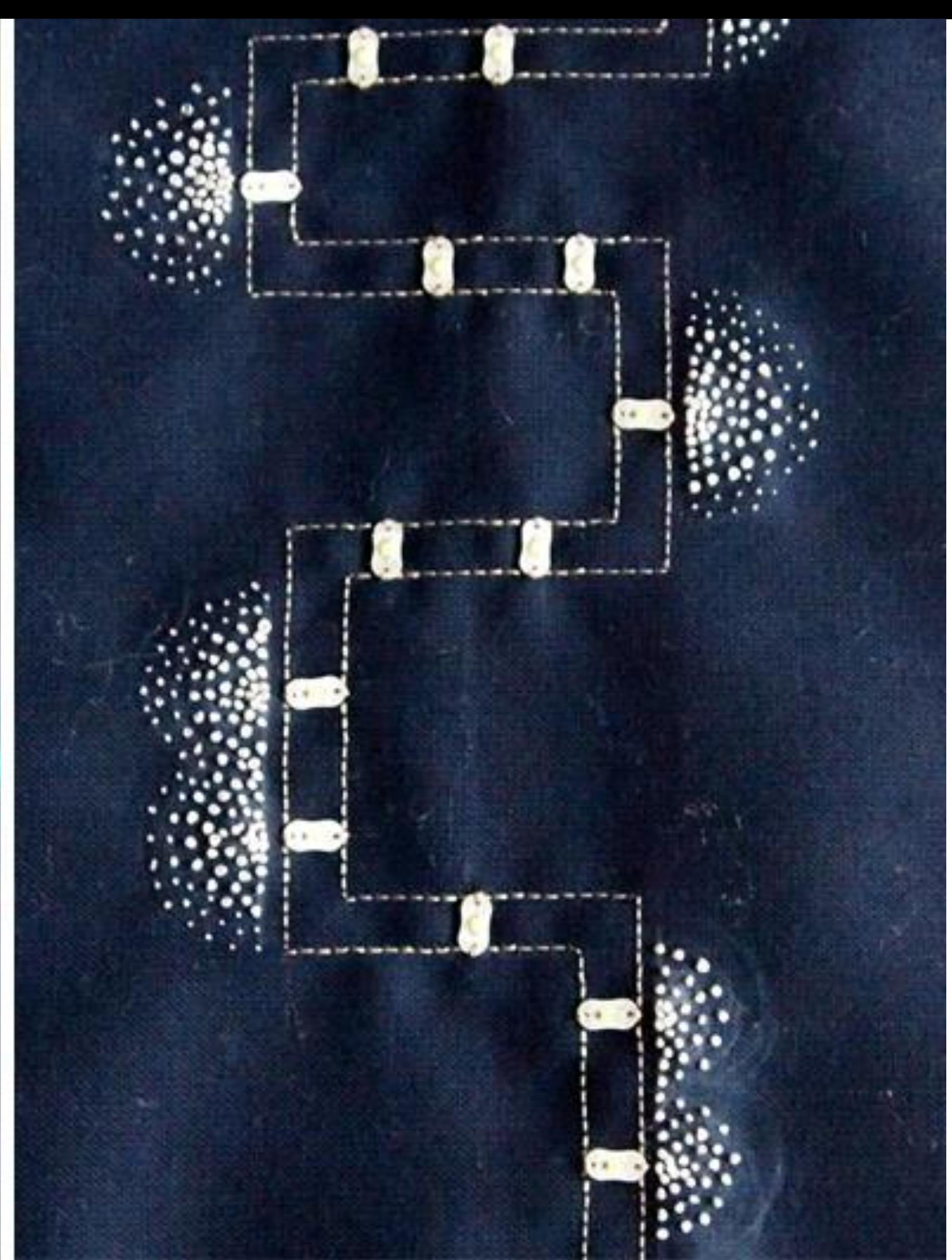
Push\_rest on Instructables



Rad Lab



Laura Dempsey

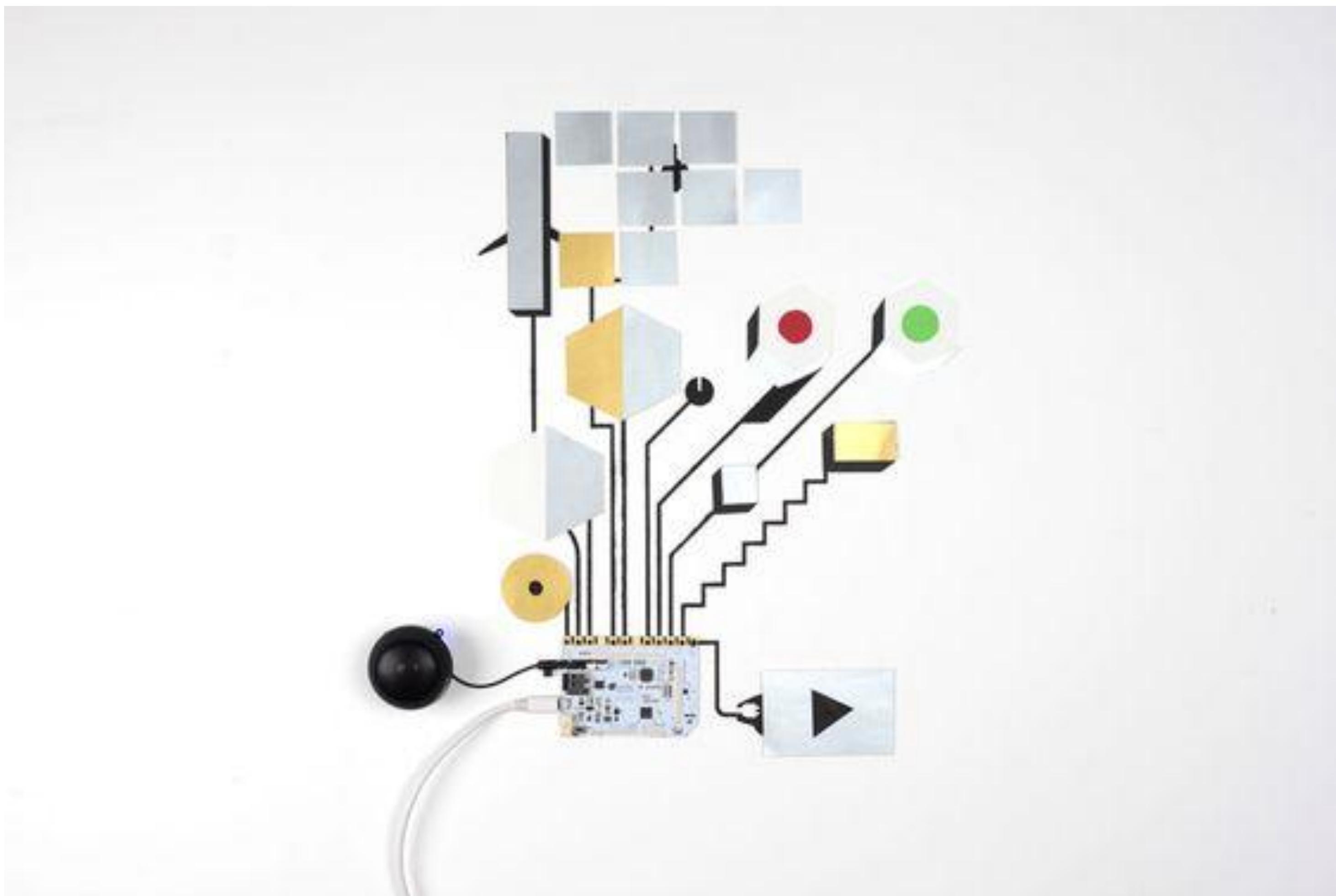




Laura Dempsey



Becky Stern



Bare Conductive



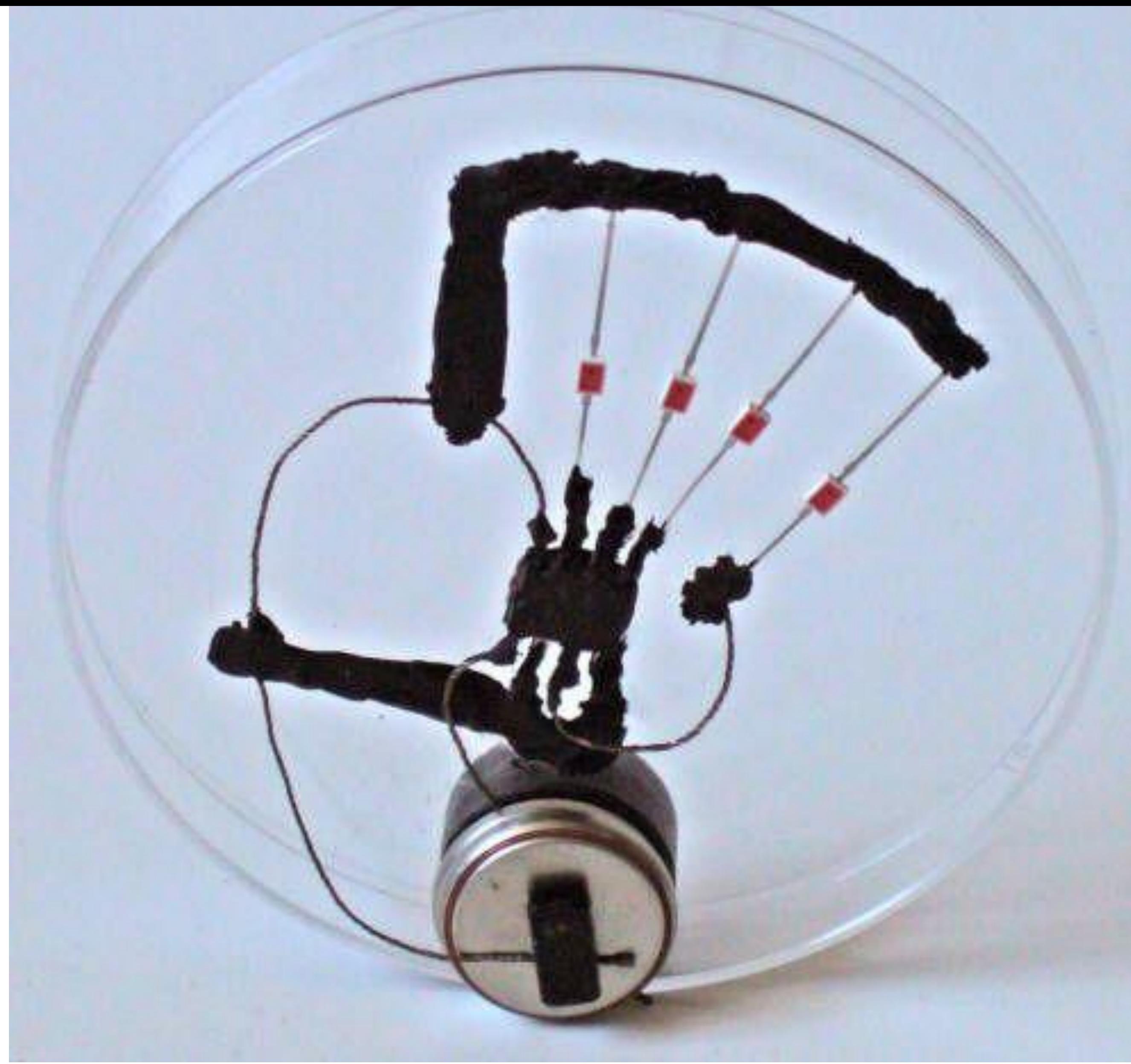
Bare Conductive



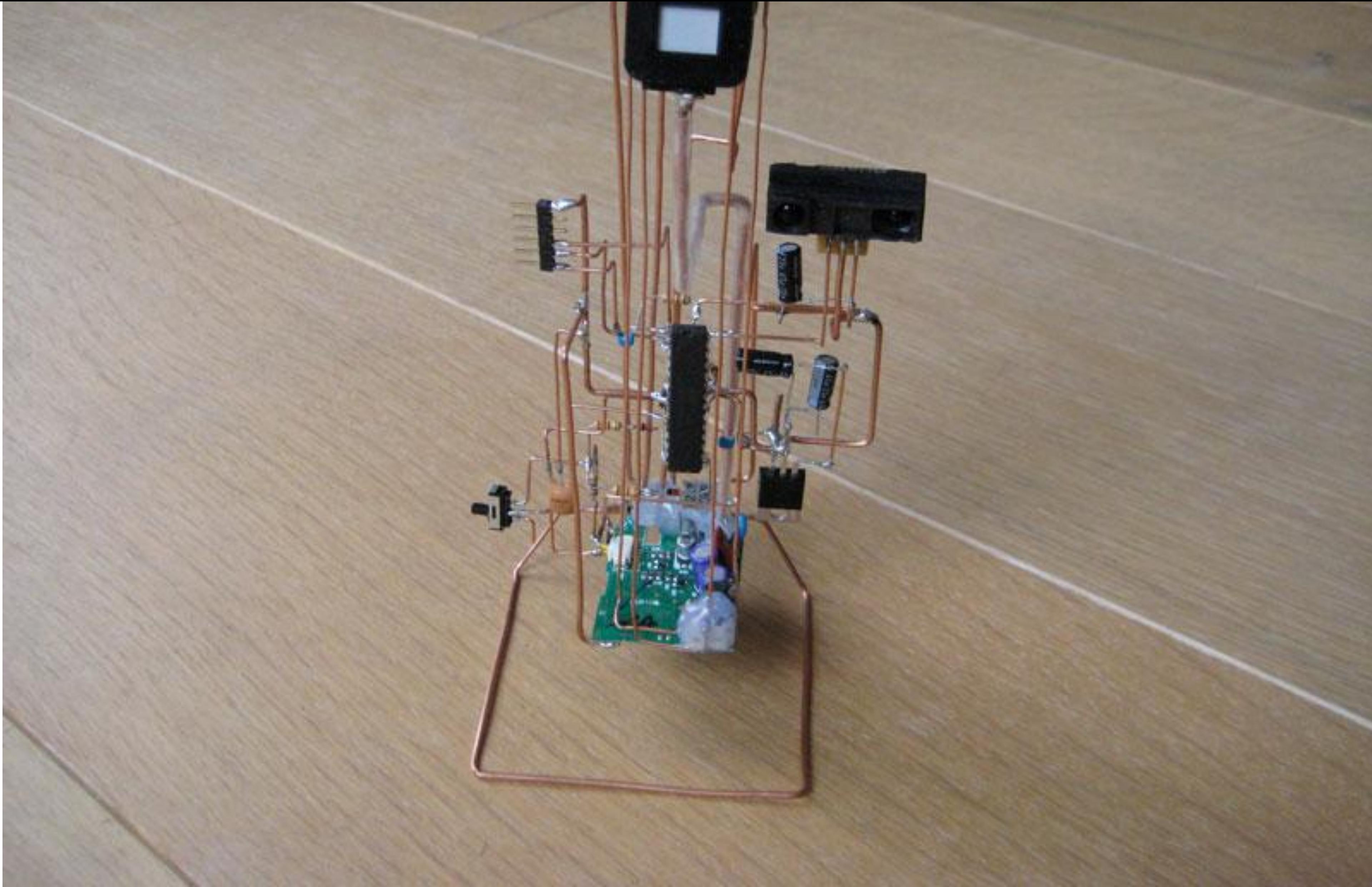
Bare Conductive



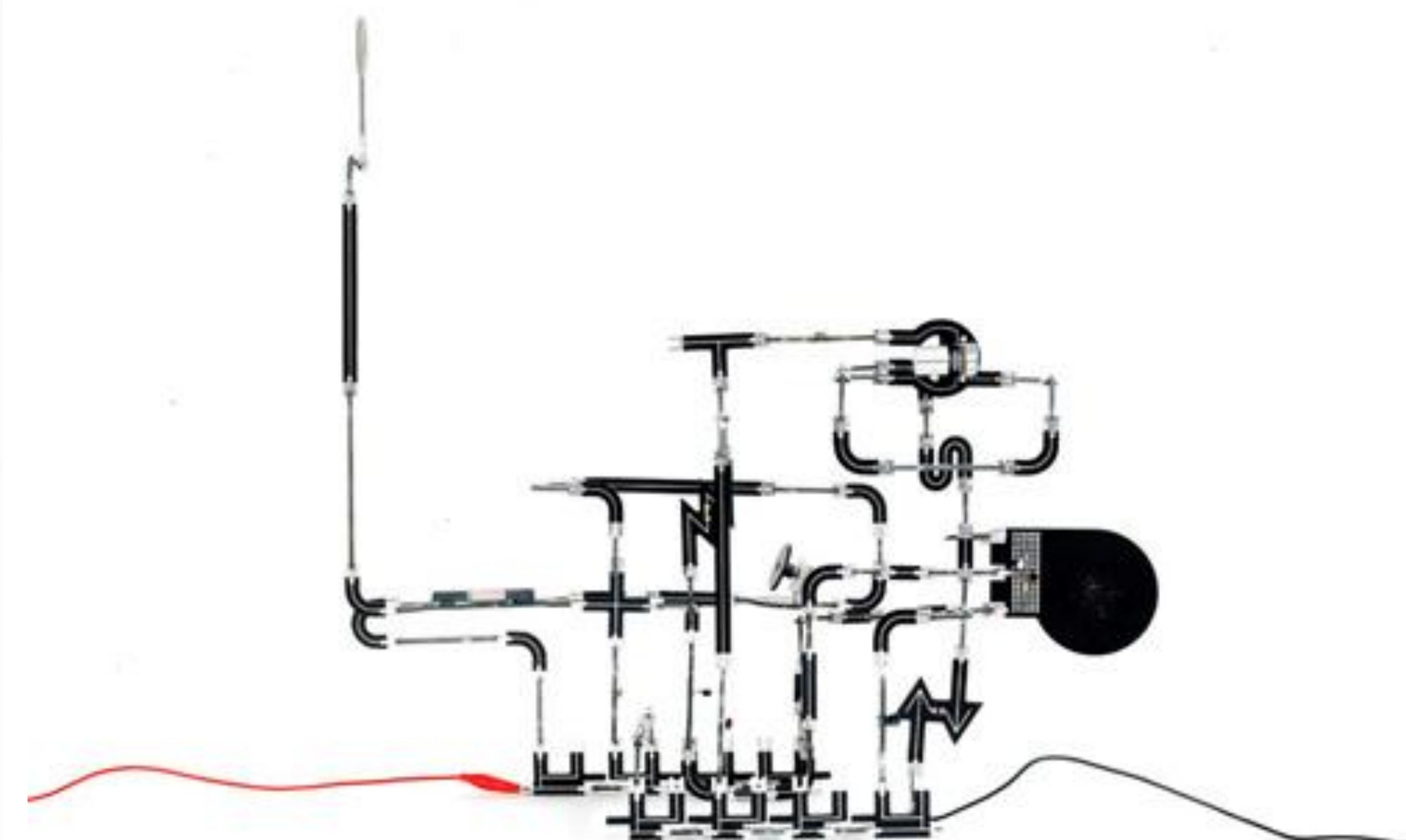
Izzie Colpitts-Campbell



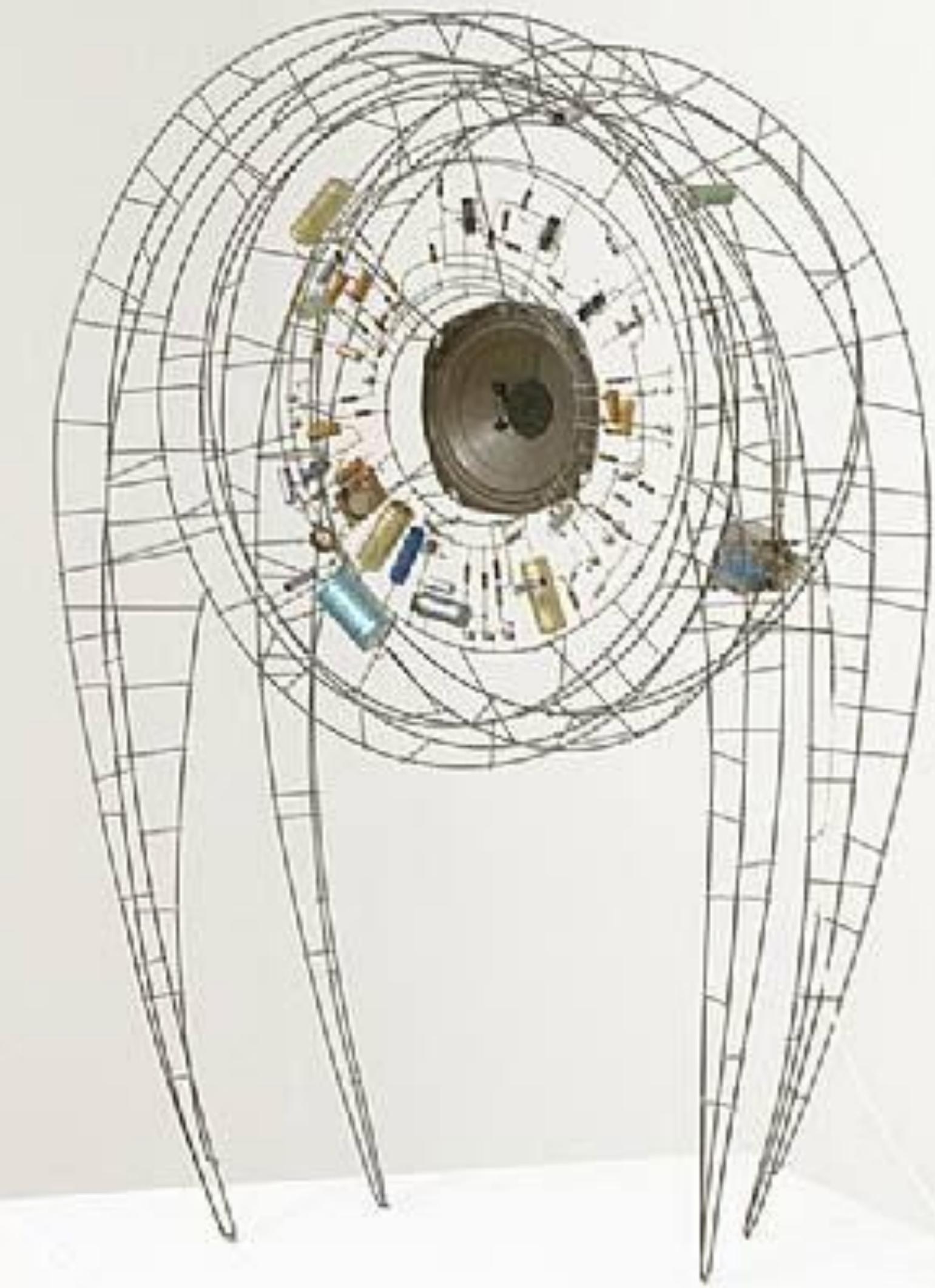
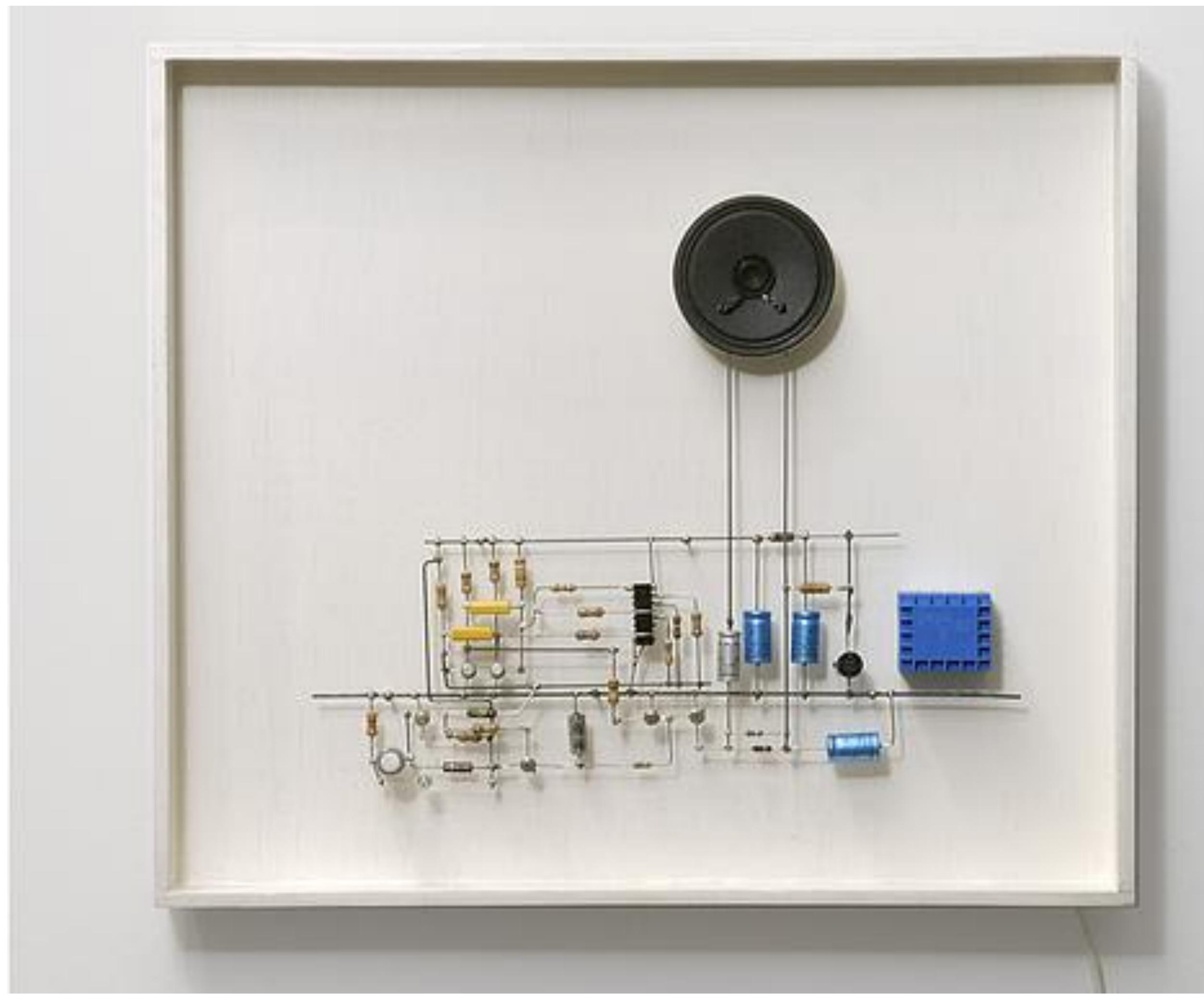
[howumakeit.ru](http://howumakeit.ru)



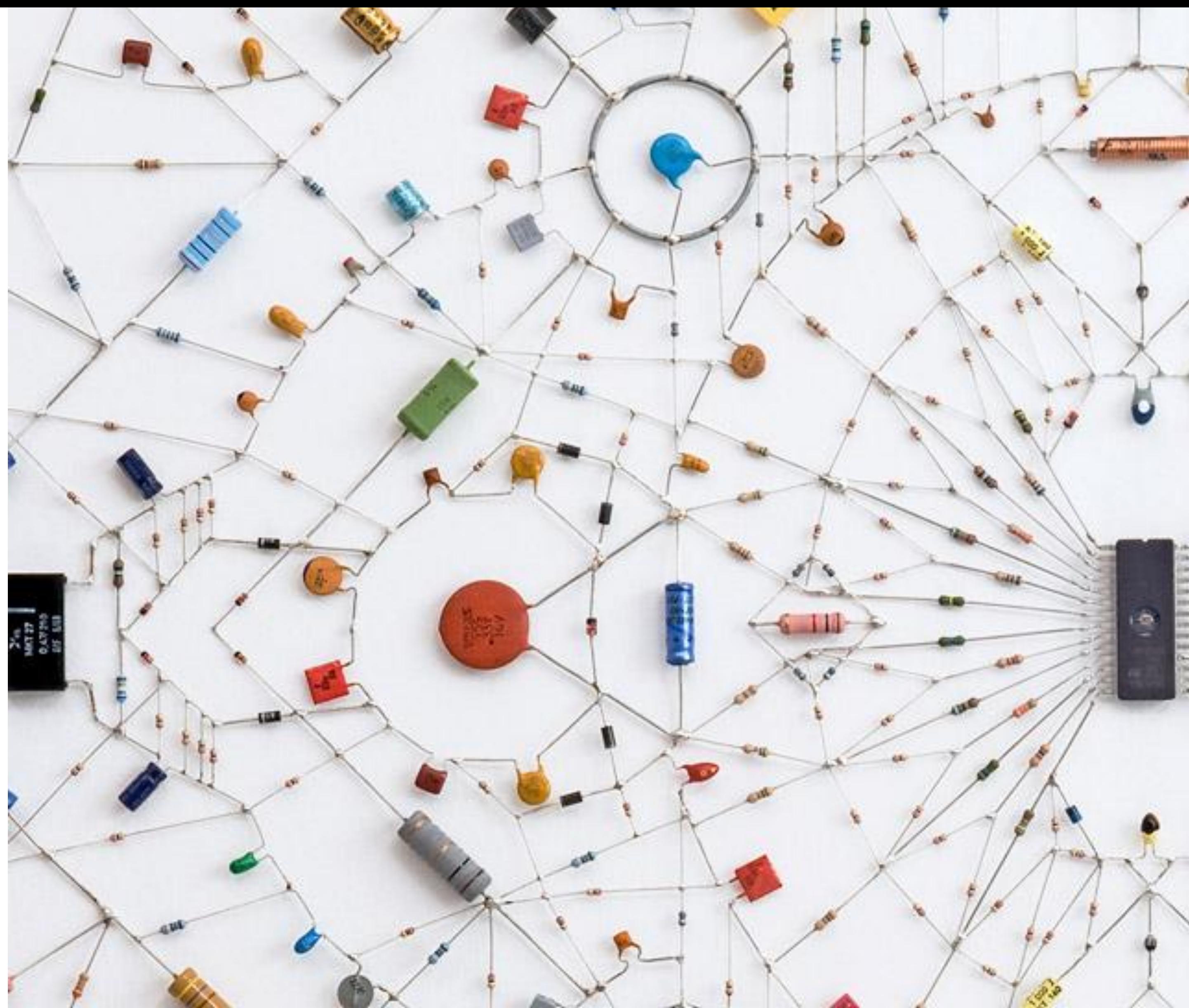
Karl Klomp



# Yuri Suzuki



Peter Vogel



Leonardo Ulian

# Homework:

Start thinking about your beautiful circuit.  
Find conductive materials and experiment.