

MIT ILLUMINATIONS SEMINAR

Nov 8, 2022

Today

Recap

* If you didn't get your name tag last time, come see us at the end of class

Quick Warm-up

Interactivity in your Lighting Scenes

- Photoresistors & Potentiometers
- APIs

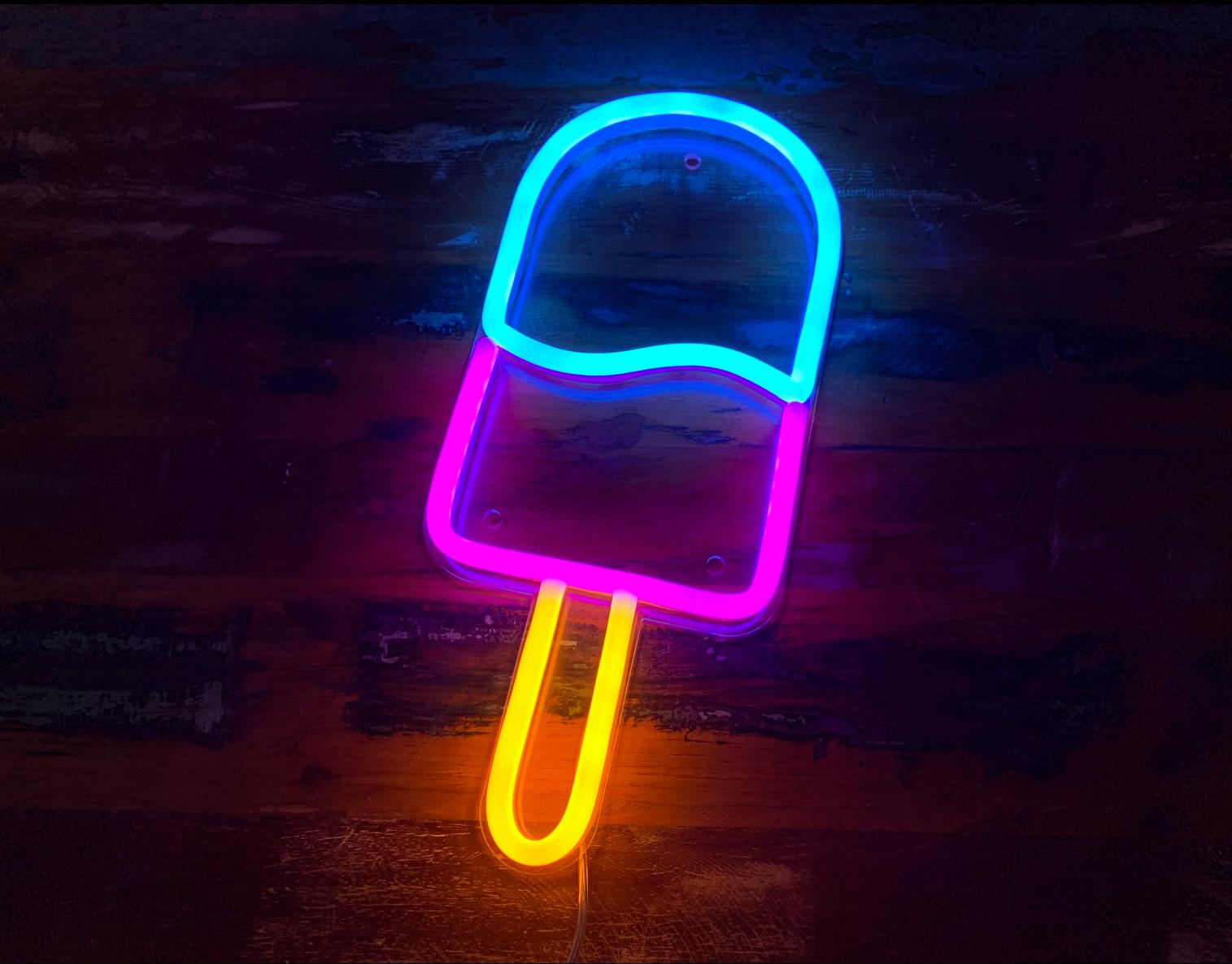
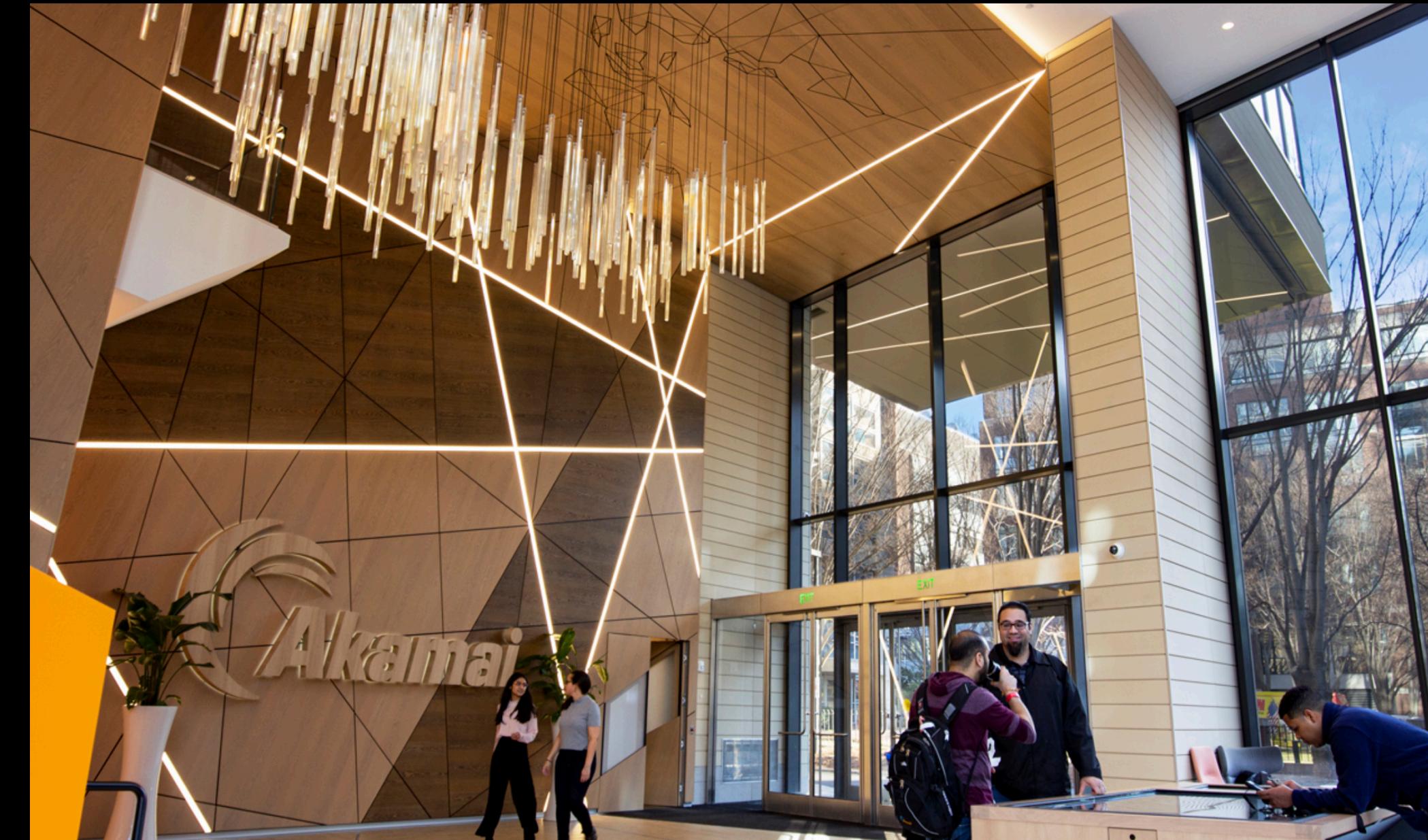
Last time...



Behaviors of Light

1. Reflection
2. Refraction
3. Diffusion
4. Absorption





Warm up

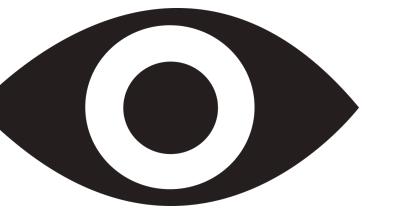
work in groups of 1-3

1. List as many ideas as possible for what you could use to diffuse an LED strip. Name any of the things we talked about last time, as well as any other random things you can think of! ... a bucket of styrofoam peanuts, shower curtain etc.
2. Thinking back to lighting principles, let's design a home theatre specifically for watching movies during the daytime (so, there will be some light leaking into the room). If the theatre is projector-based, what color should the **projection screen** be? White, Gray, or Black? And Why?

What color projection screen?

Let's consider the range. What happens when a projector projects a white screen? What happens when a projector projects a black screen?

White



Black

White Wall



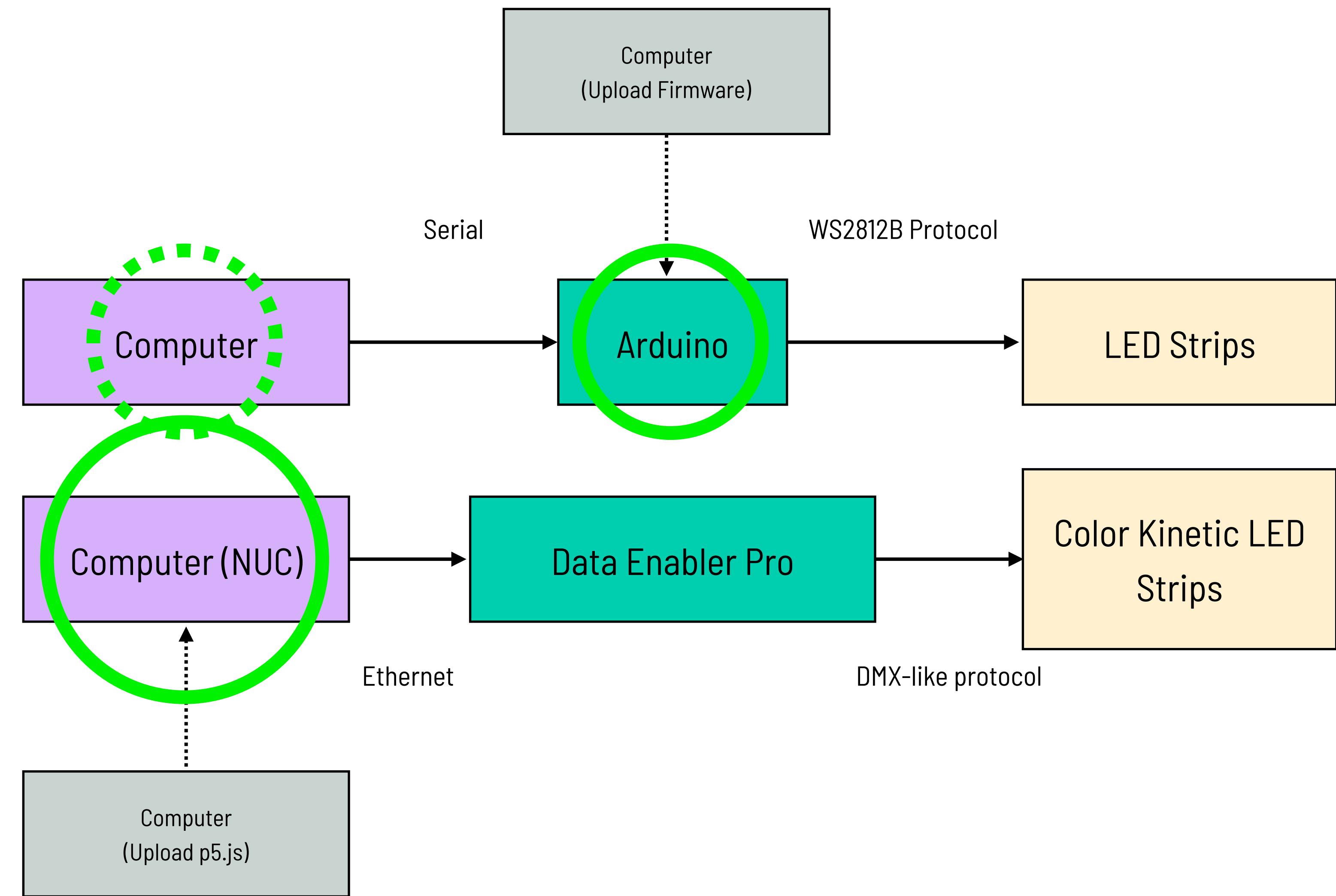
Gray Wall

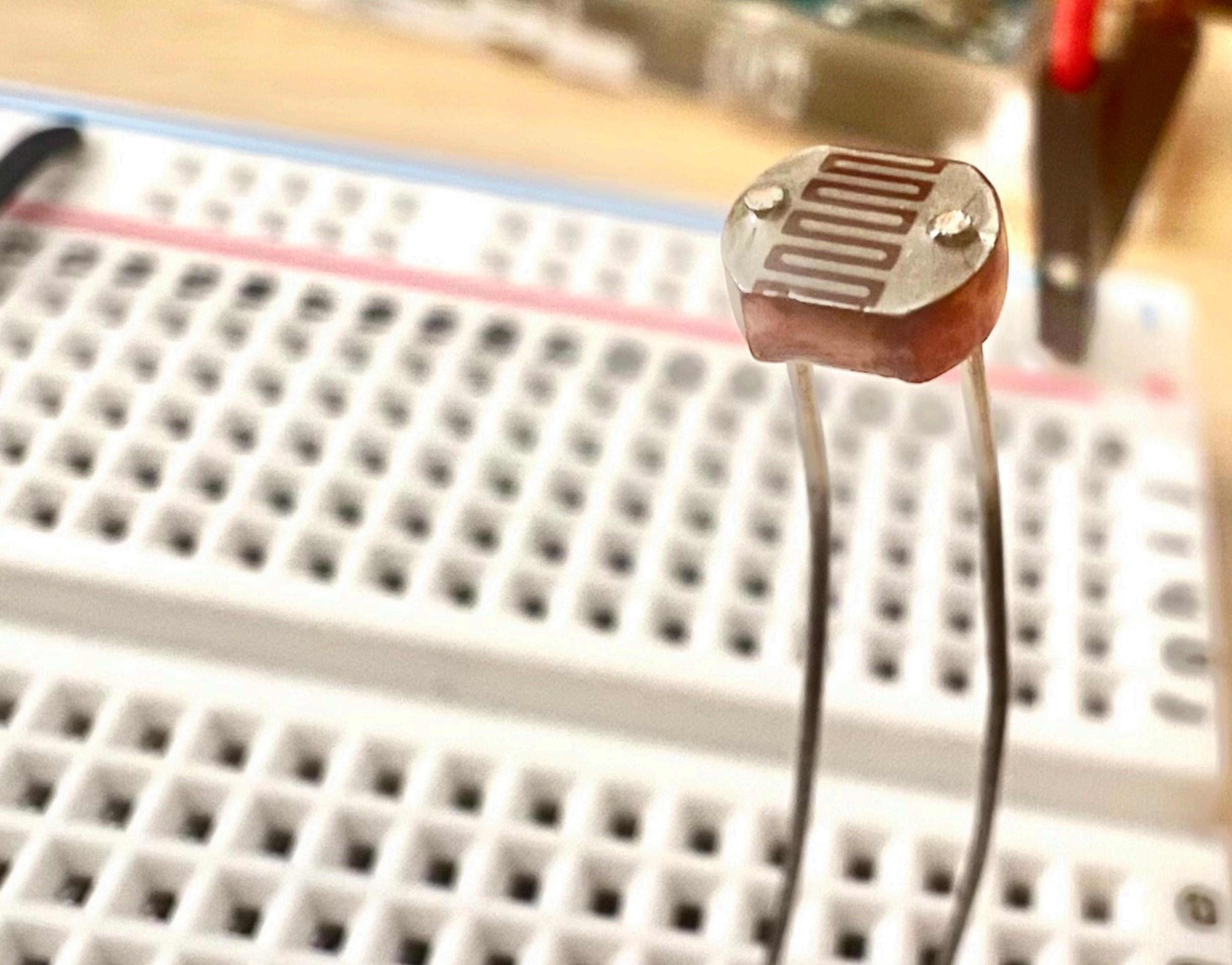


Black Wall



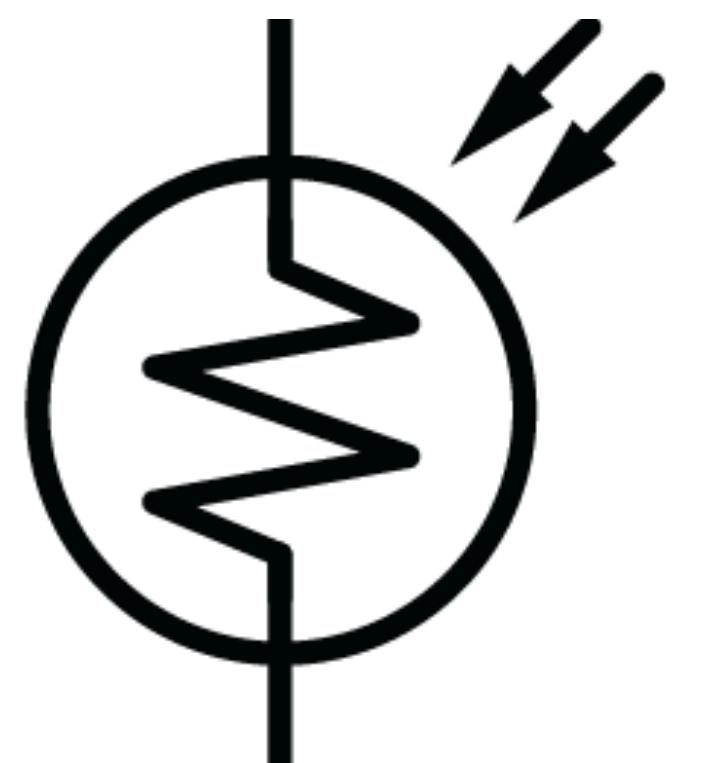
Where can we add interactivity?





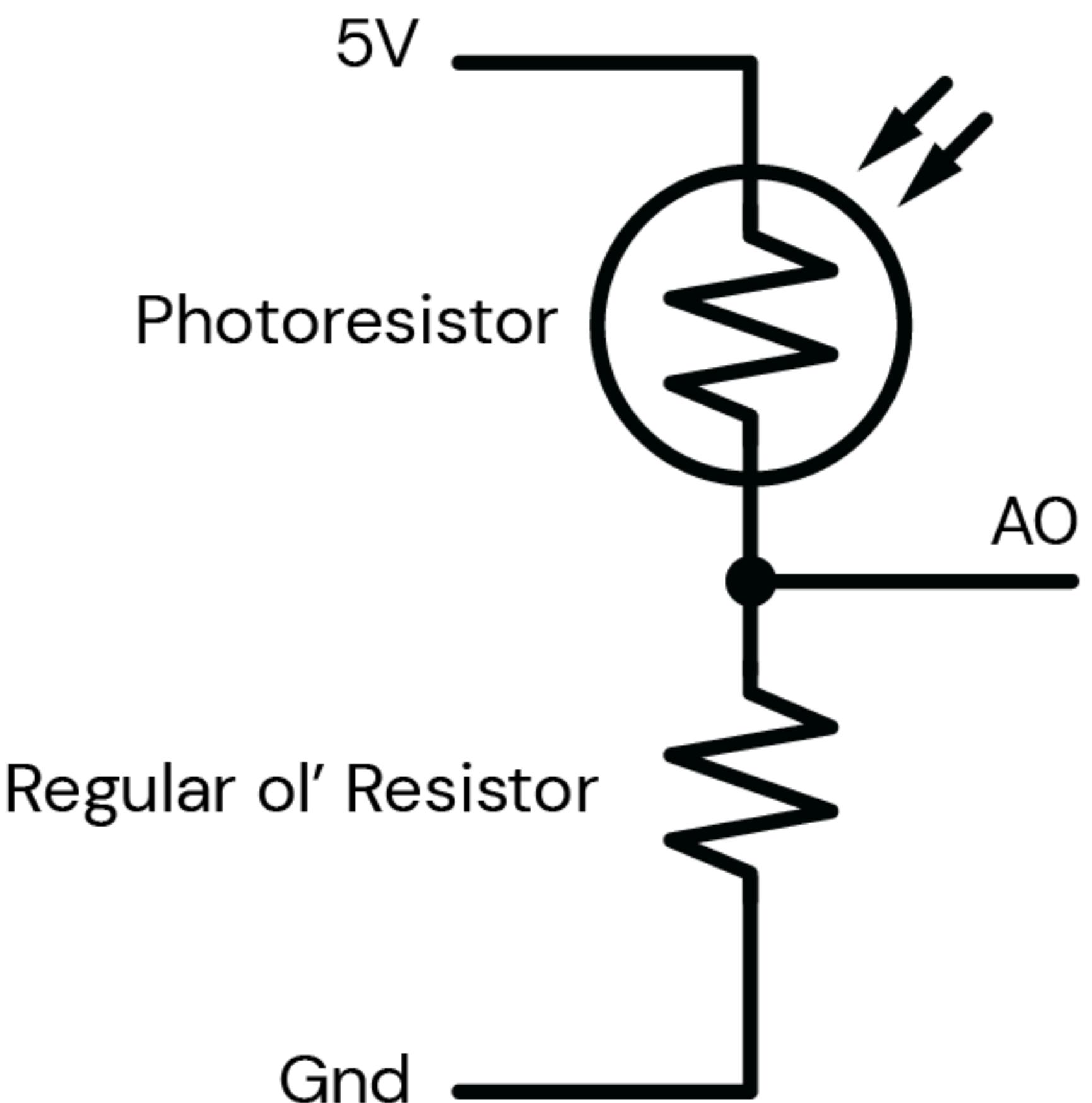
The Photoresistor

Photoresistors



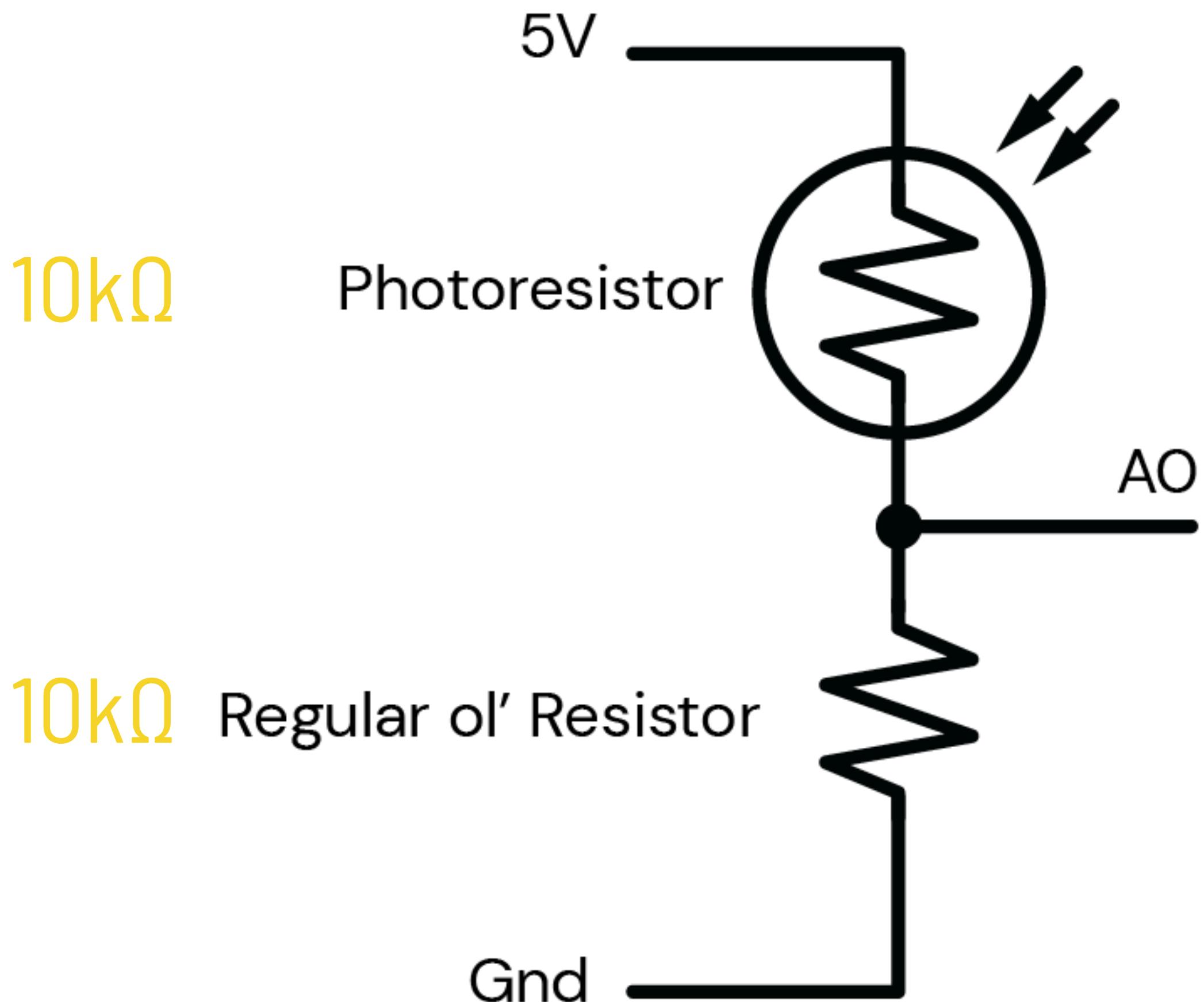
Bright - $10\text{k}\Omega$
Dark - $100\text{k}\Omega$

Photoresistors



Photoresistors

In **BRIGHT** conditions

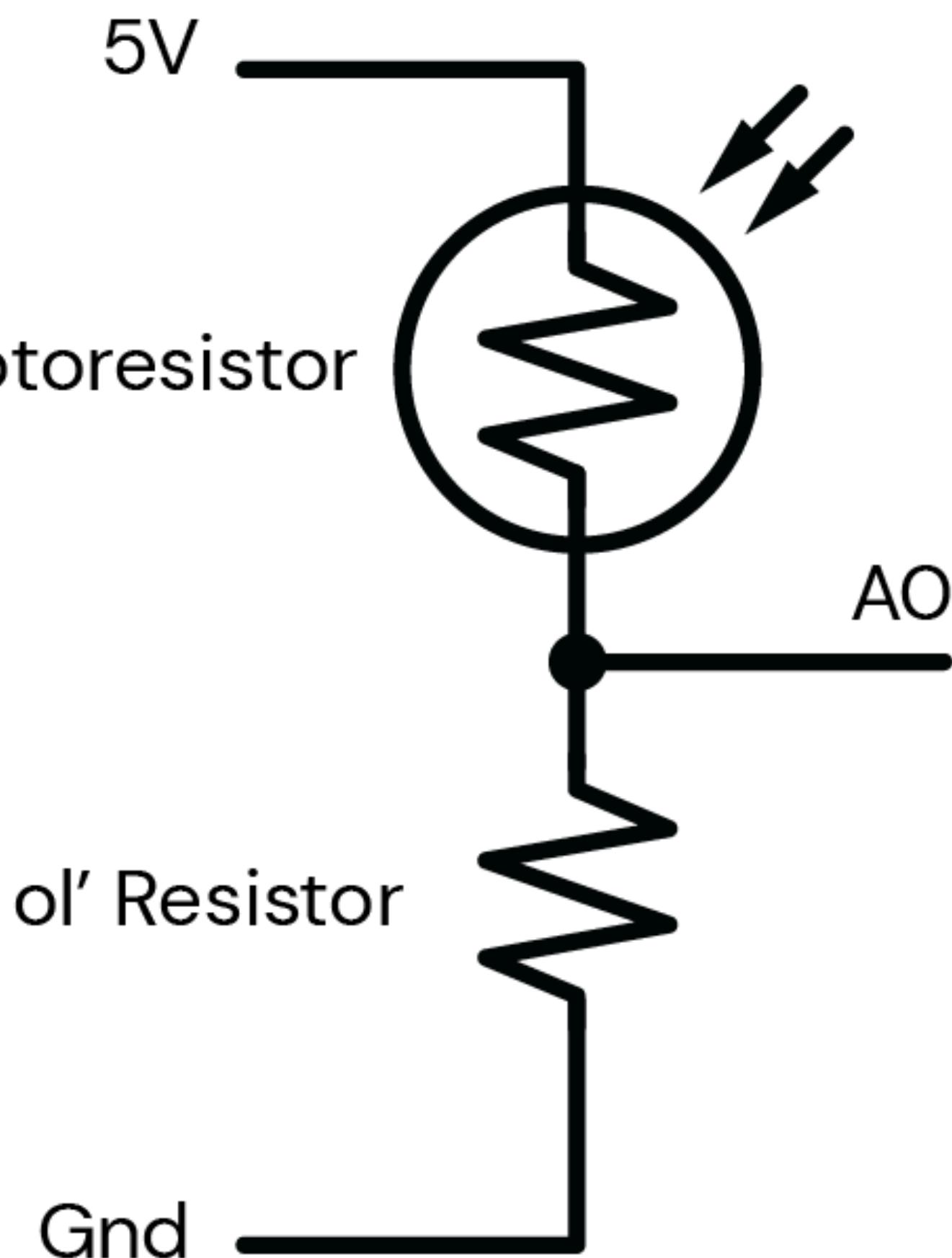


Photoresistors

In DARK conditions

$100\text{k}\Omega$

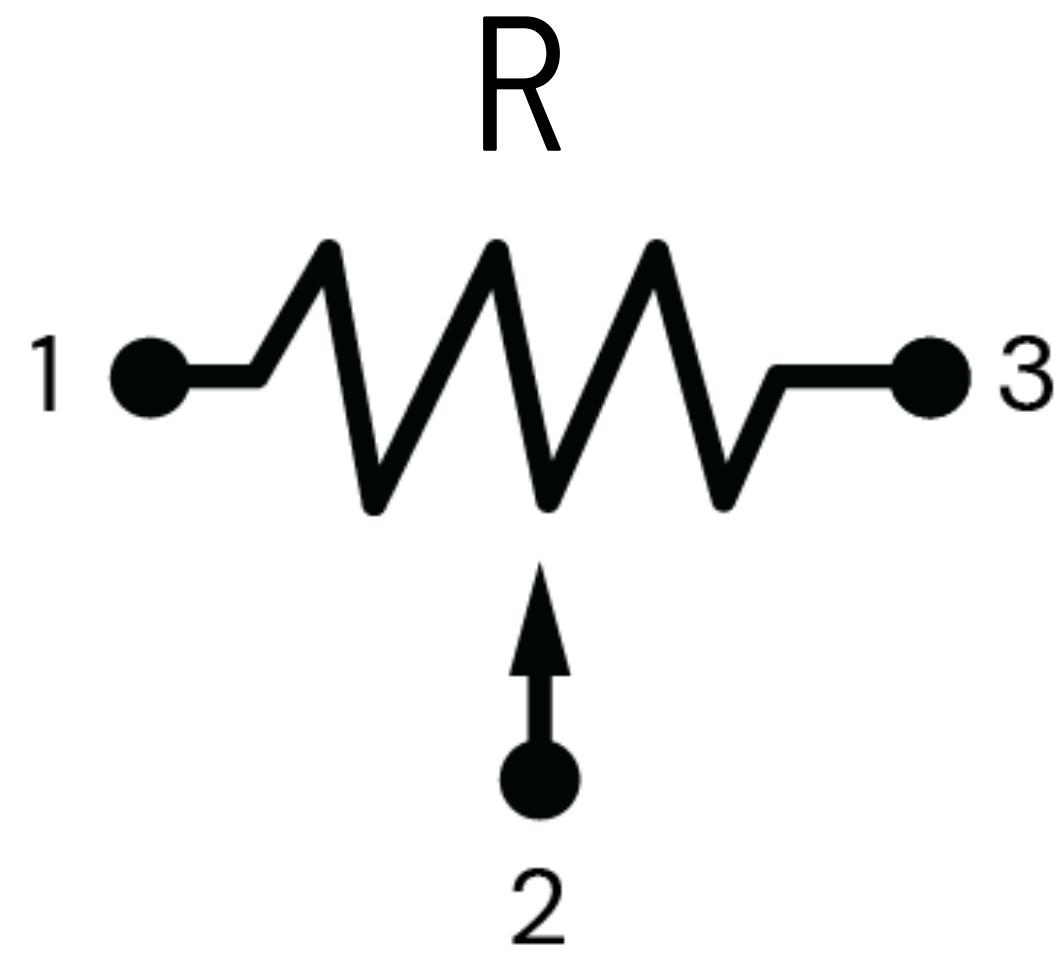
$10\text{k}\Omega$ Regular ol' Resistor



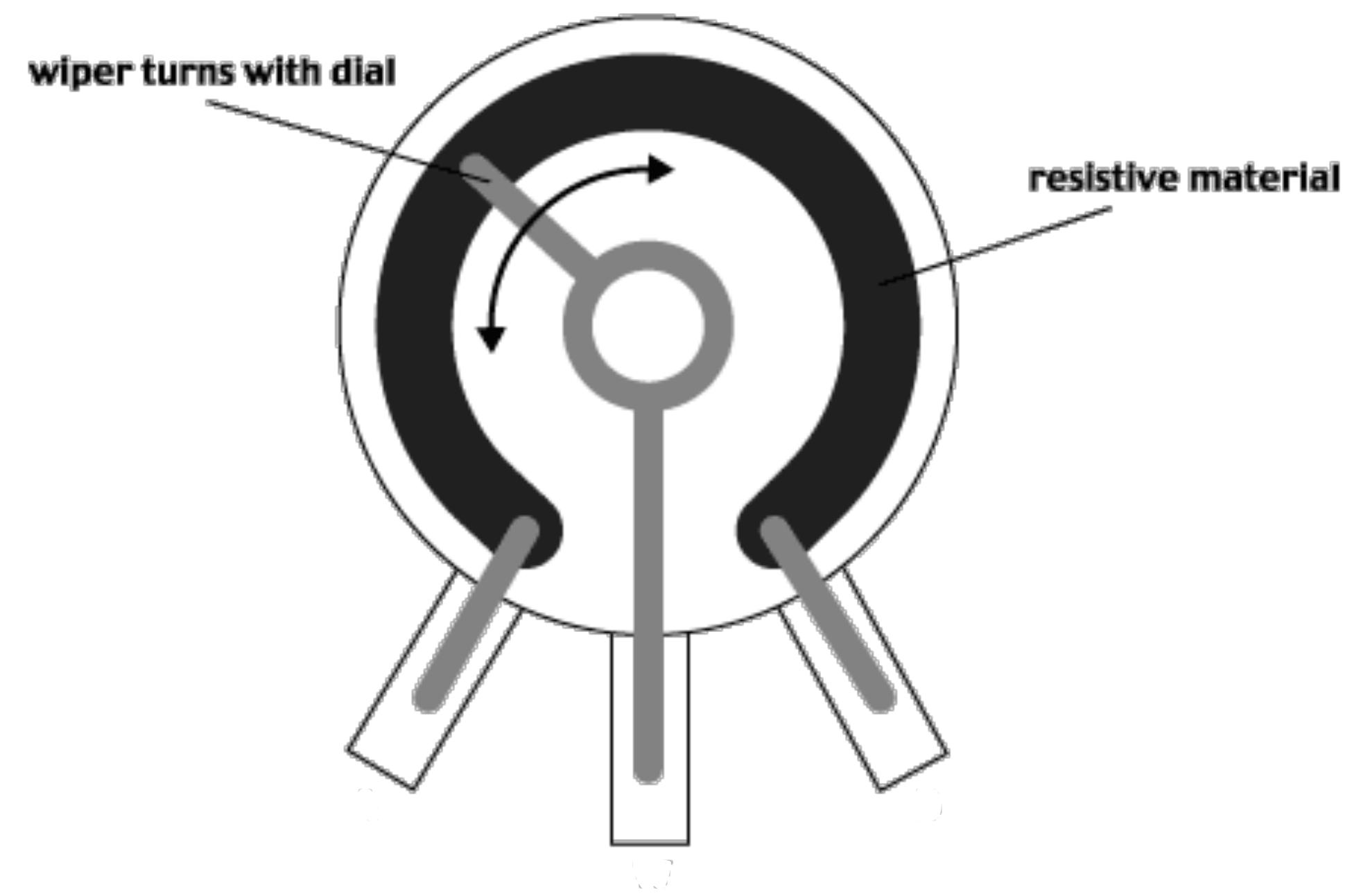
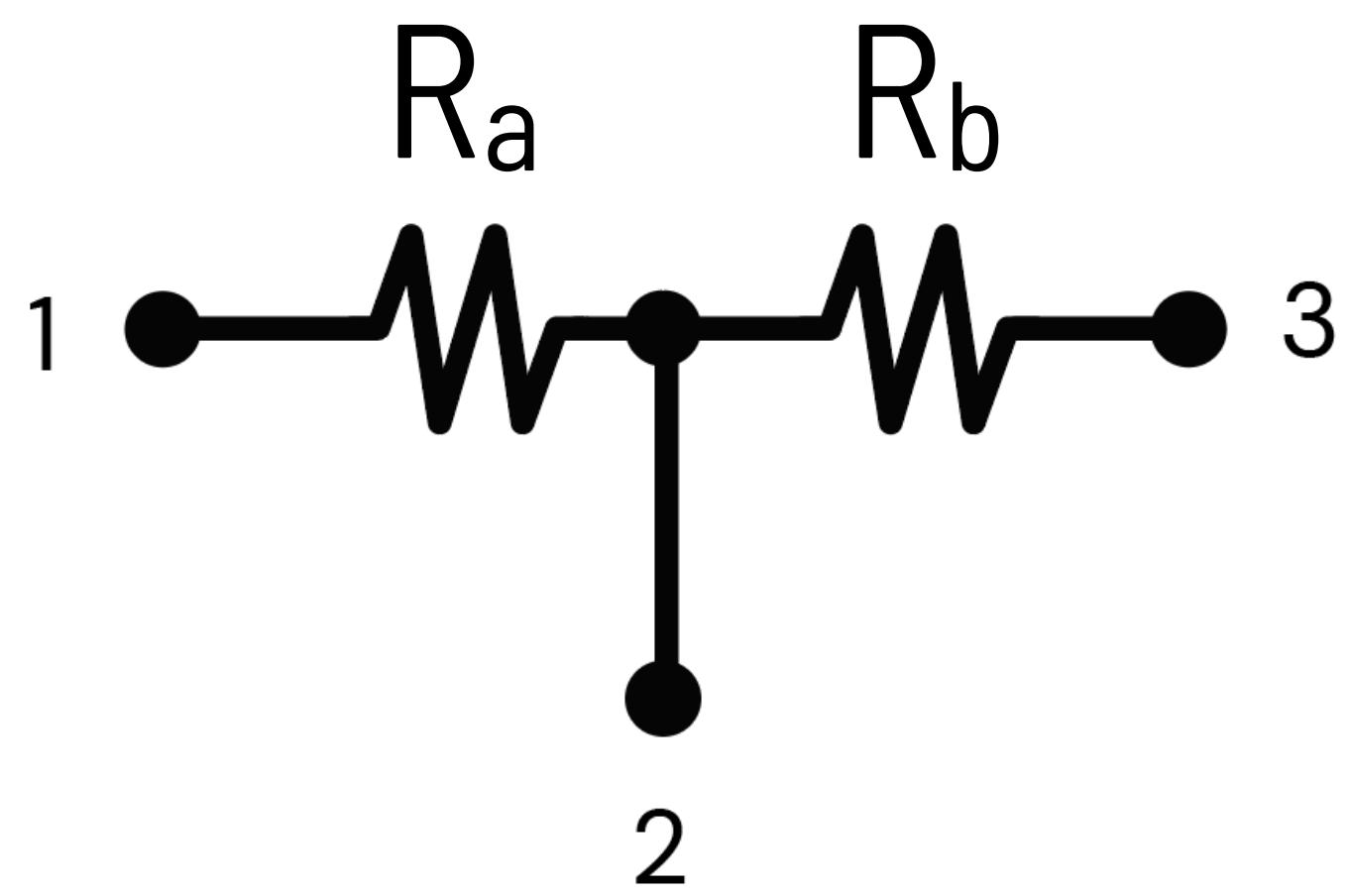


The
Potentiometer

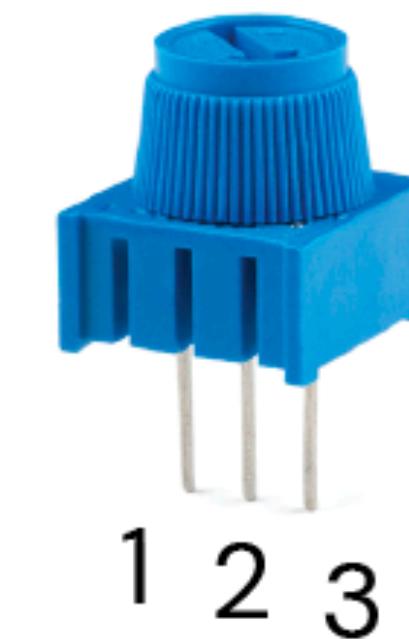
Potentiometer



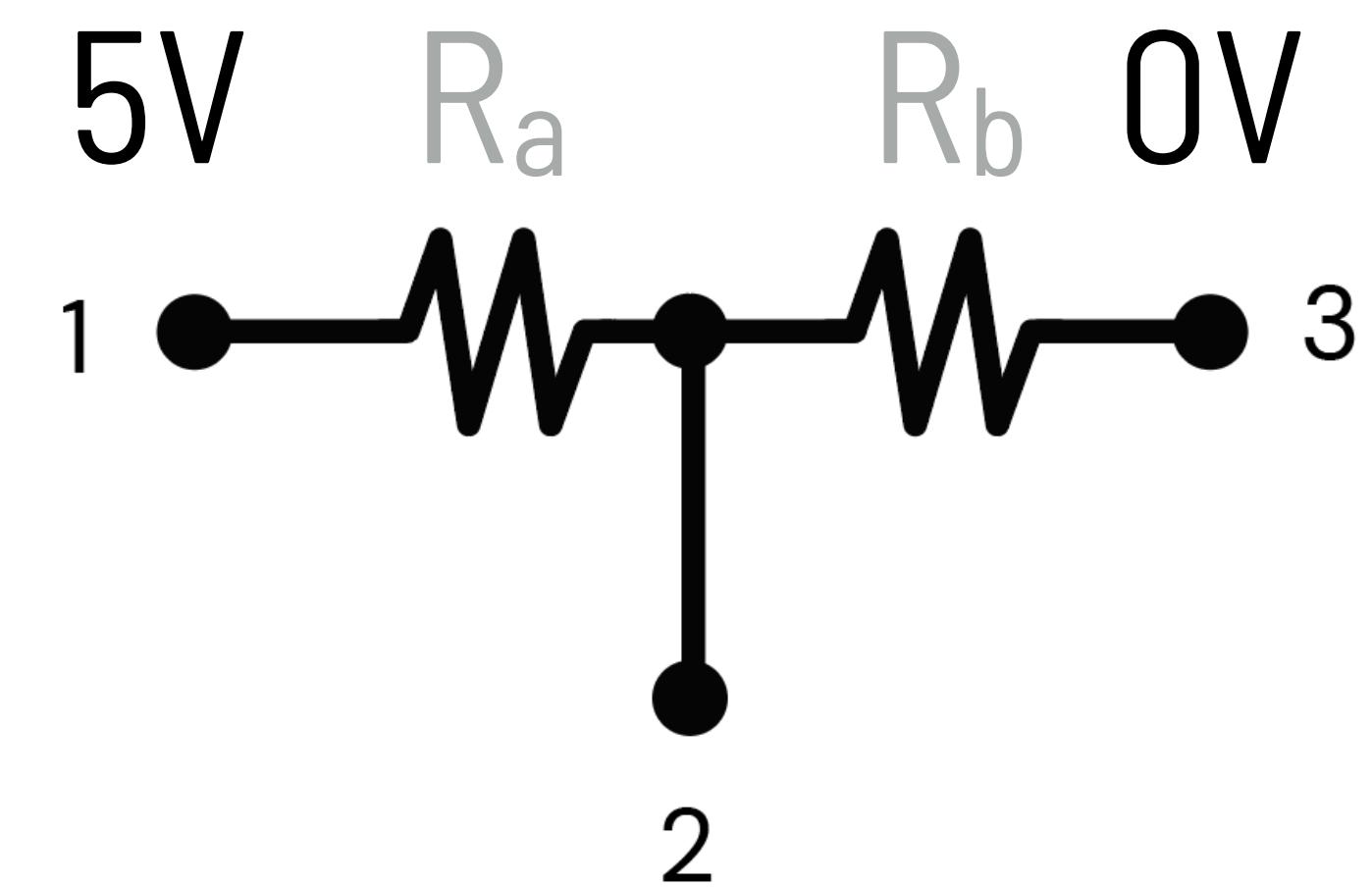
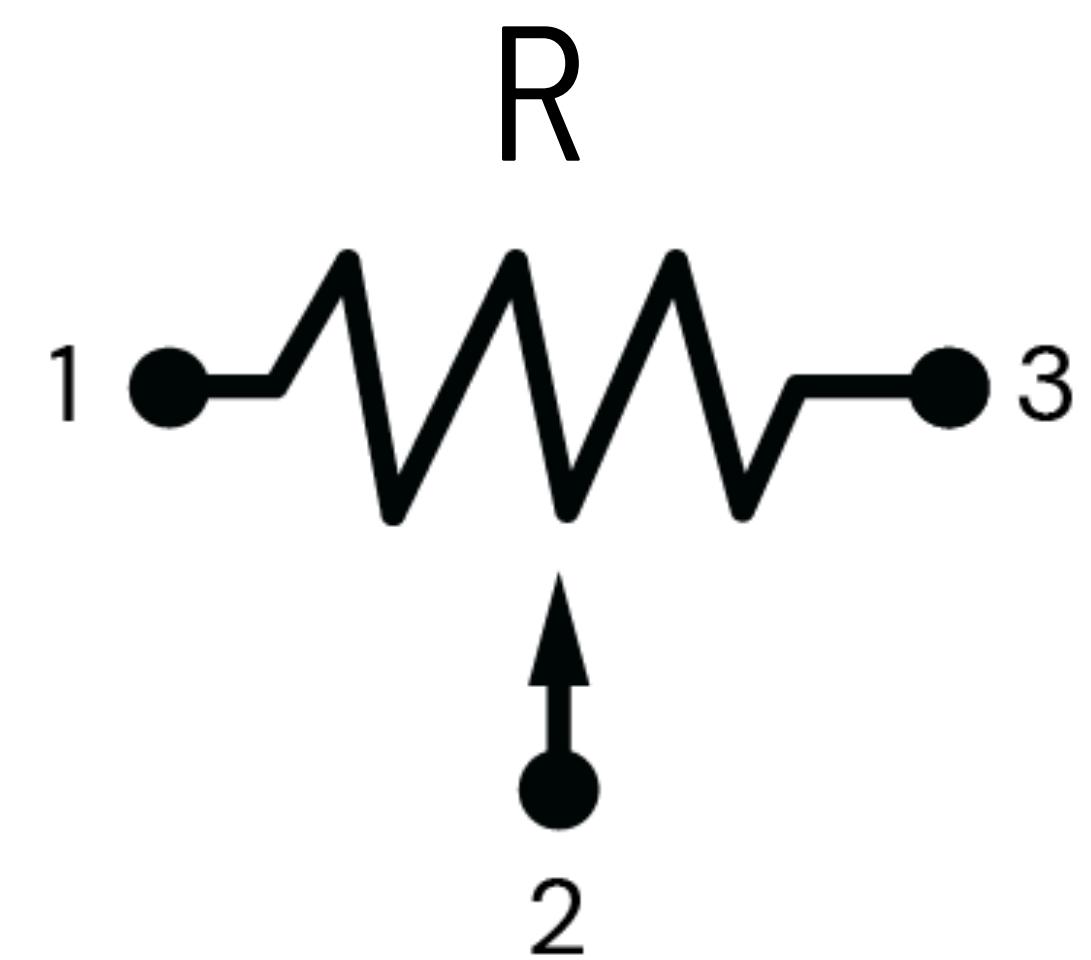
$$R_a + R_b = R$$



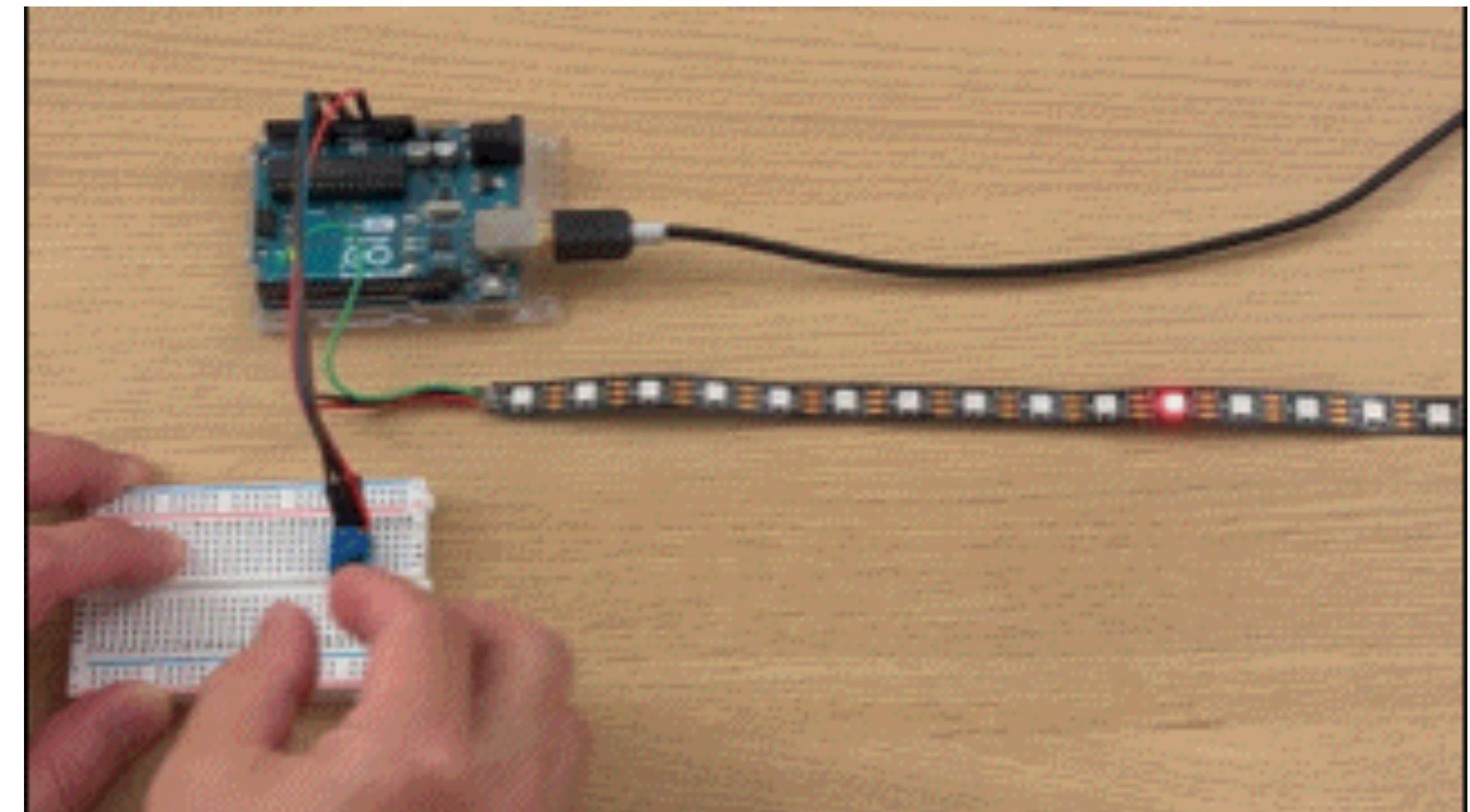
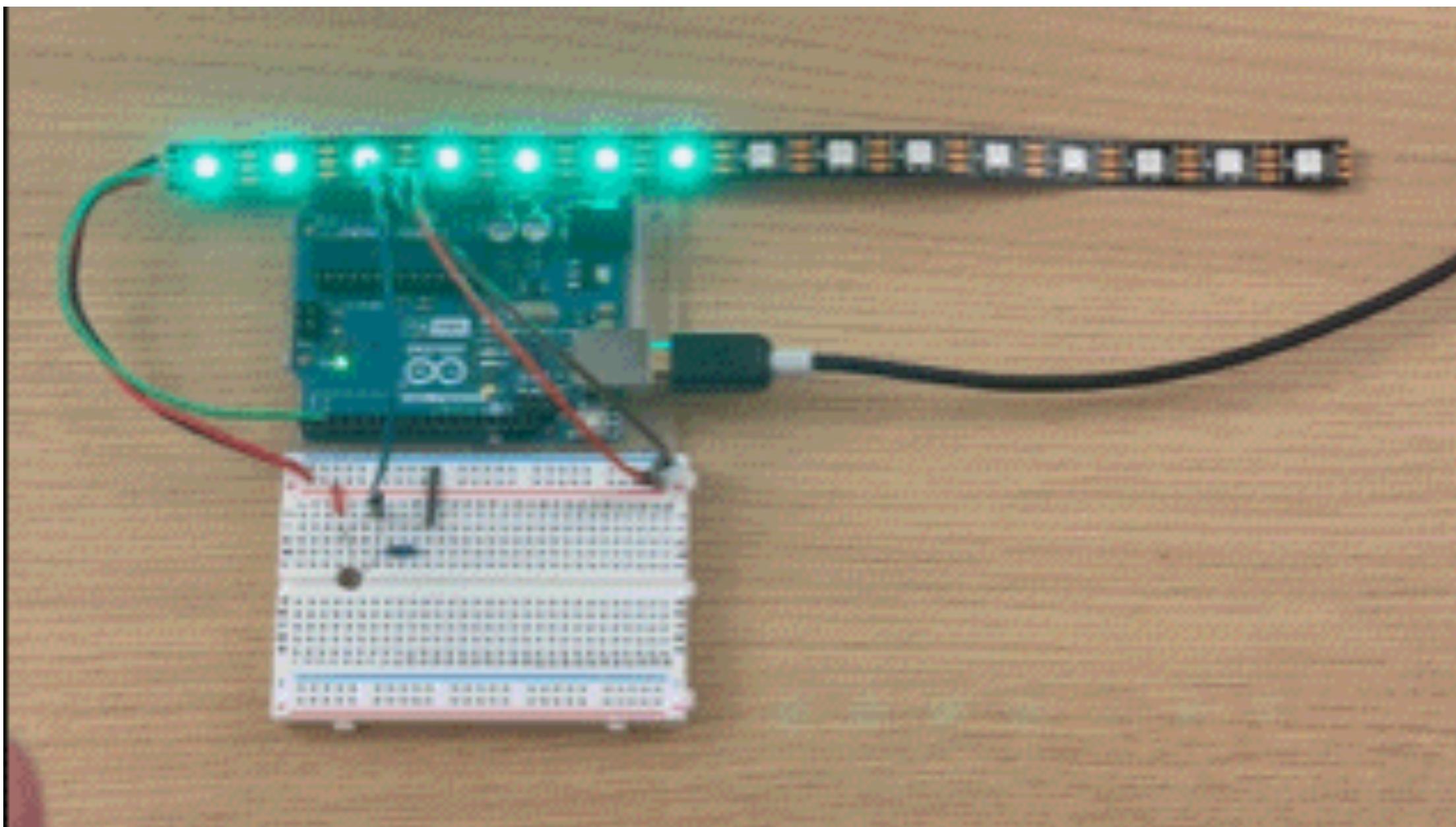
Potentiometer



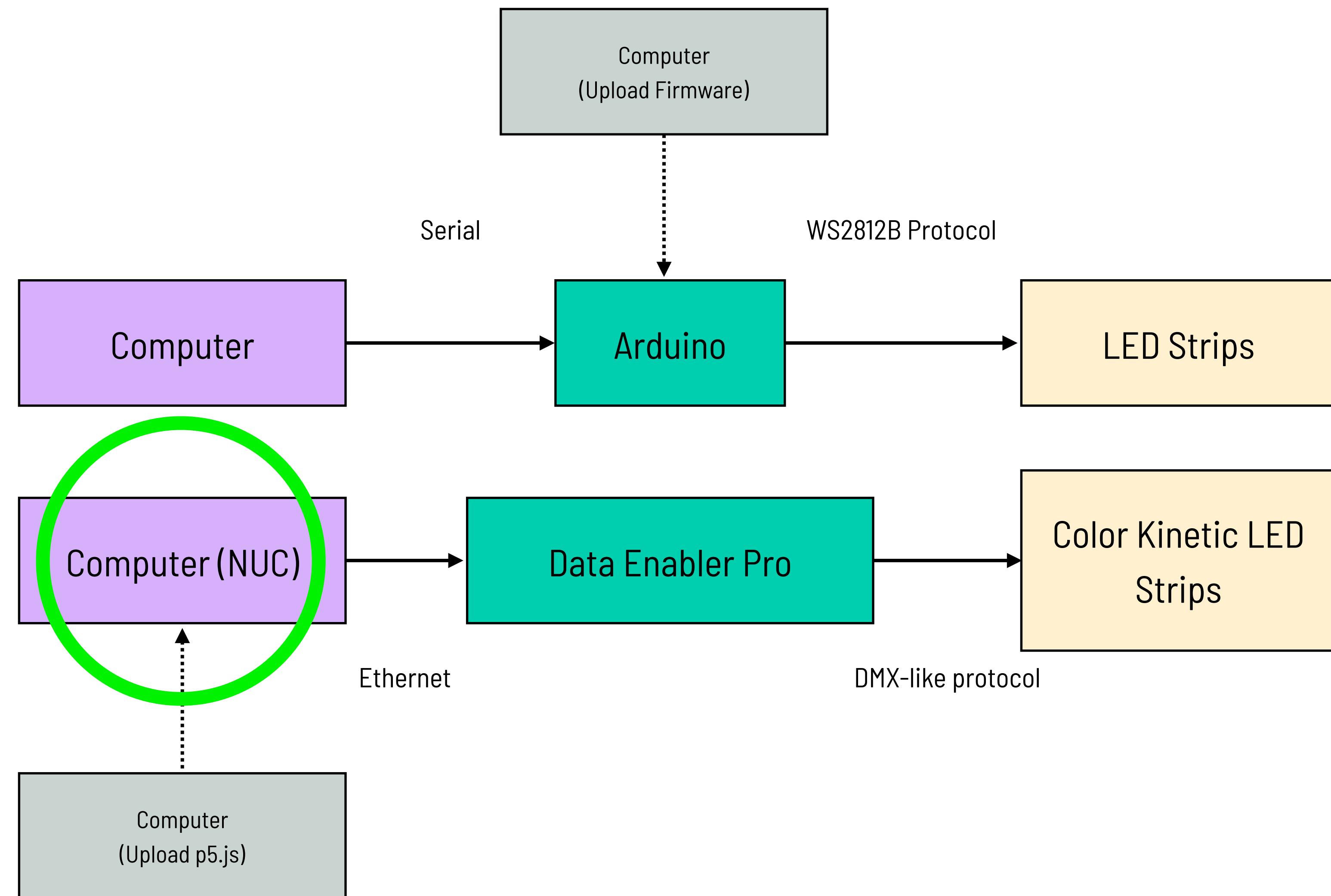
$$R_a + R_b = R$$



<https://bit.ly/i-week9>



APIs



MBTA Red Line API

<https://api-v3.mbta.com/>

It's your turn!

Pick an API (or, pick the MBTA API)

Explore & play around with it

I'll see you next time!