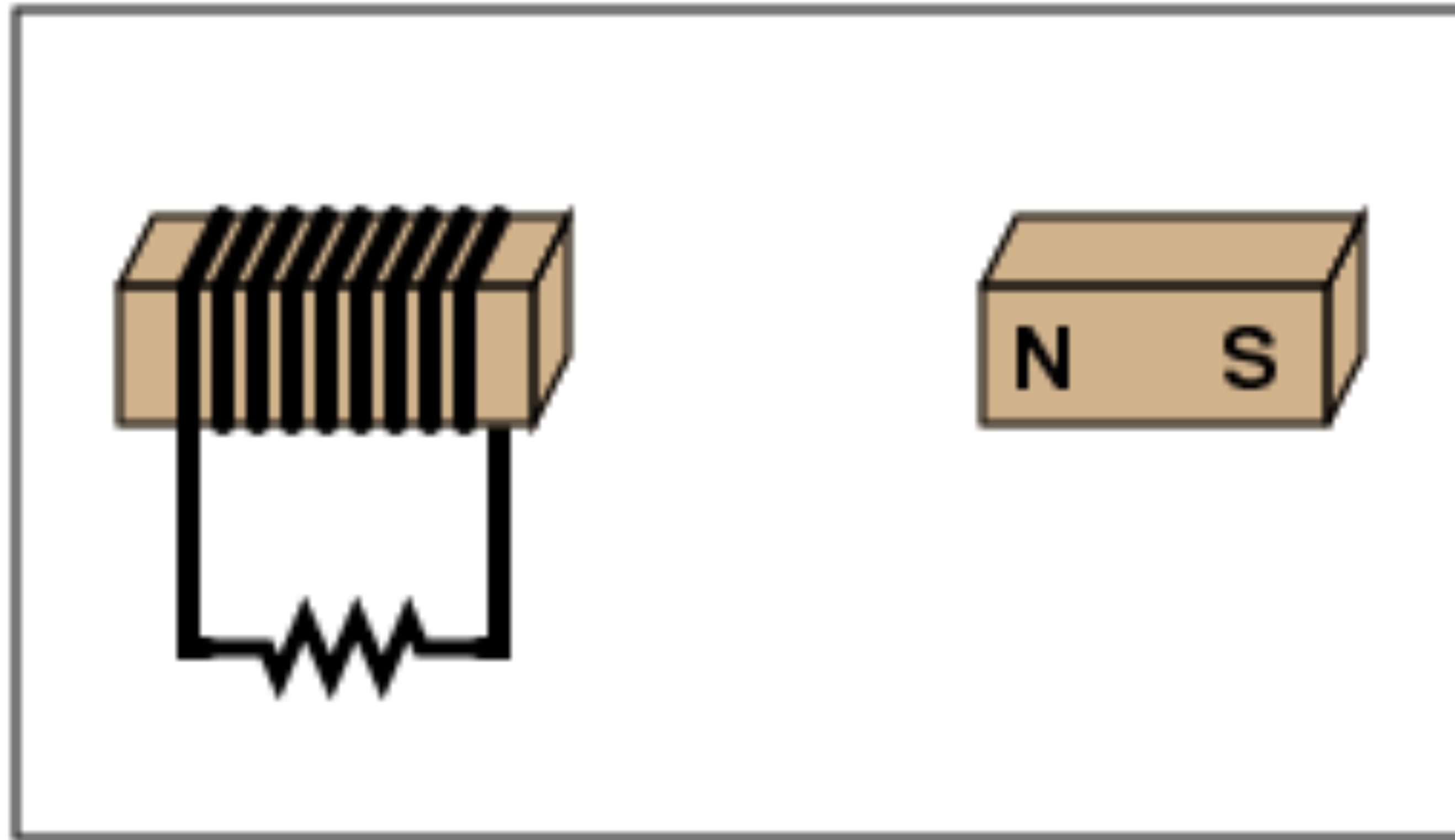




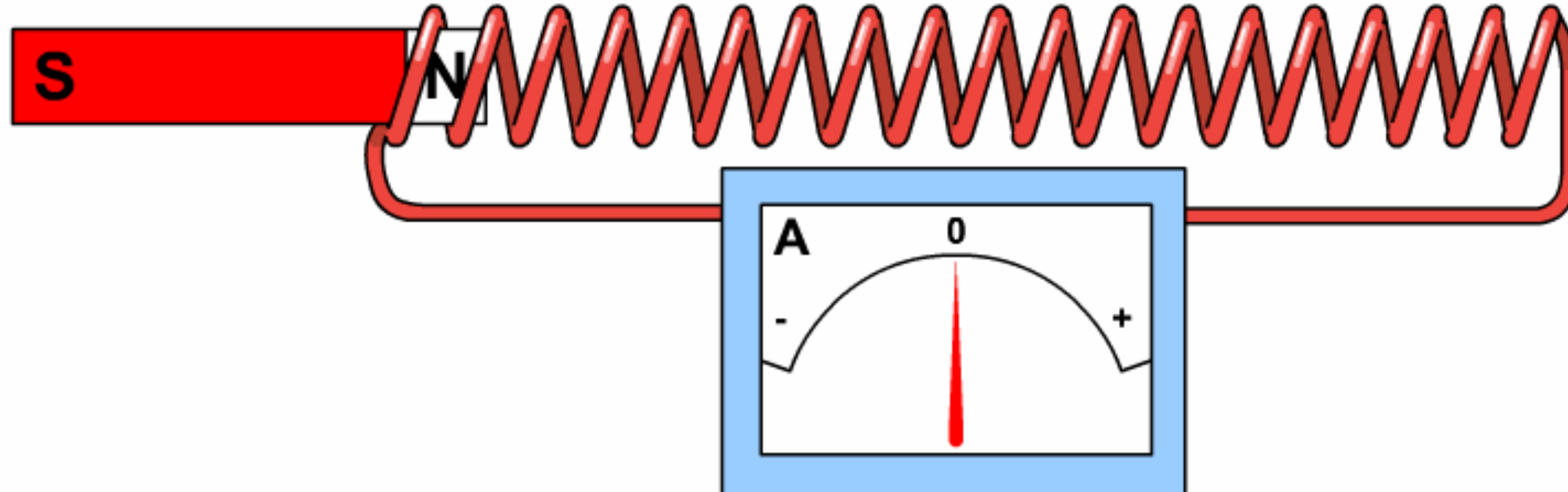
# Electromagnetism



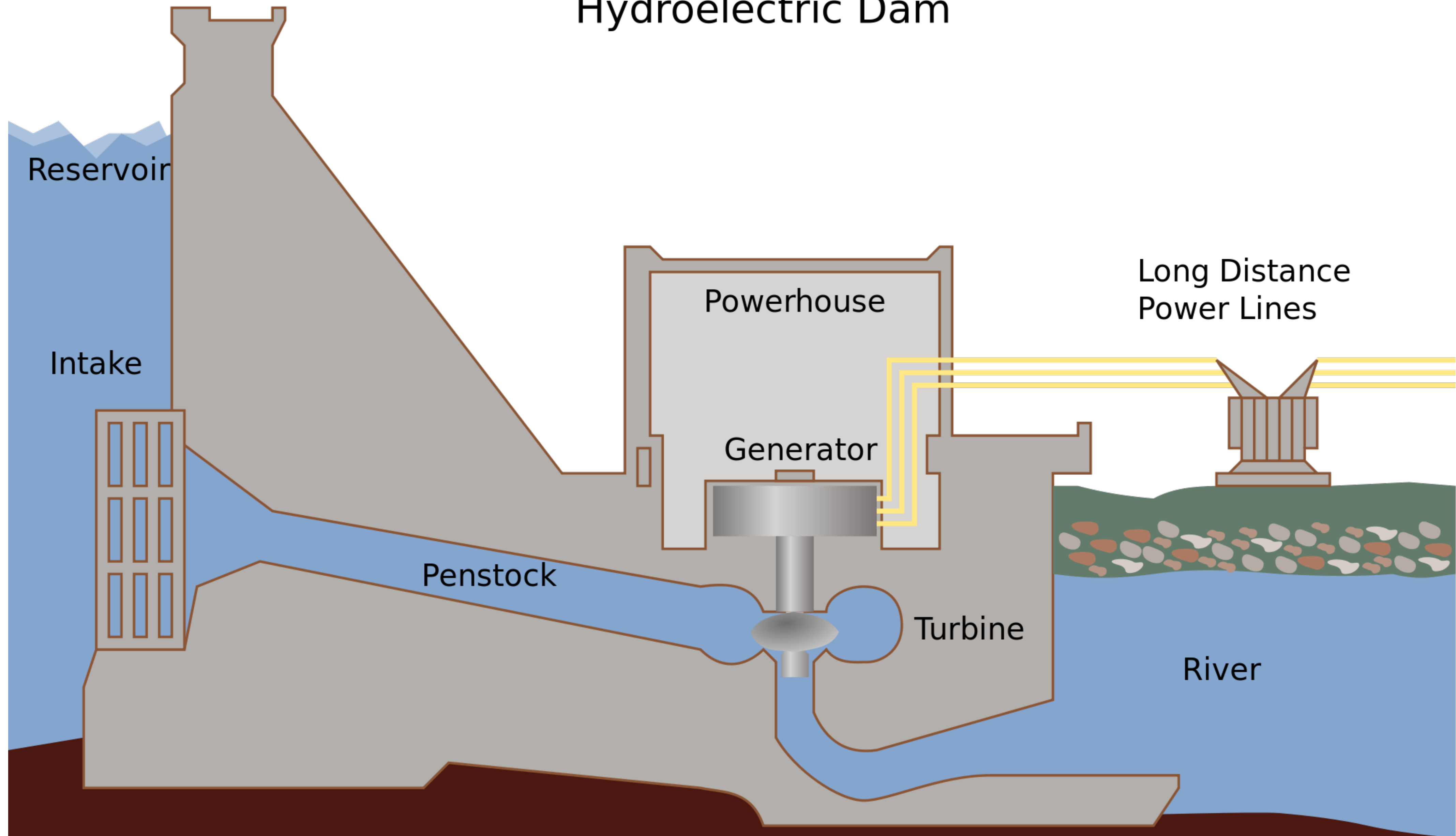
Induction: induce a magnetic field by sending current through wire



Induction: also create electricity by moving a magnet through a coil of wire



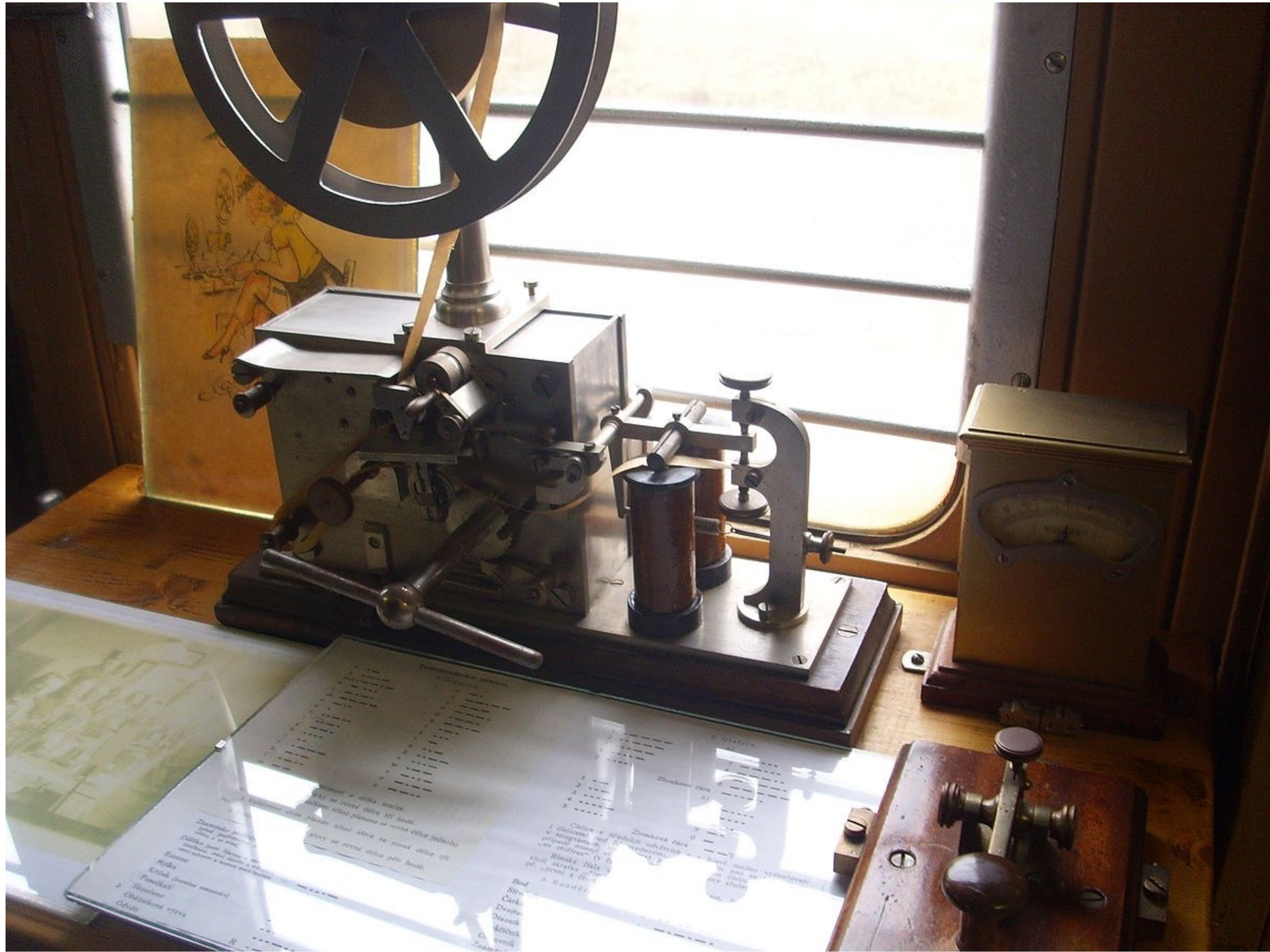
# Hydroelectric Dam



Motors

Inspiration: <https://vimeo.com/7235817>

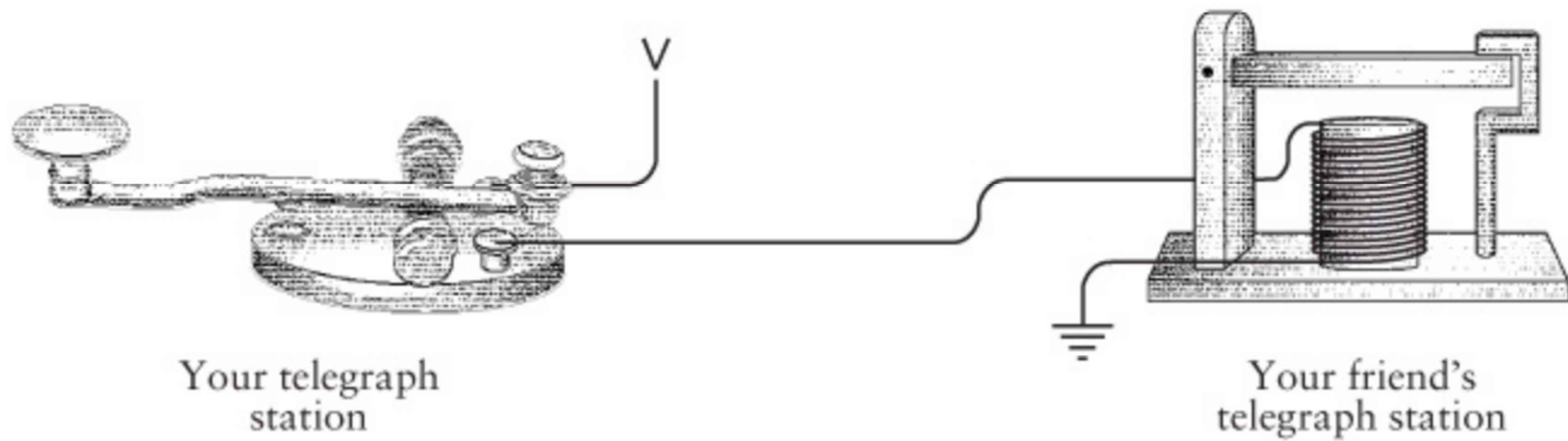


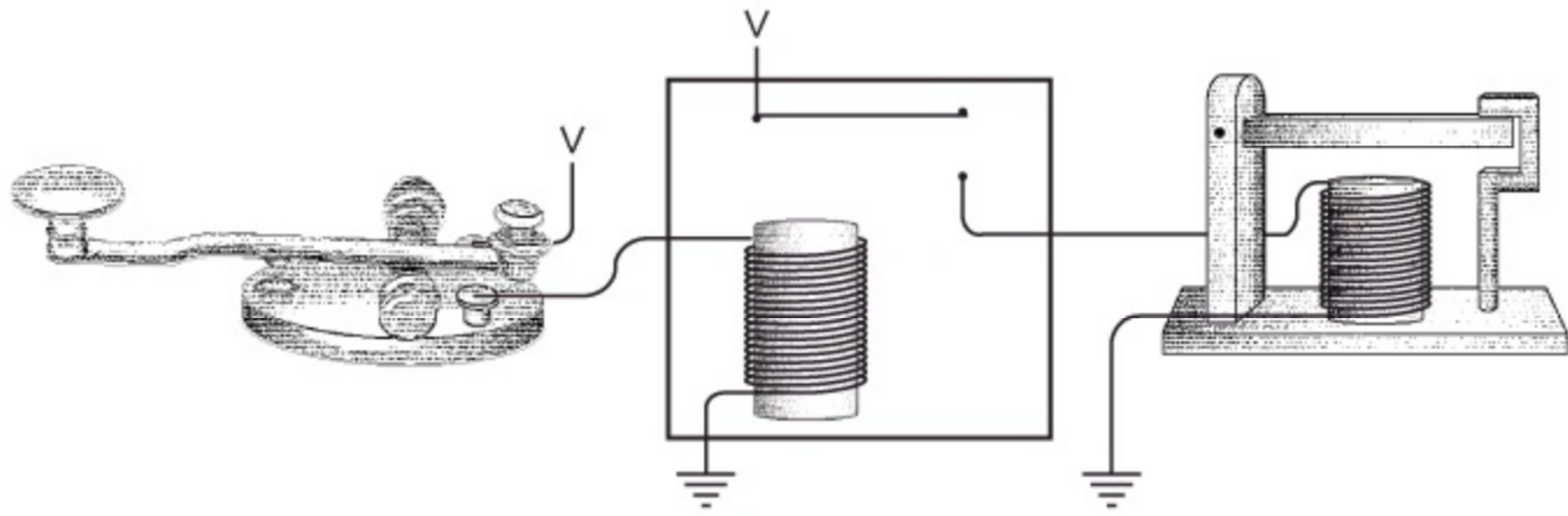










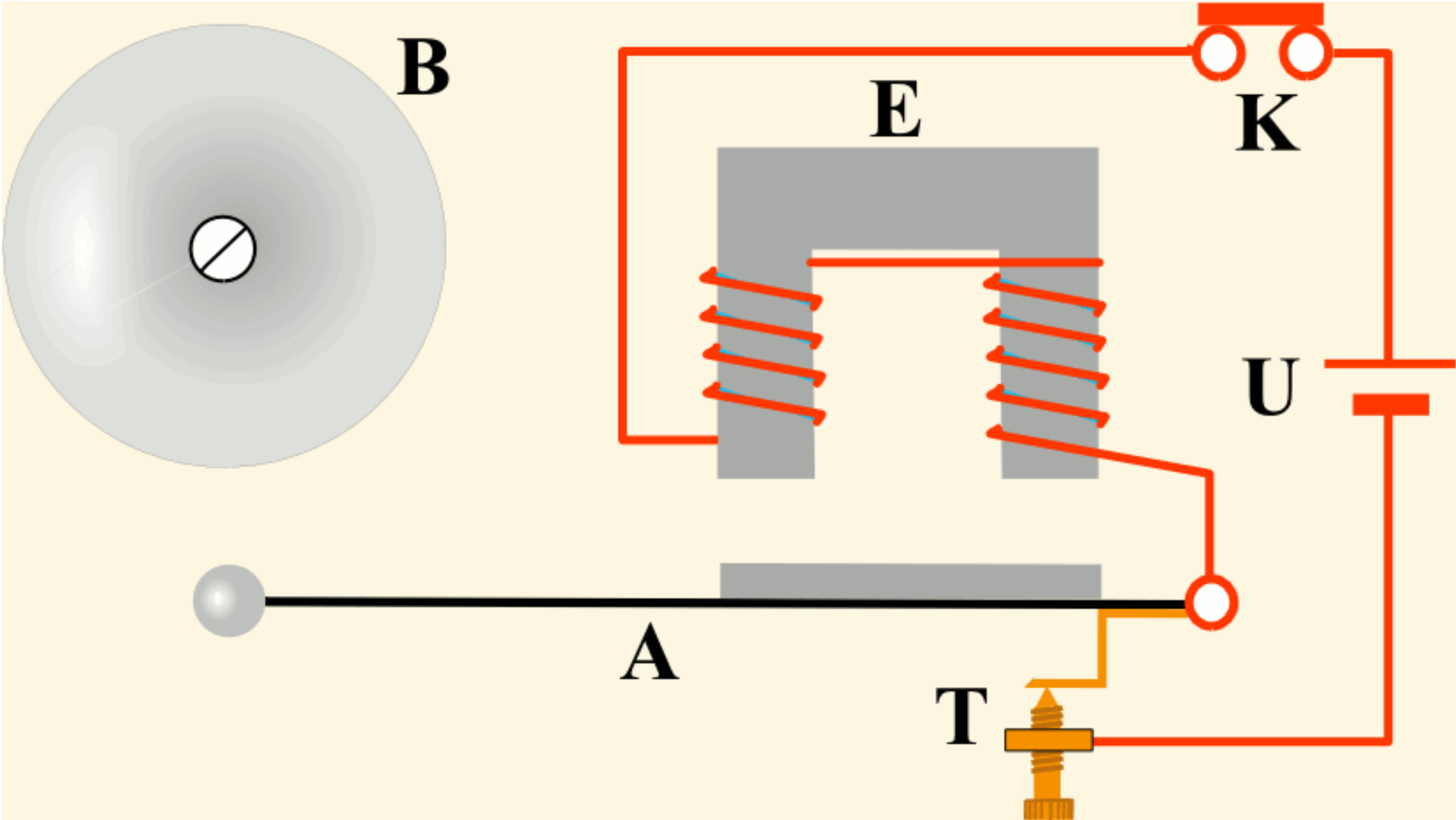


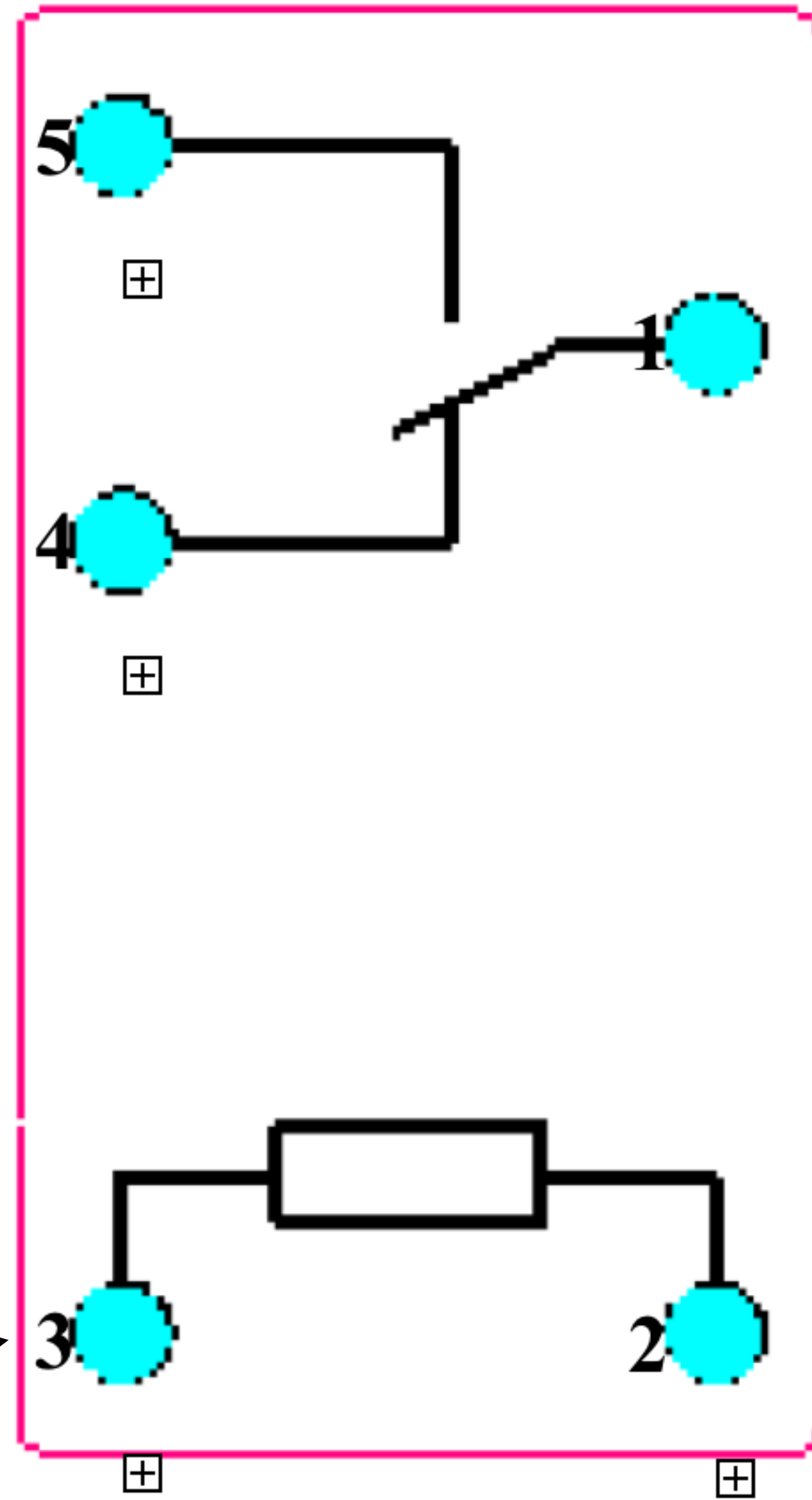
Your telegraph station

The relay station

Your friend's telegraph station







High Voltage you want to control

Arduino Digital Write

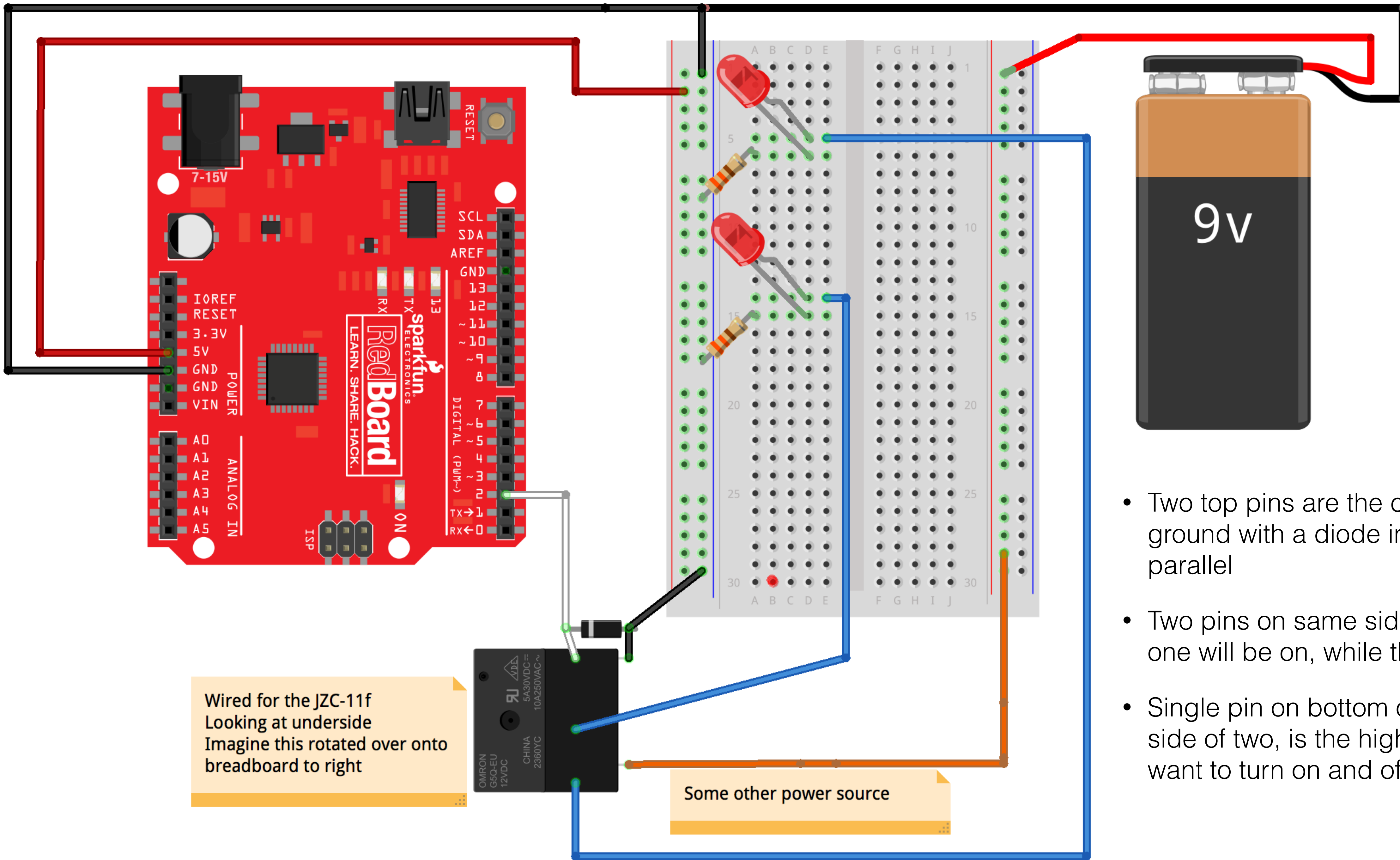
Ground





Can I hurt myself???

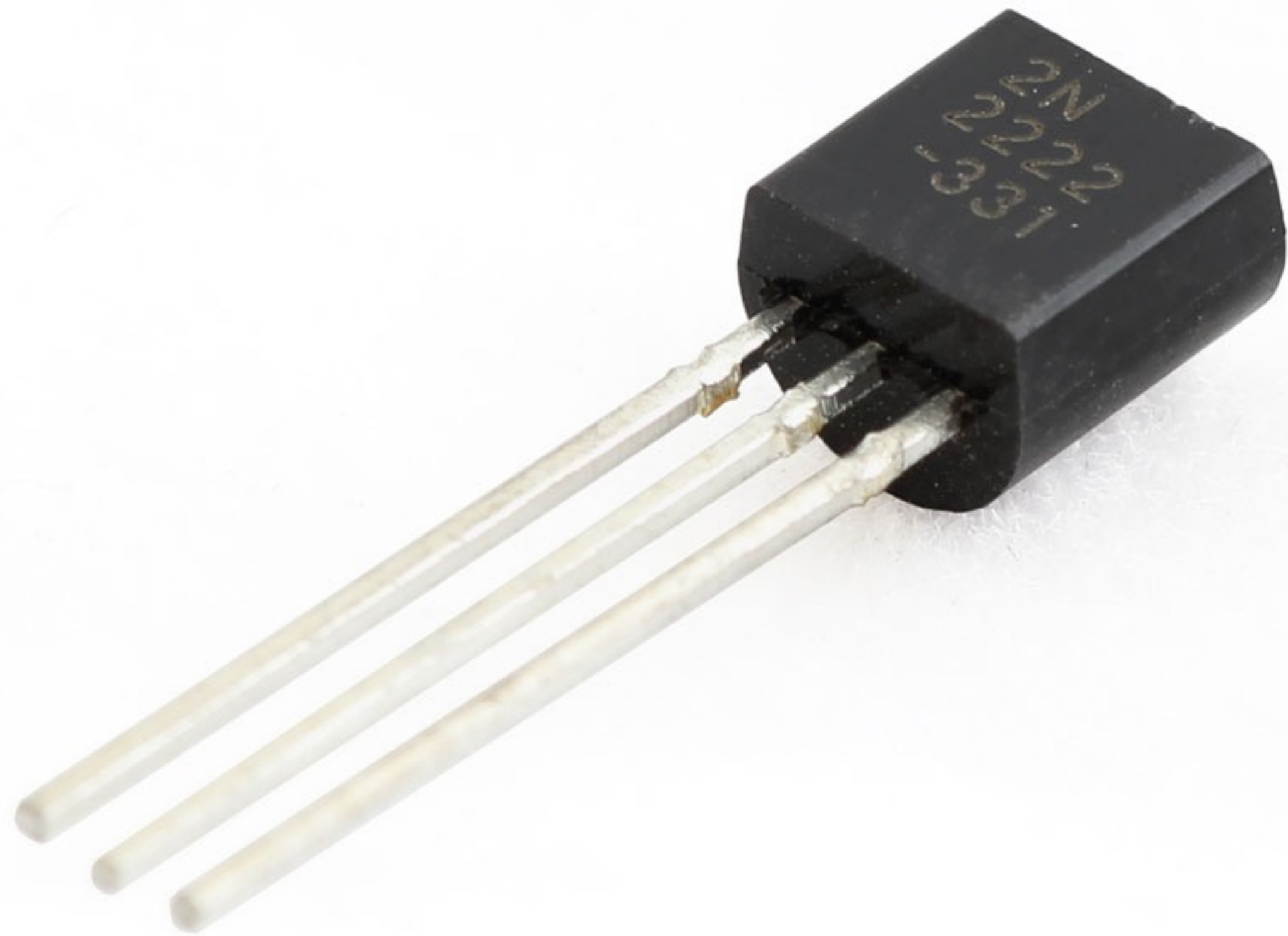
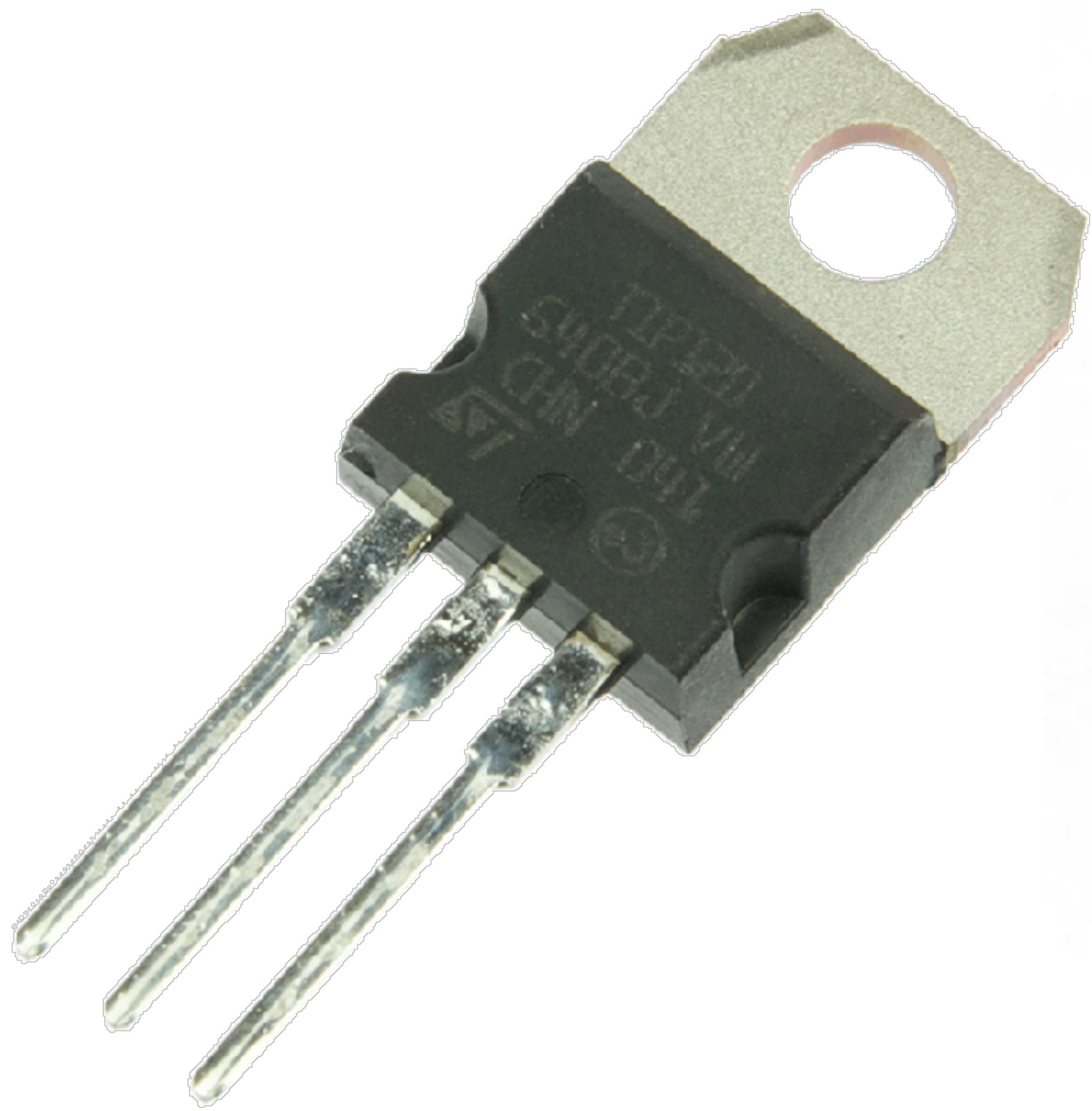




Wired for the JZC-11f  
Looking at underside  
Imagine this rotated over onto  
breadboard to right

Some other power source

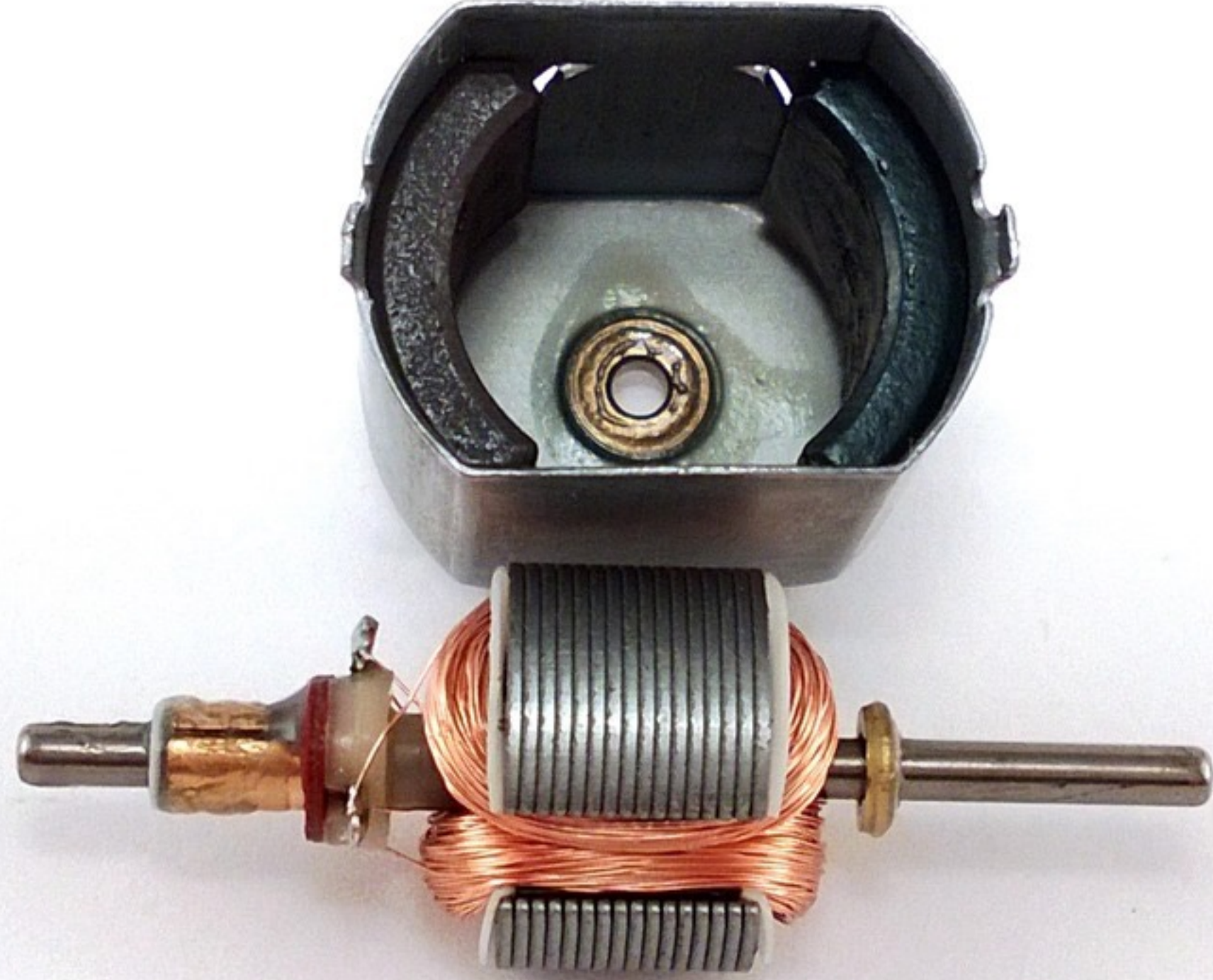
- Two top pins are the control and ground with a diode in reverse parallel
- Two pins on same side at bottom: one will be on, while the other is off
- Single pin on bottom on opposite side of two, is the high voltage you want to turn on and off

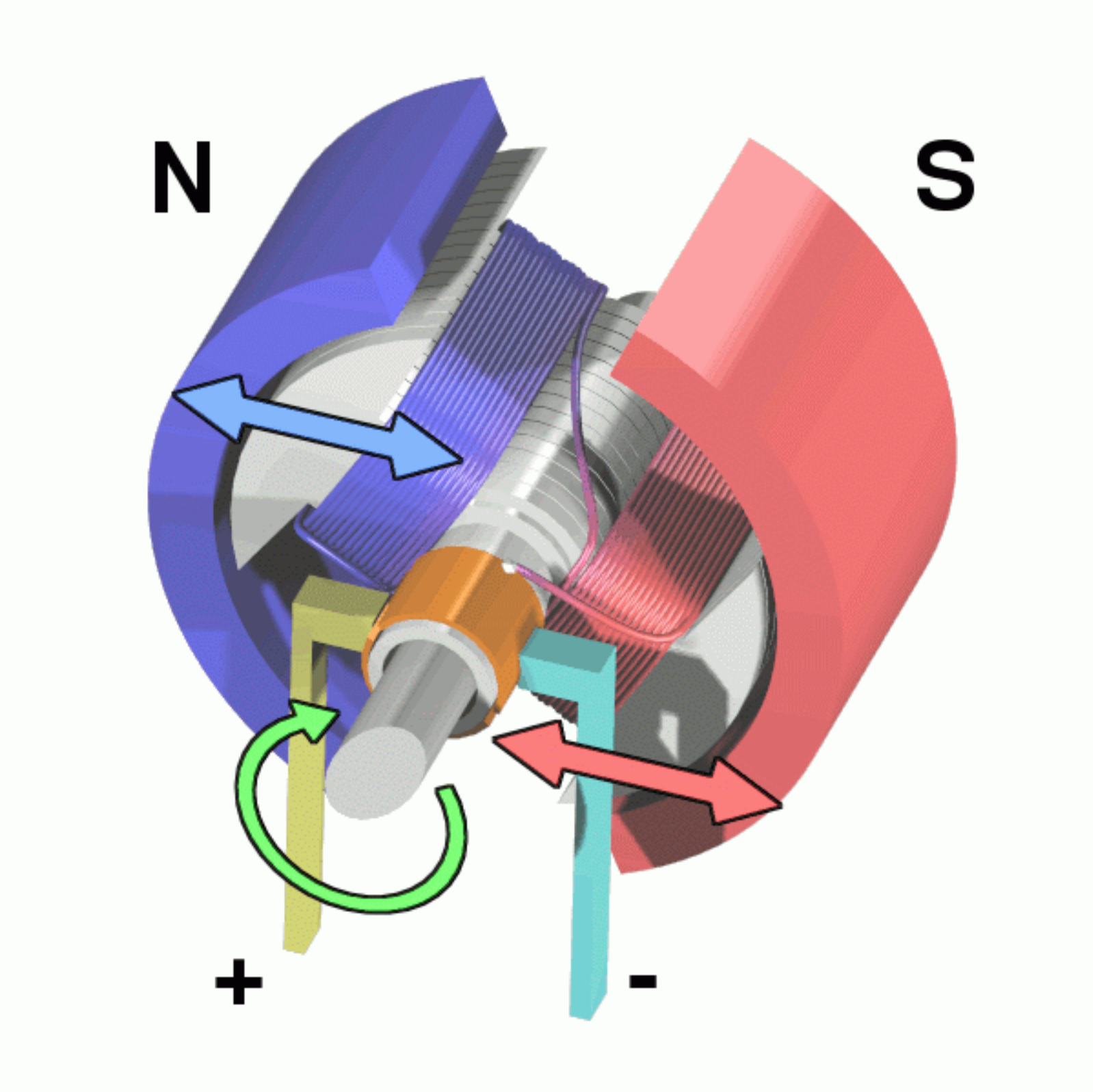


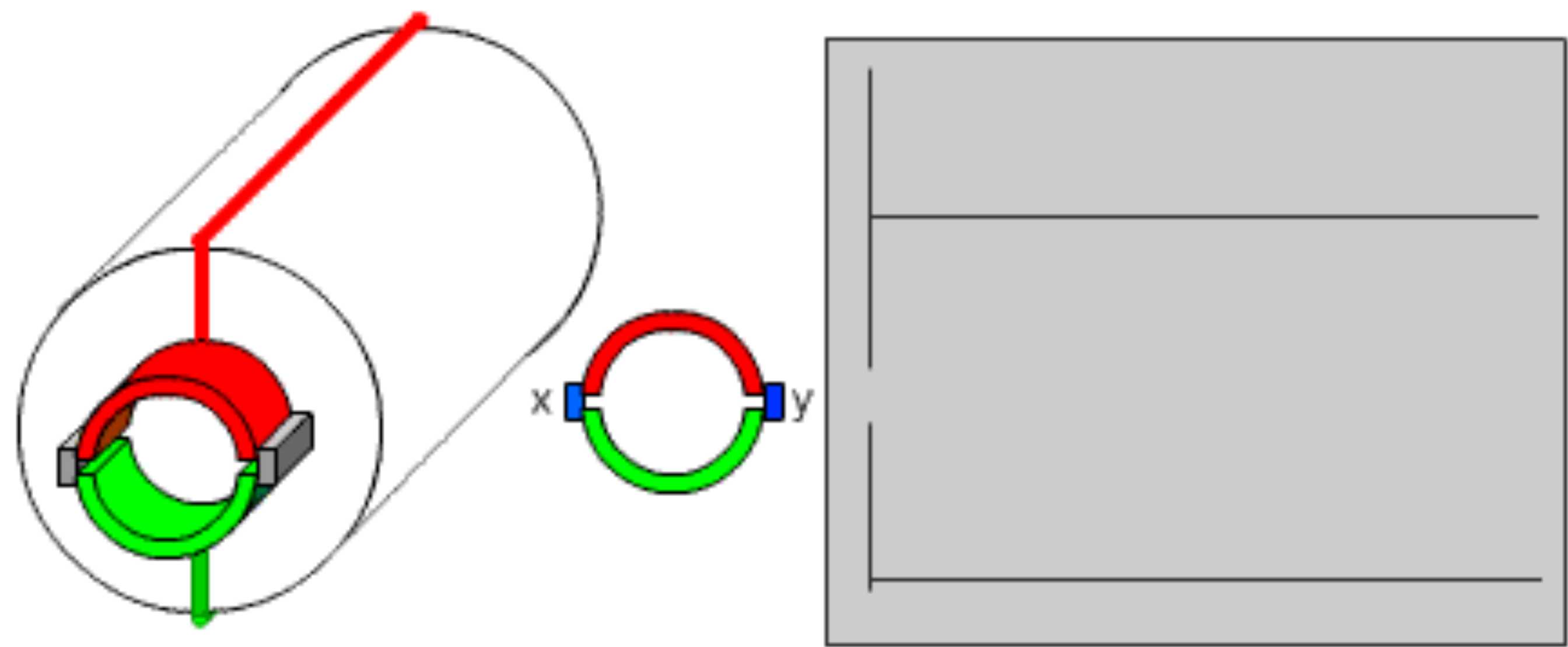






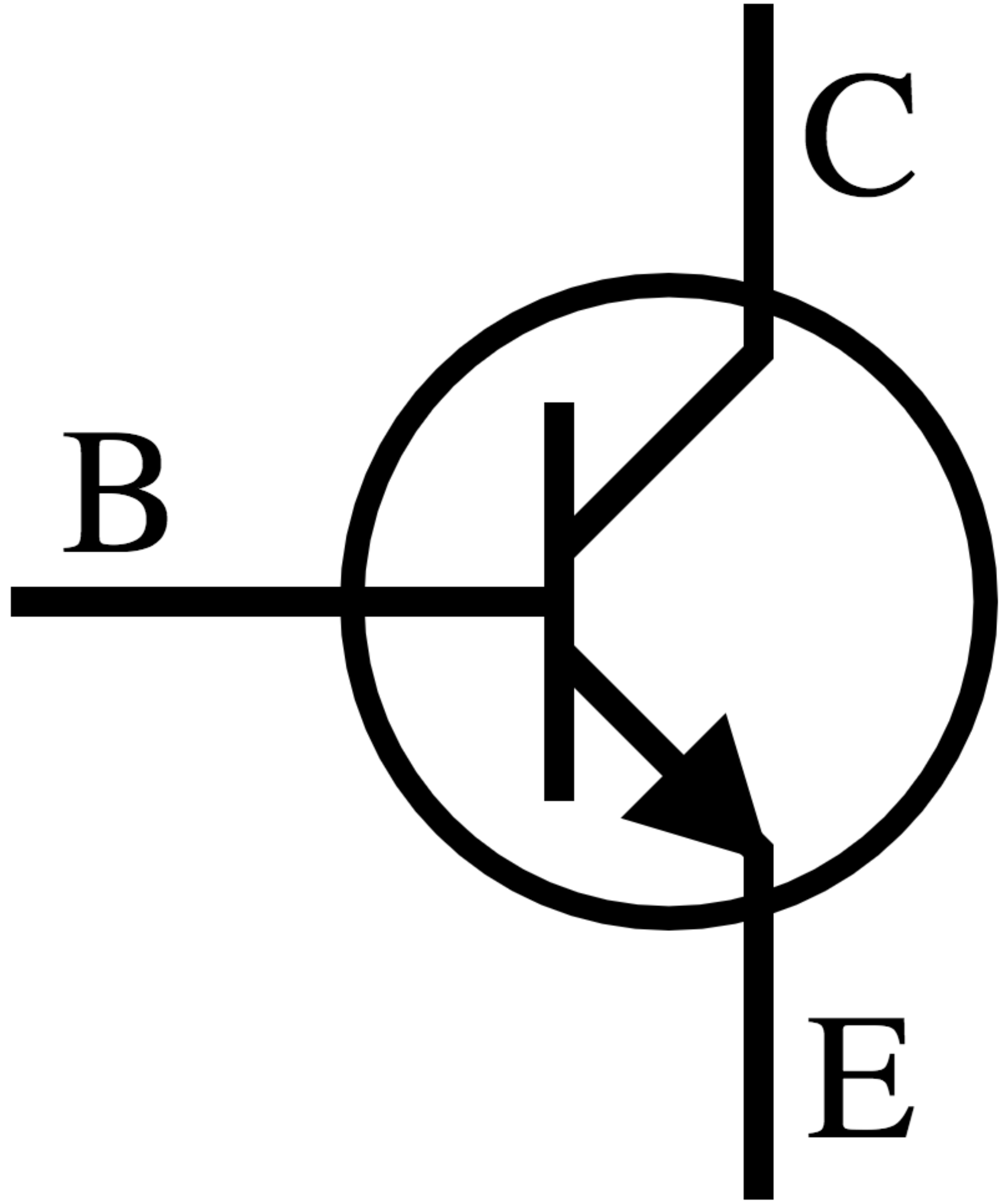


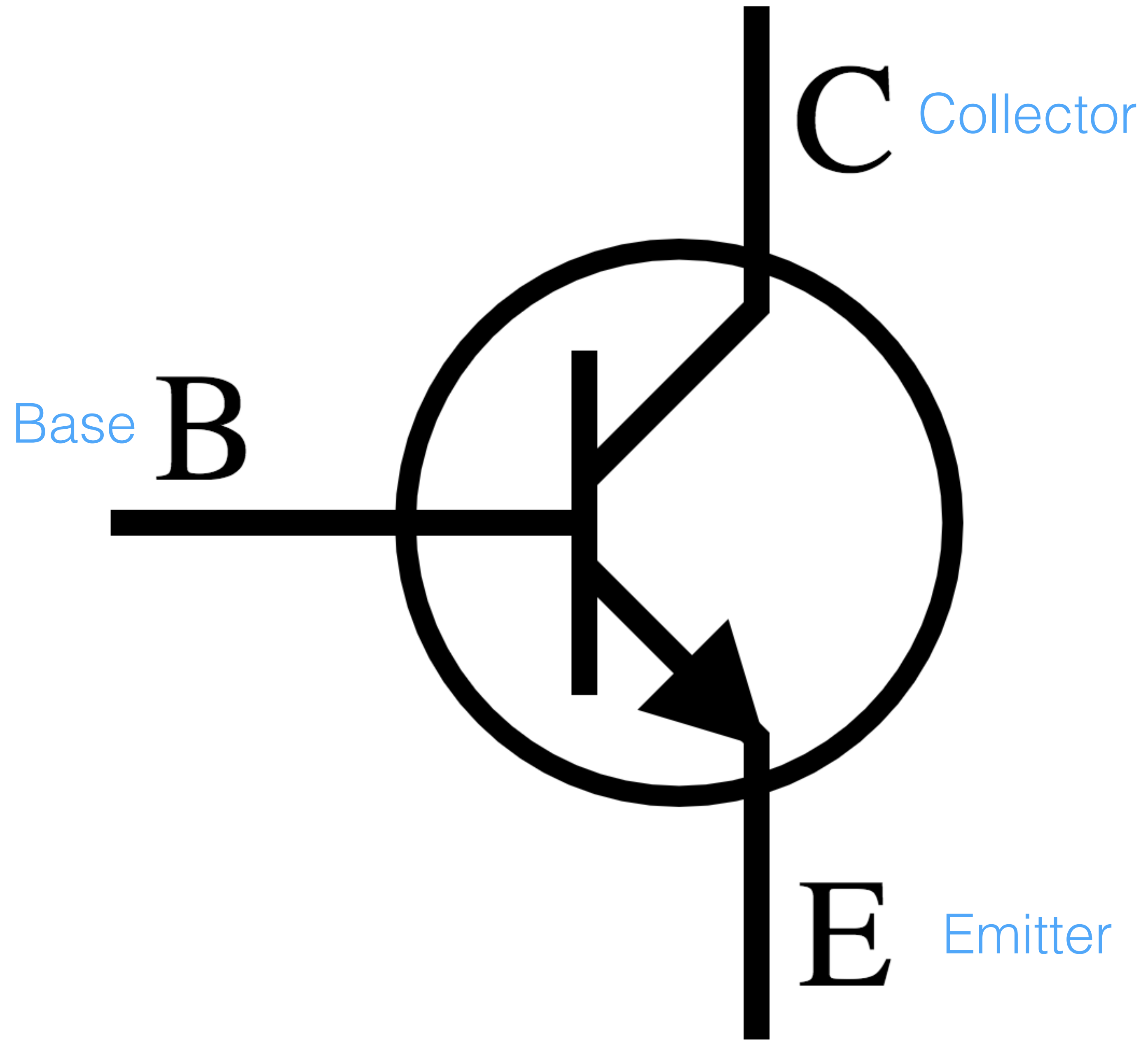




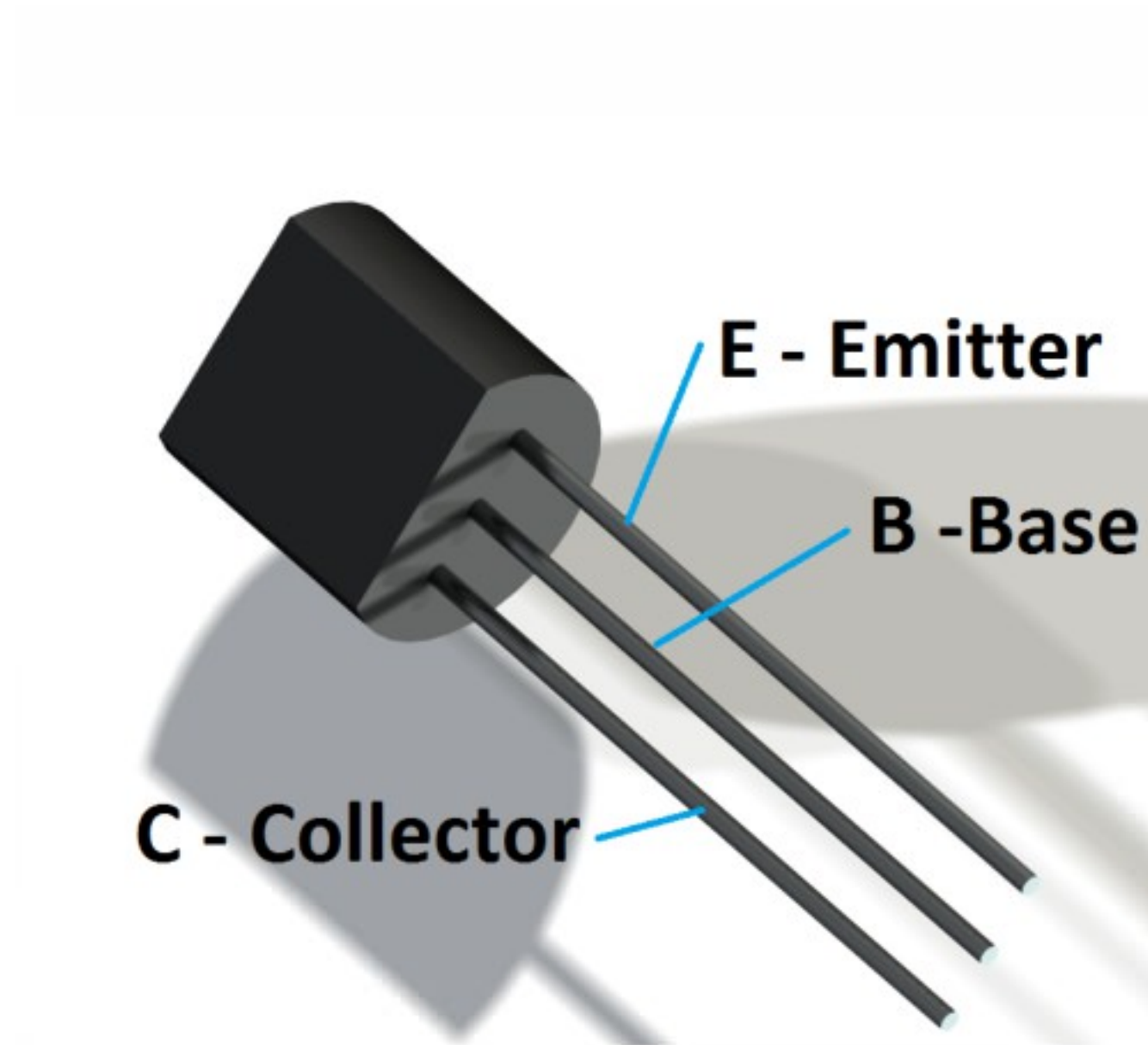
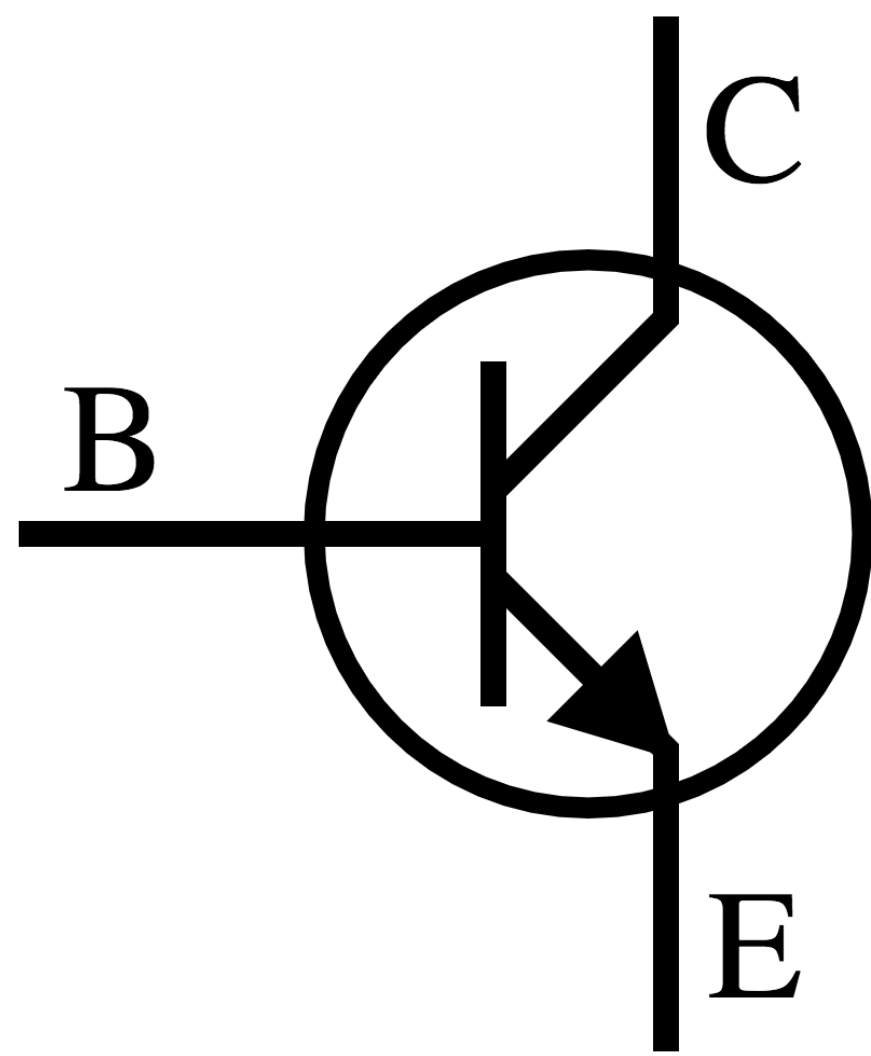


- Voltage: below optimal you get less power, above rating will burn out
- Torque: measure of strength of motor
- Speed is given as RPM, Rotations Per Minute





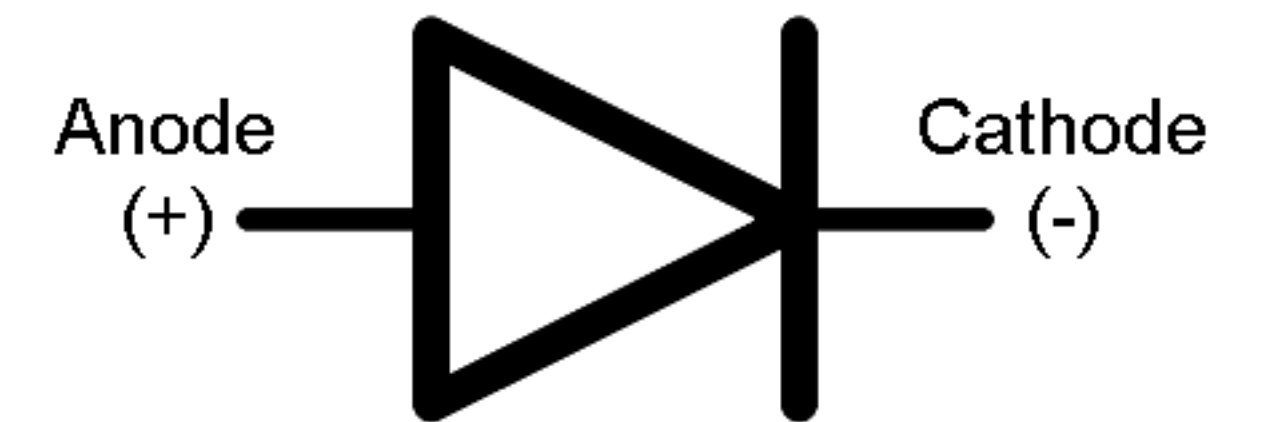
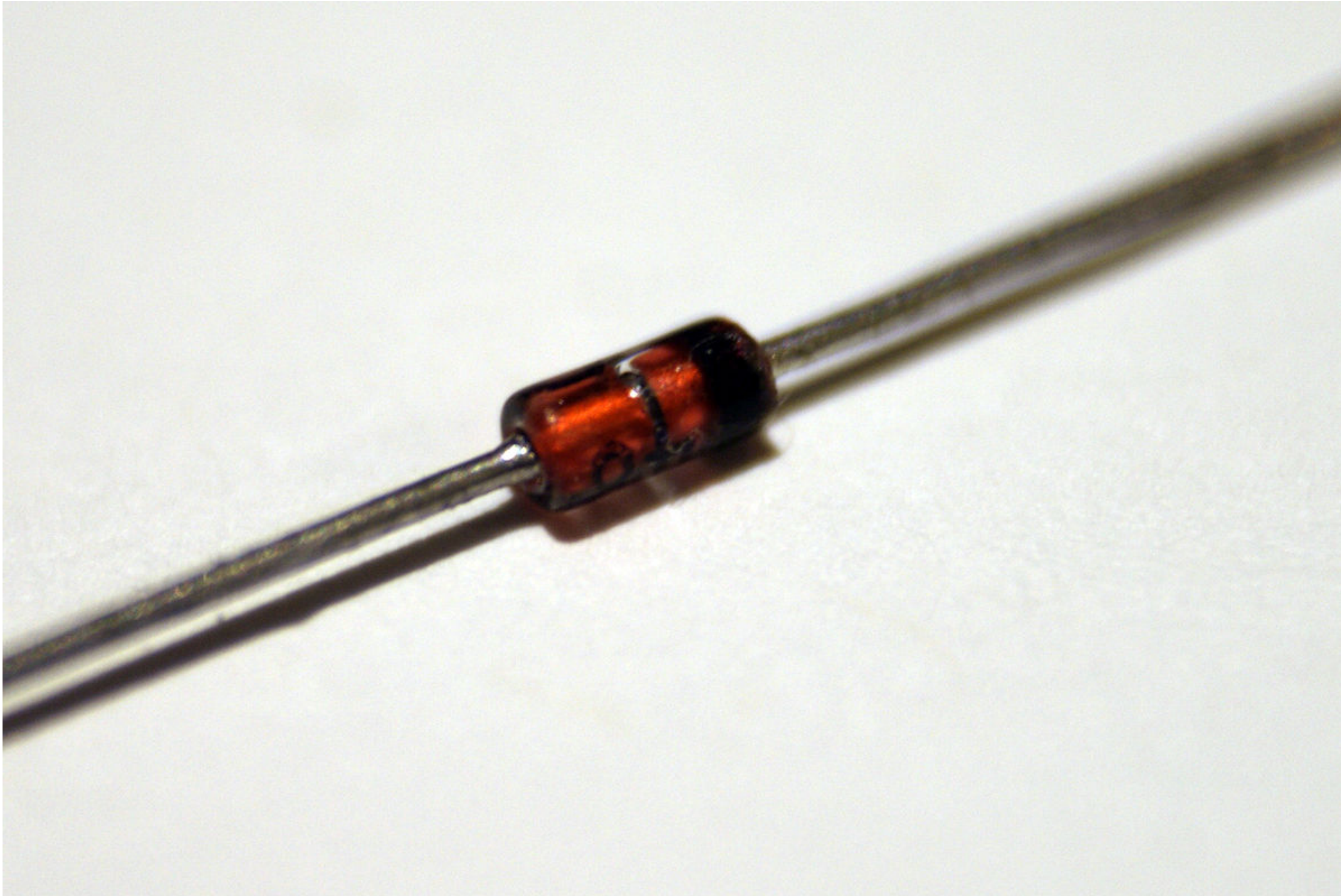




P2N2222A  
BC337

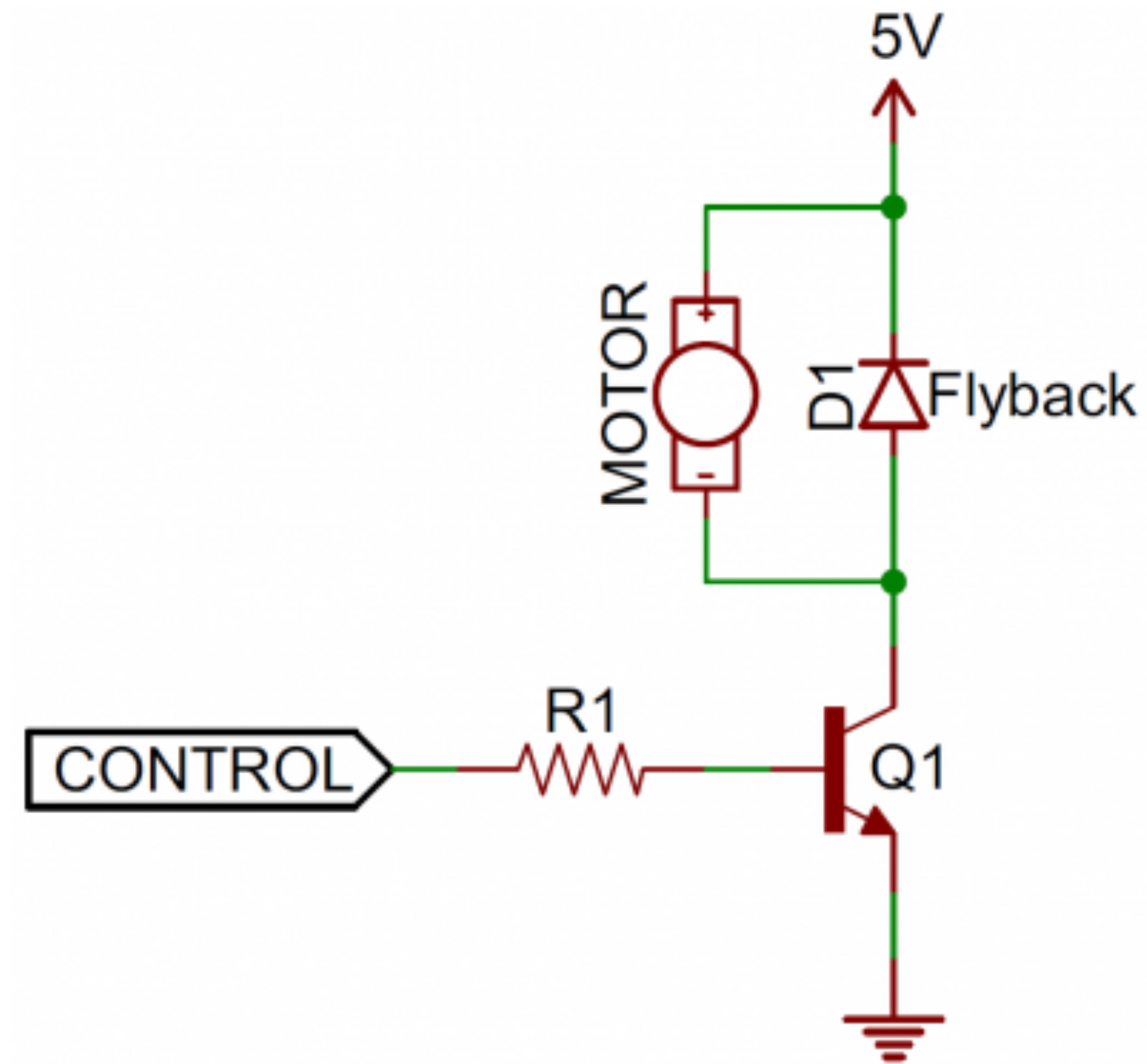


# Diode



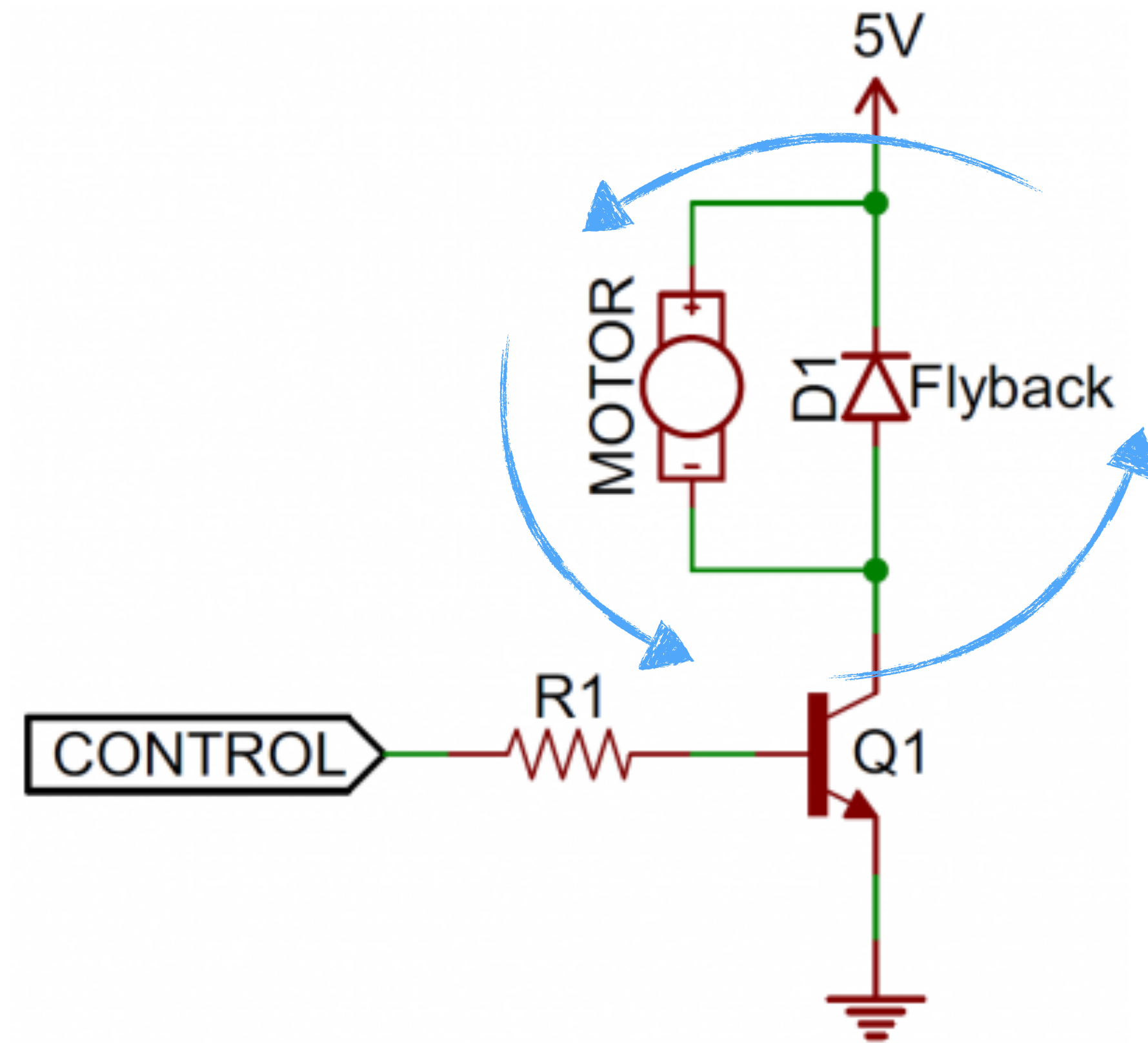


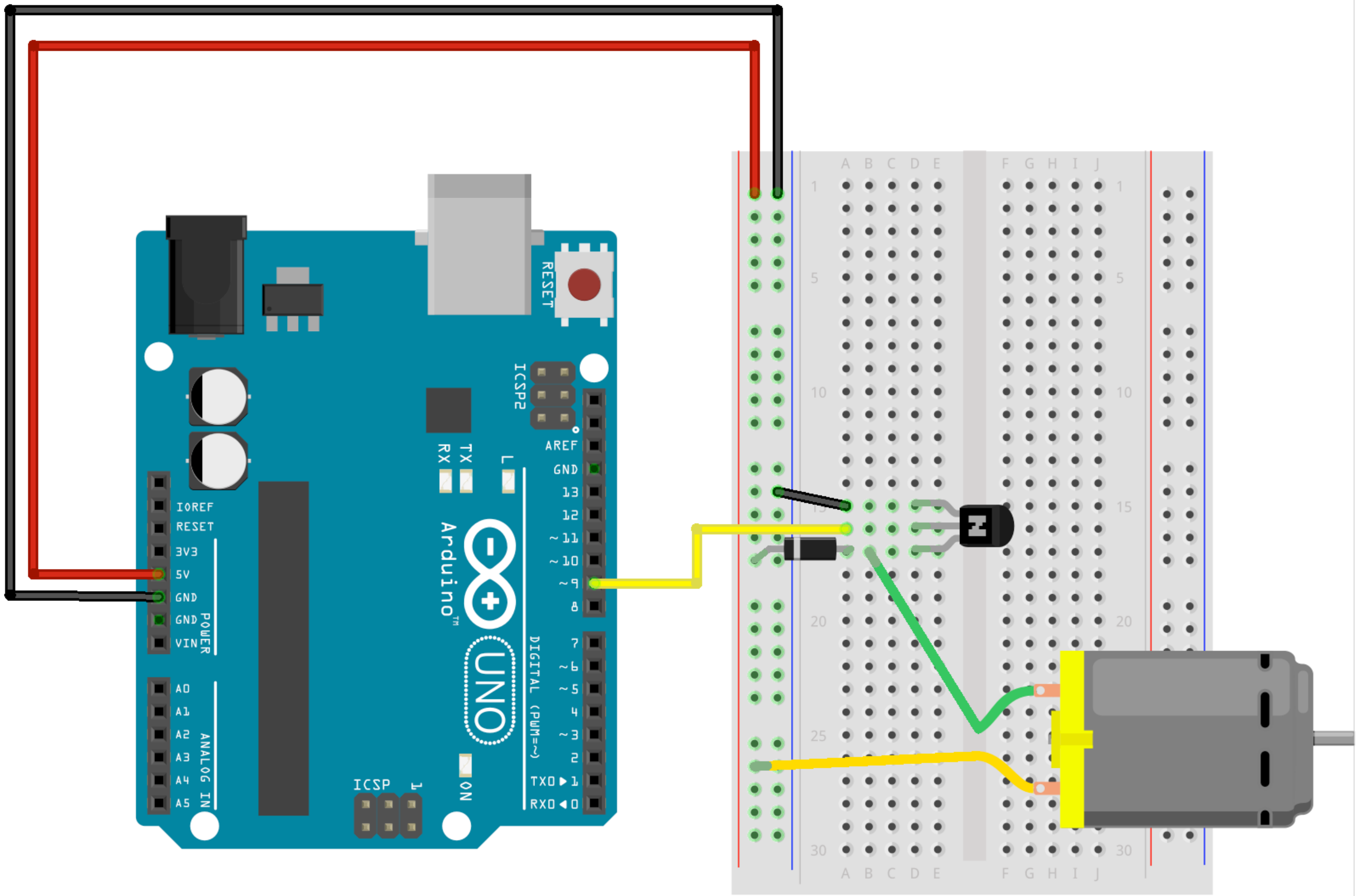
Flyback diode prevents a voltage spike from damaging our circuit when an inductor is turned off.



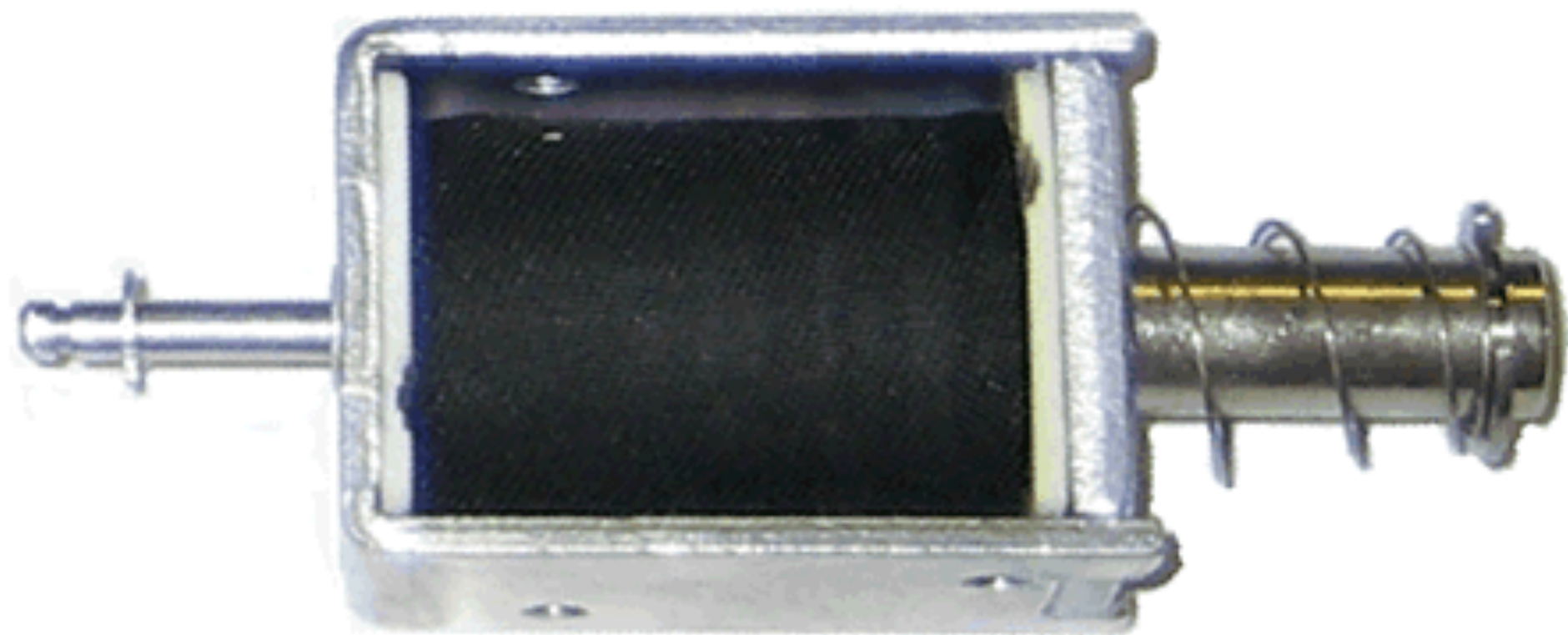


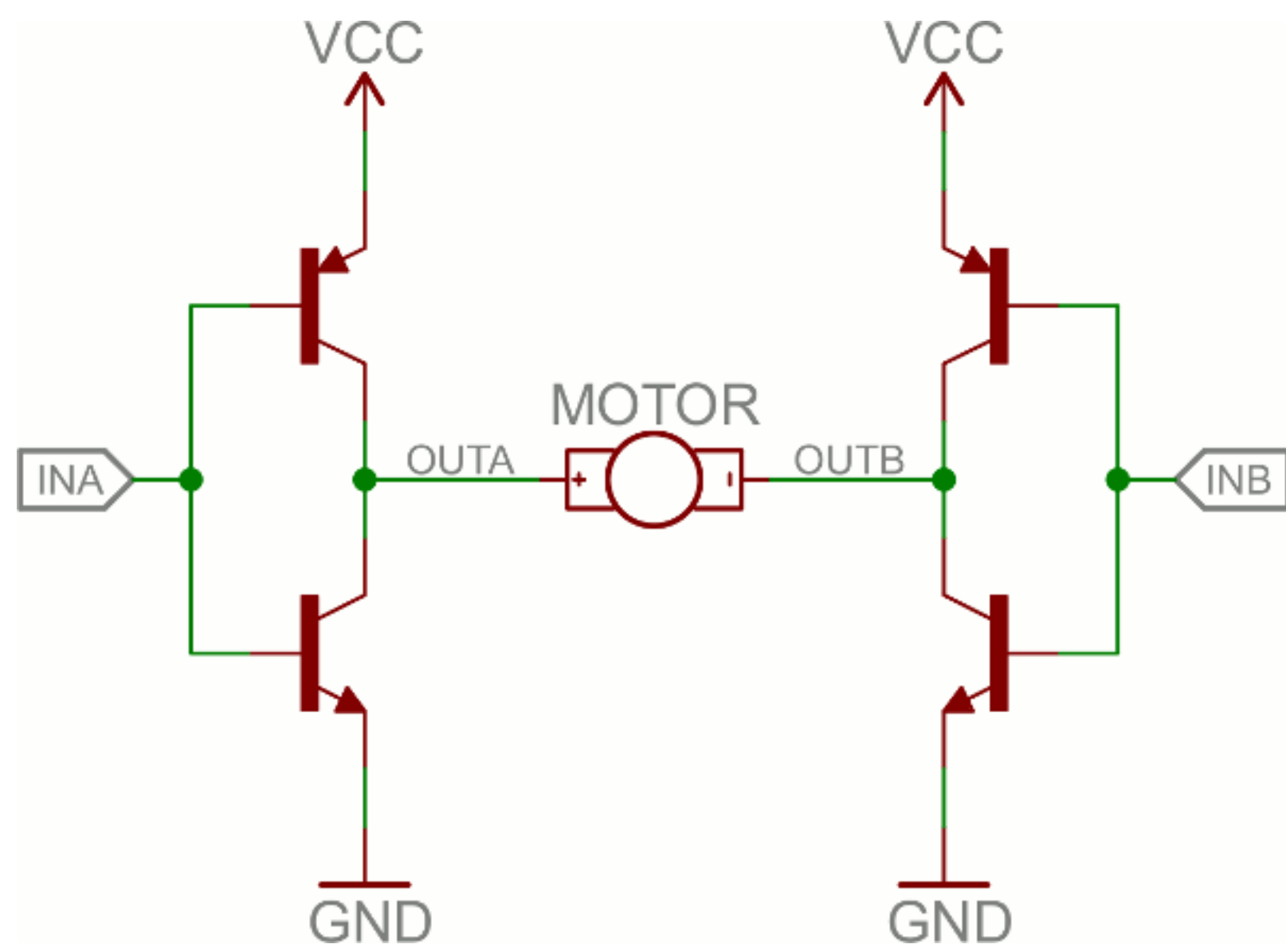
Flyback diode prevents a voltage spike from damaging our circuit when an inductor is turned off.





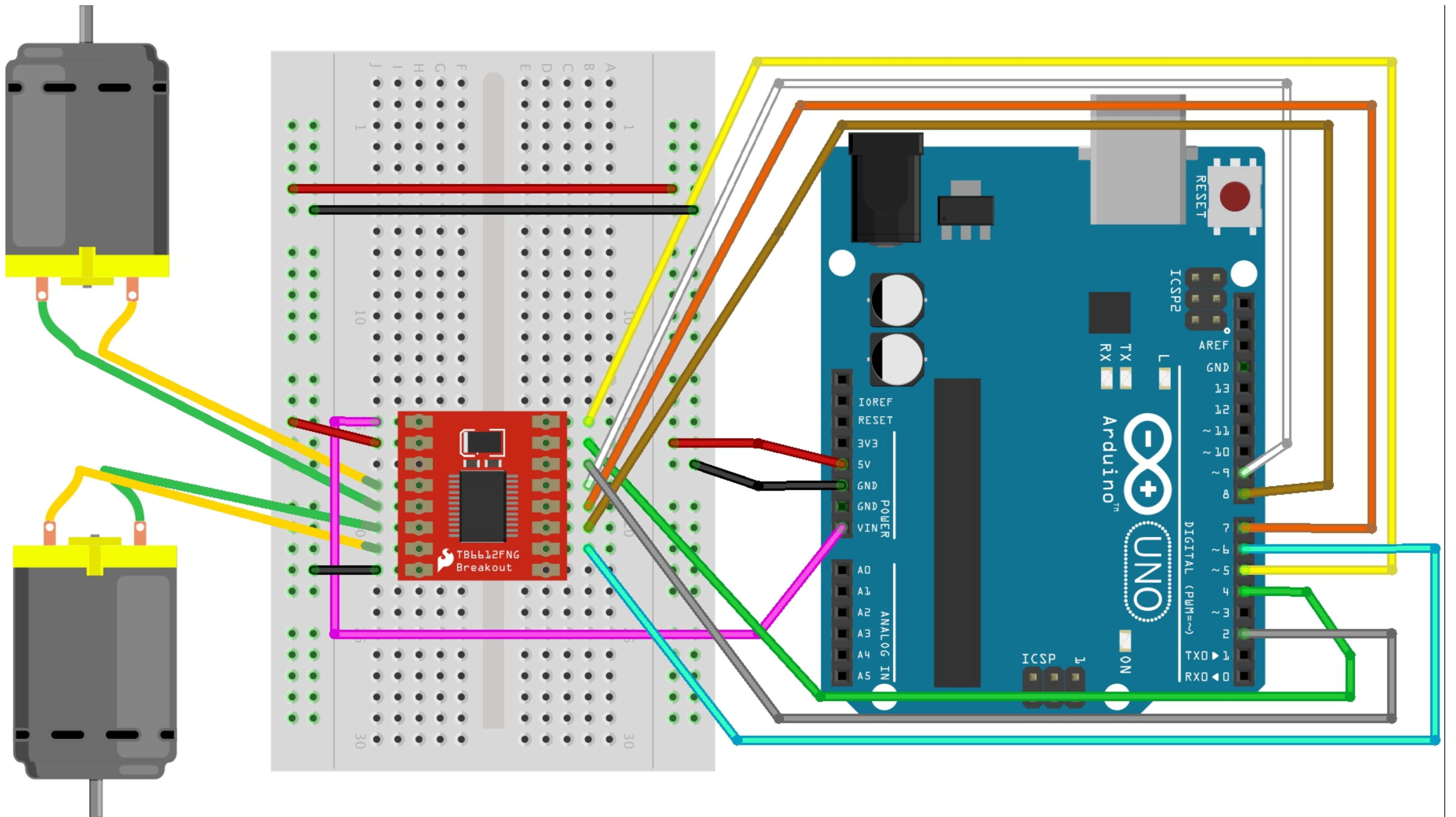






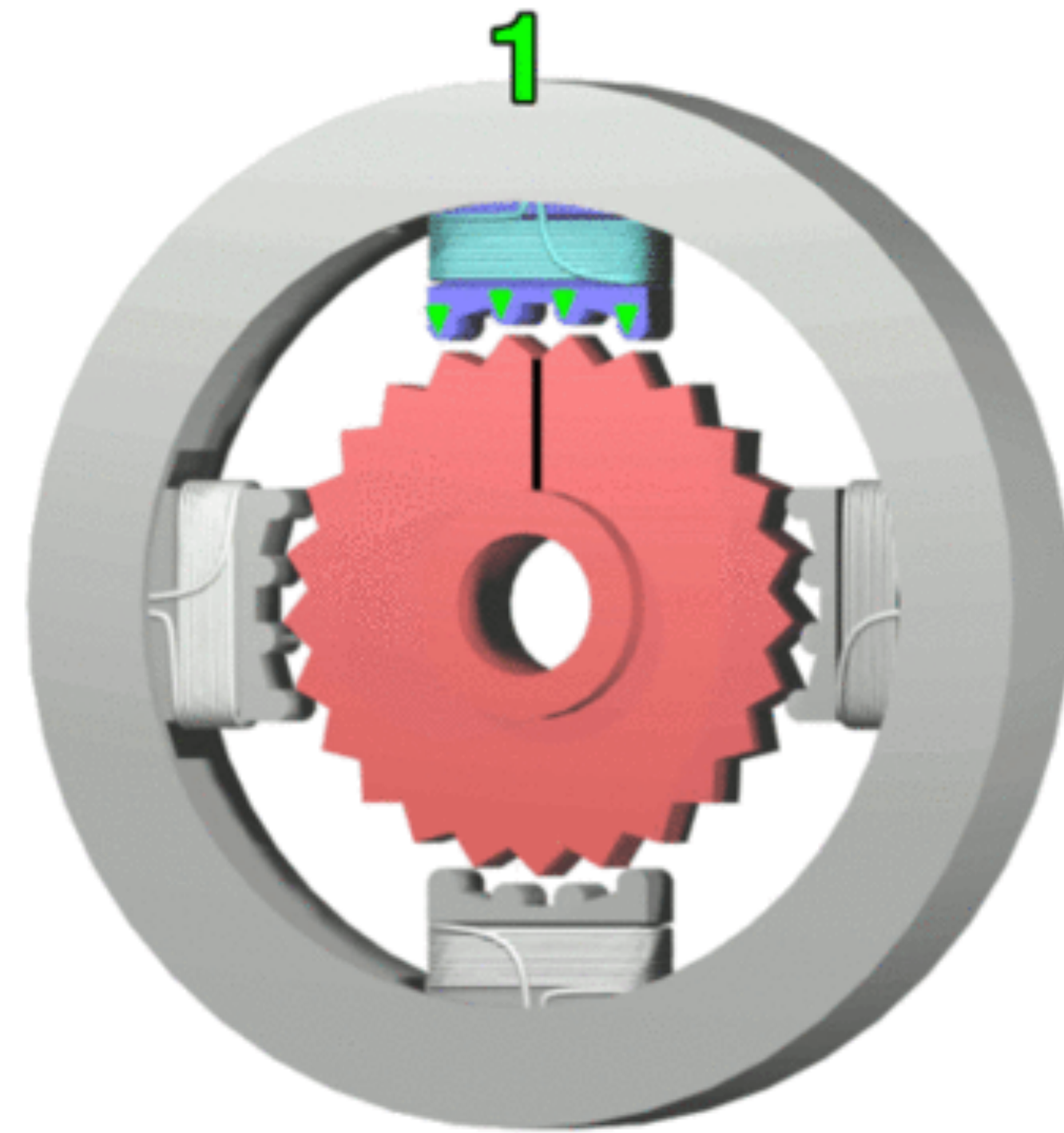


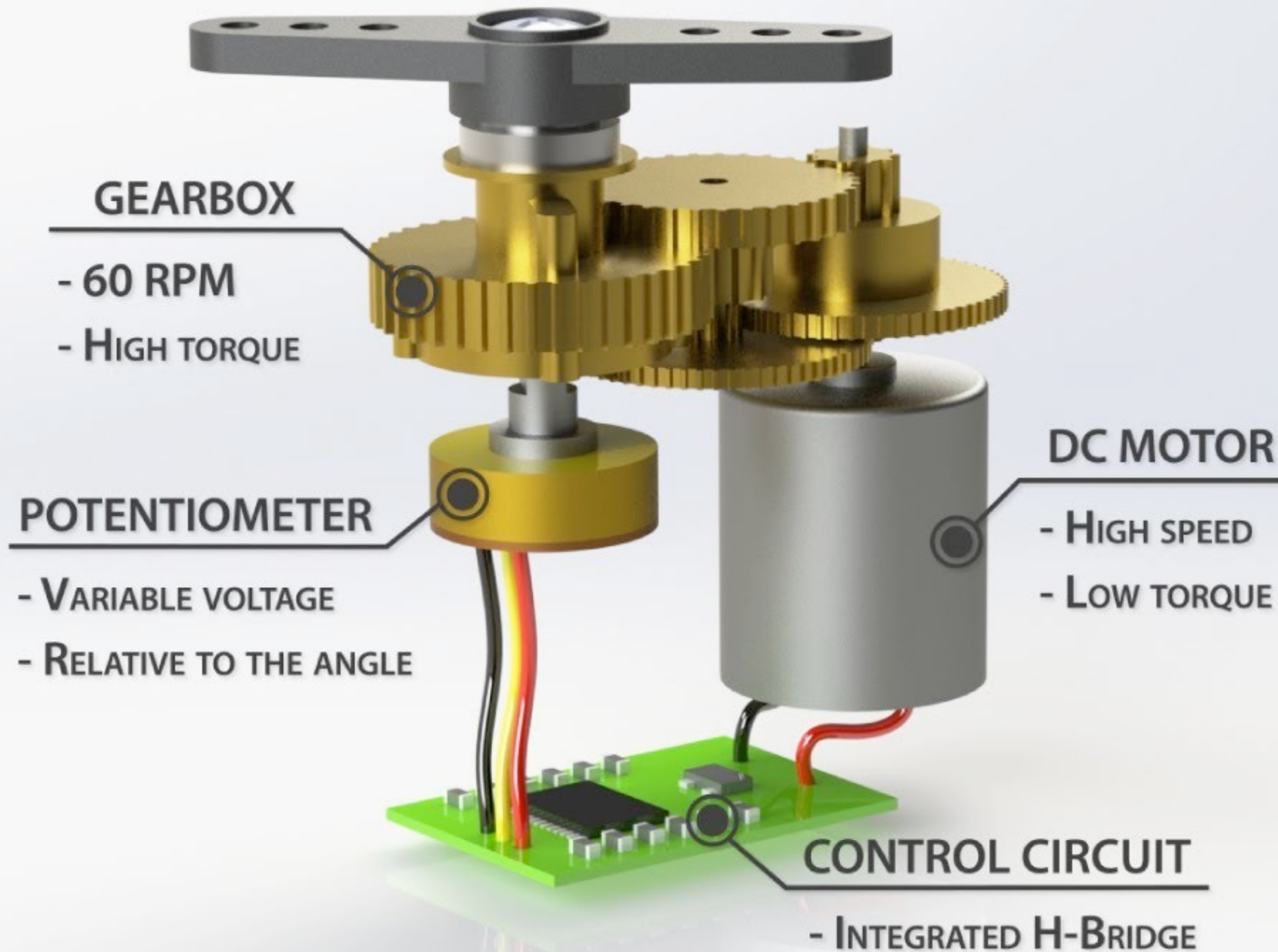
# Motor Shields





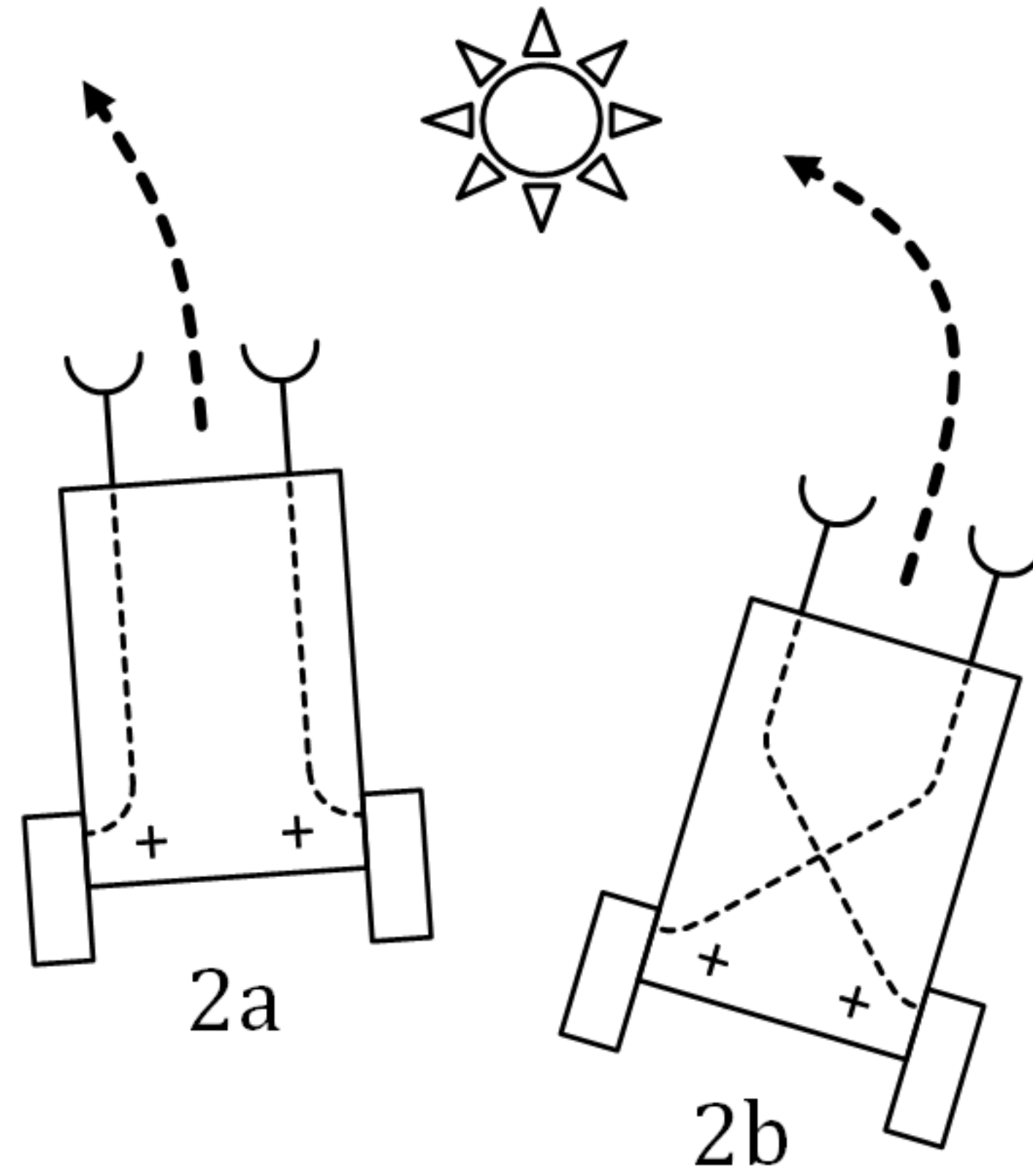
# Stepper Motors



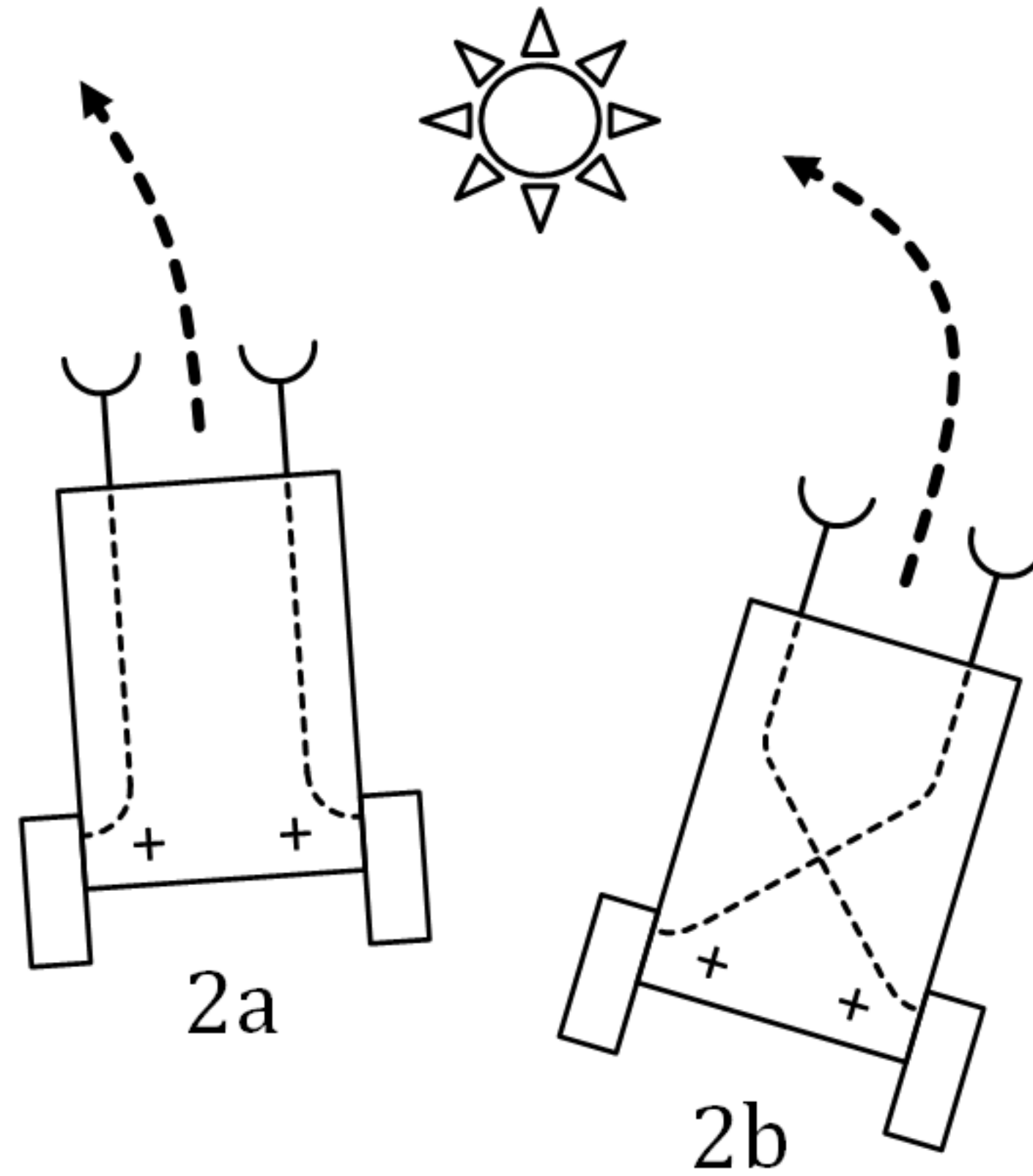




# Braitenberg Vehicles



Goes fast when stimulus is strong - fear & aggression





Goes slower when stimulus is strong - love

