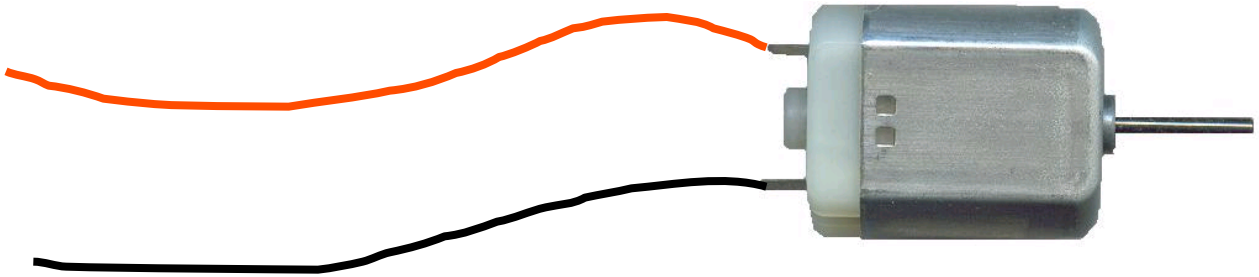
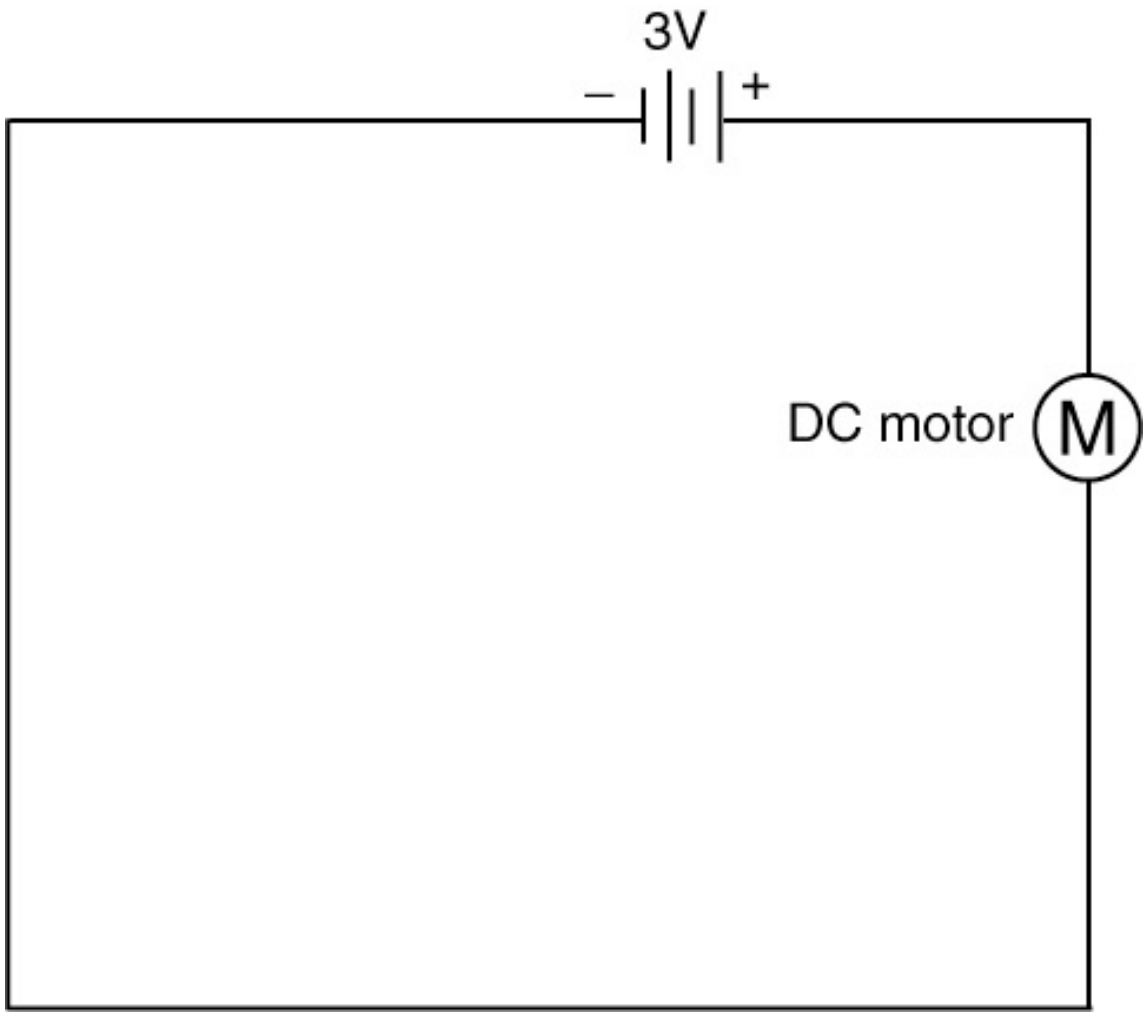
week
07

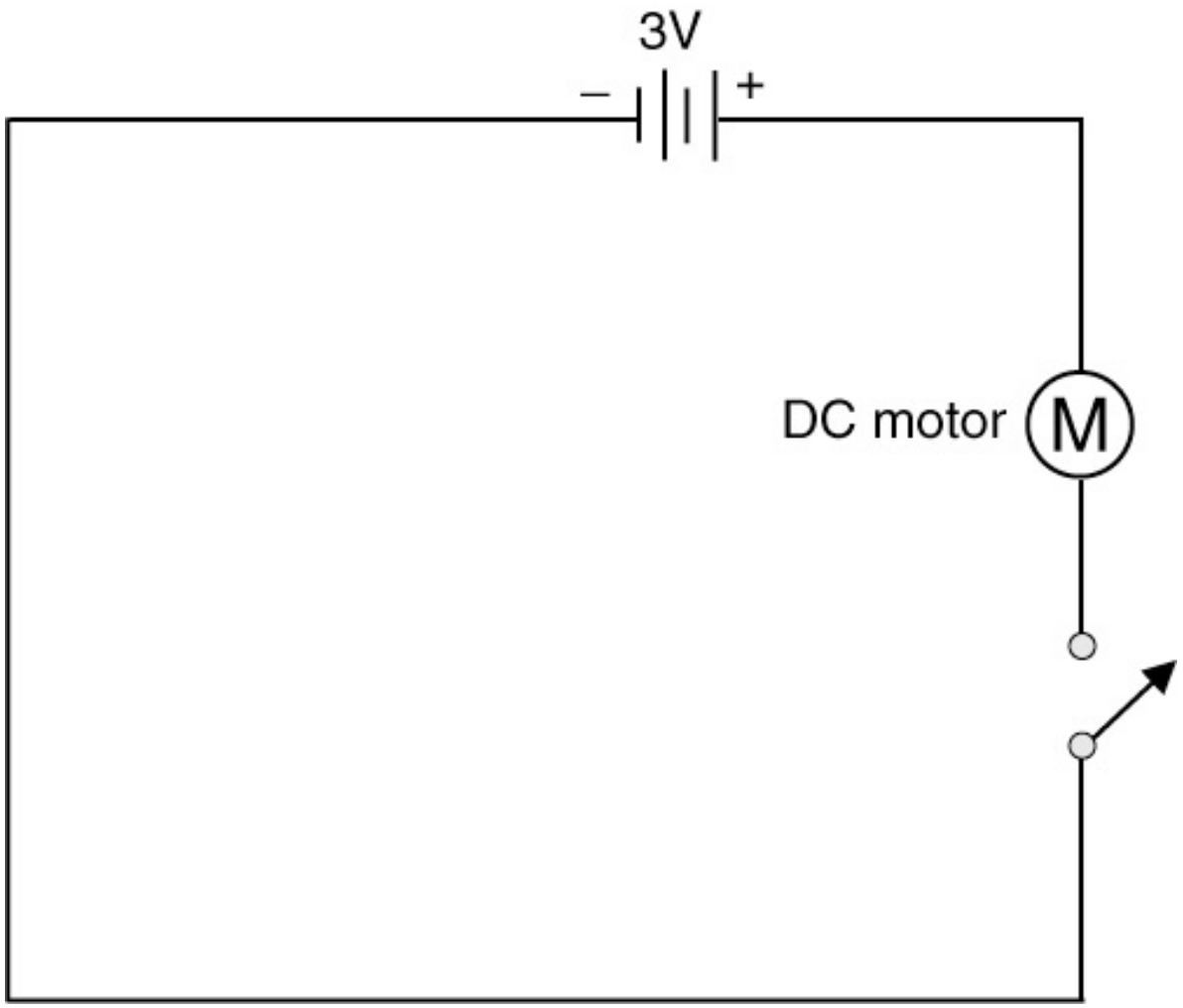
Output 2: DC Motors

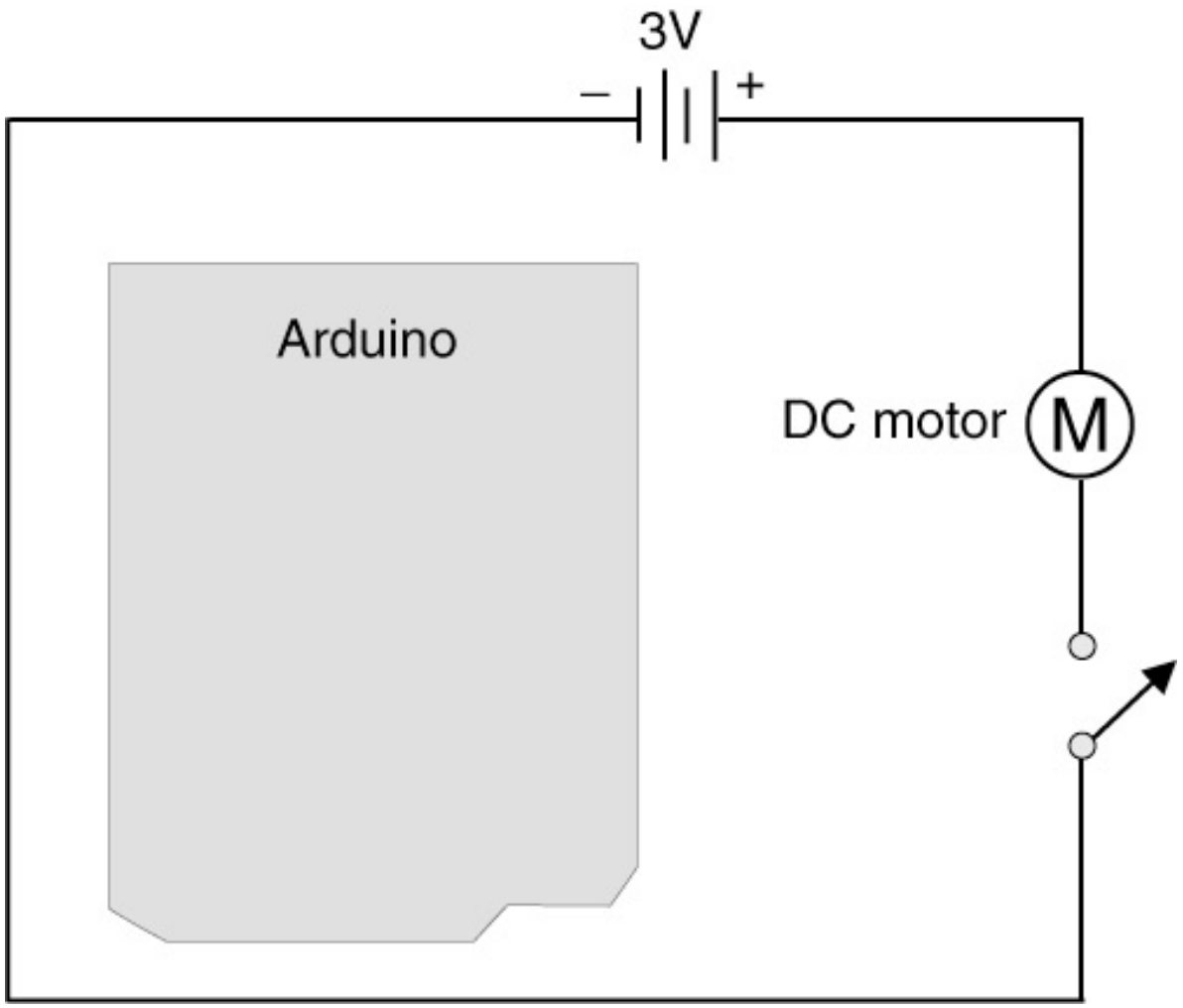
Making motions

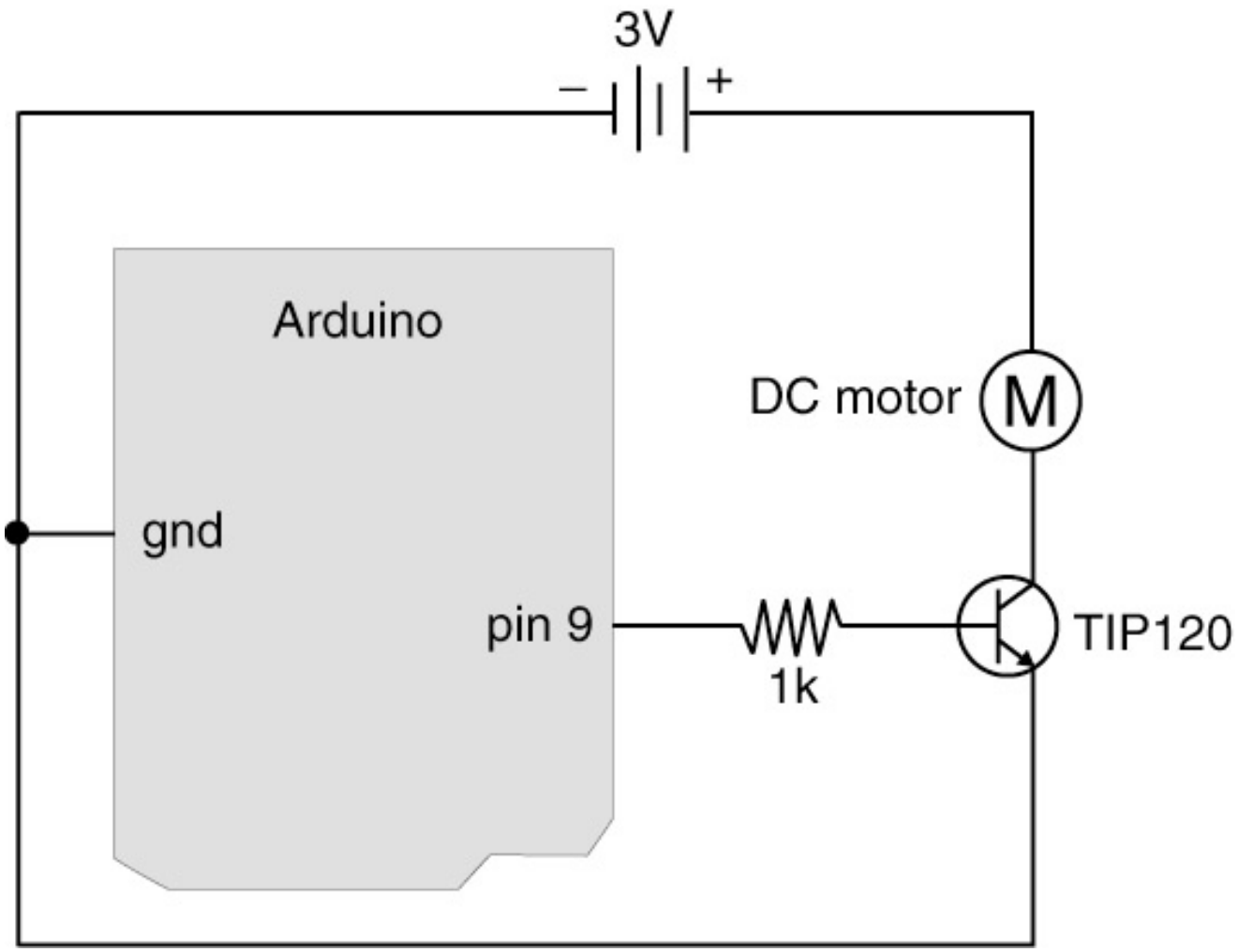
DC Motor

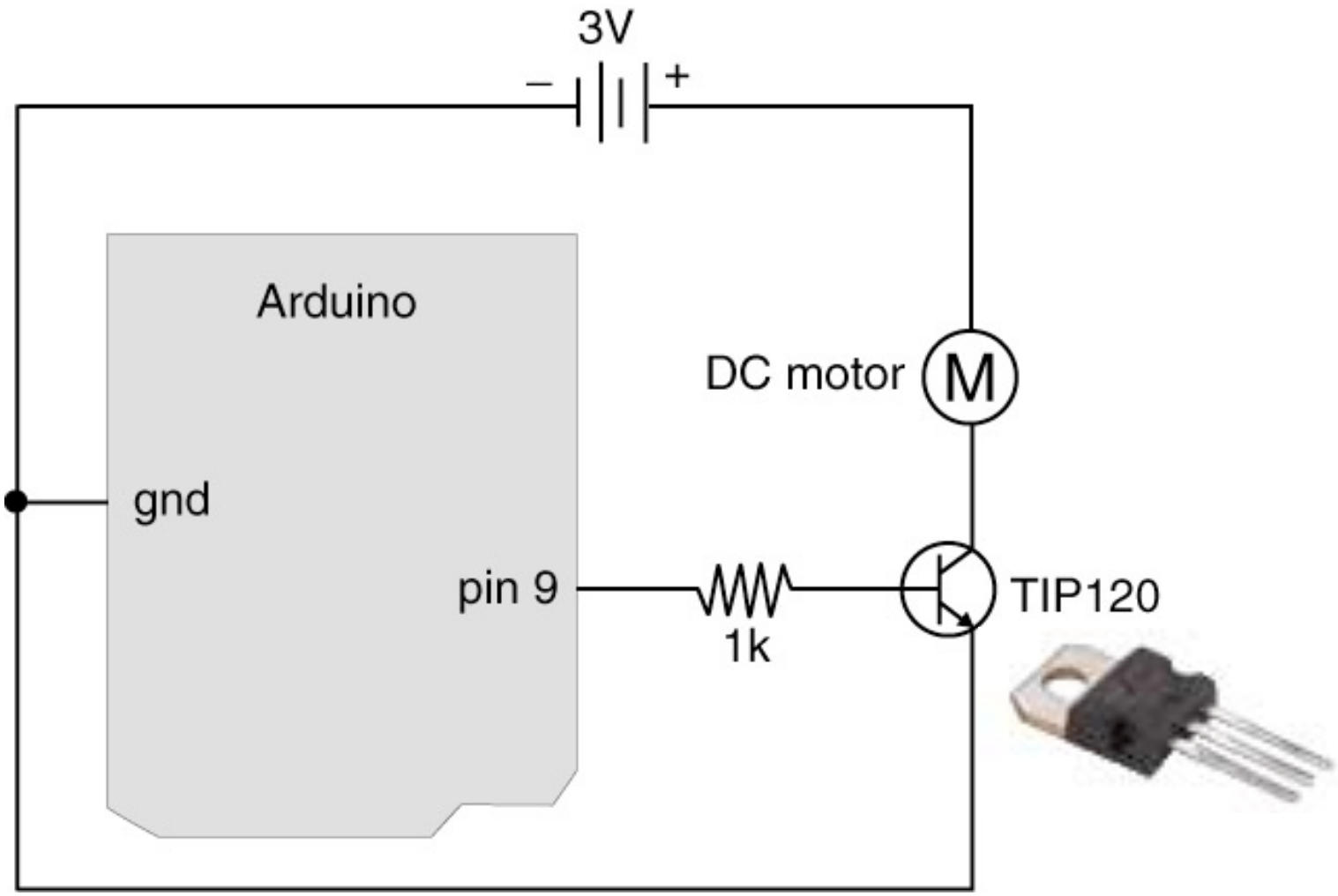



3V
–
+
DC motor
M

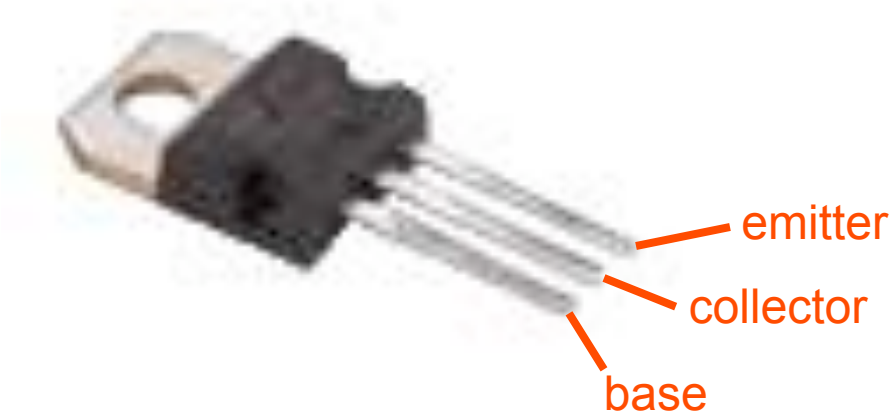

3V
–
+
DC motor
M

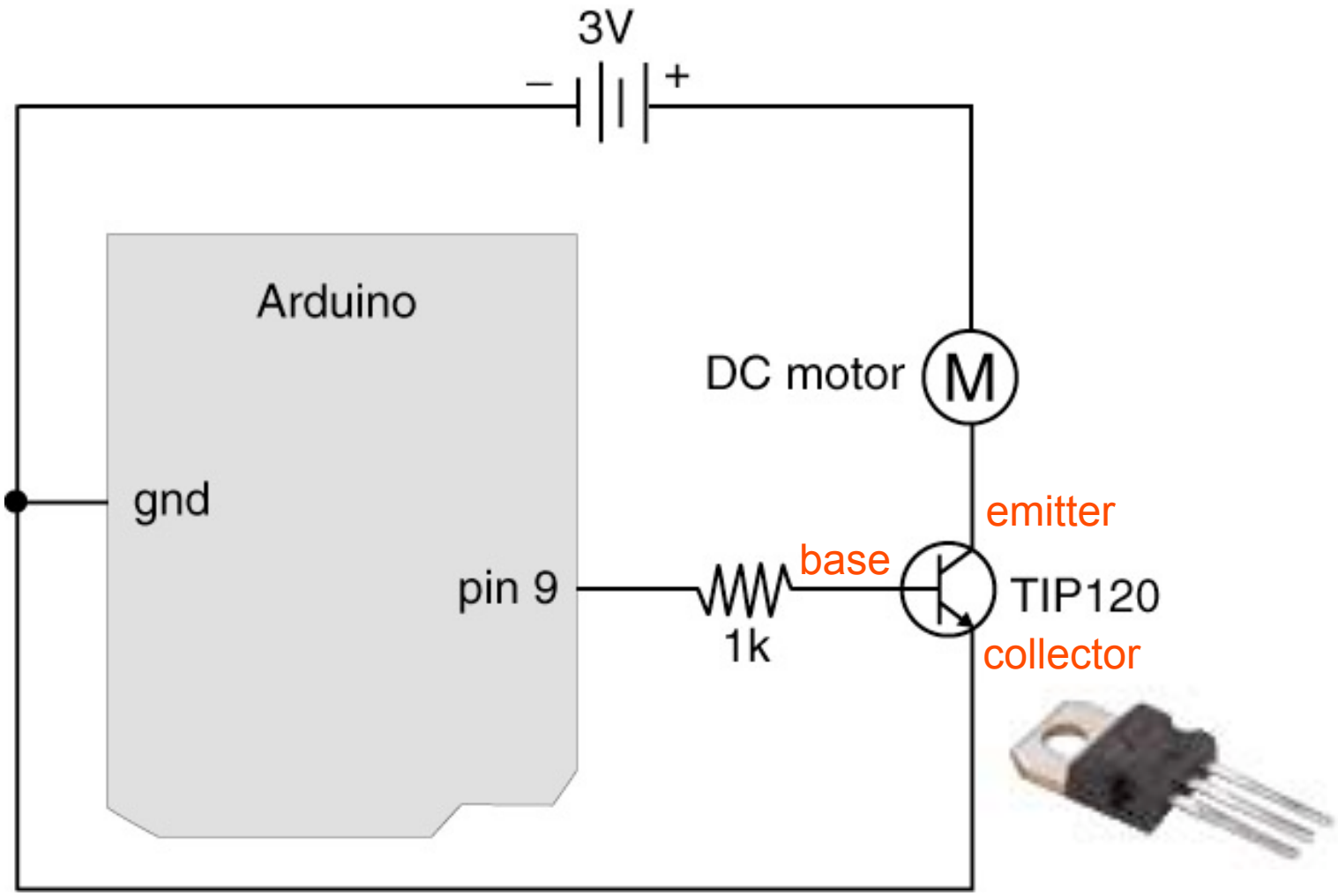

3V
–
+
Arduino
DC motor
M

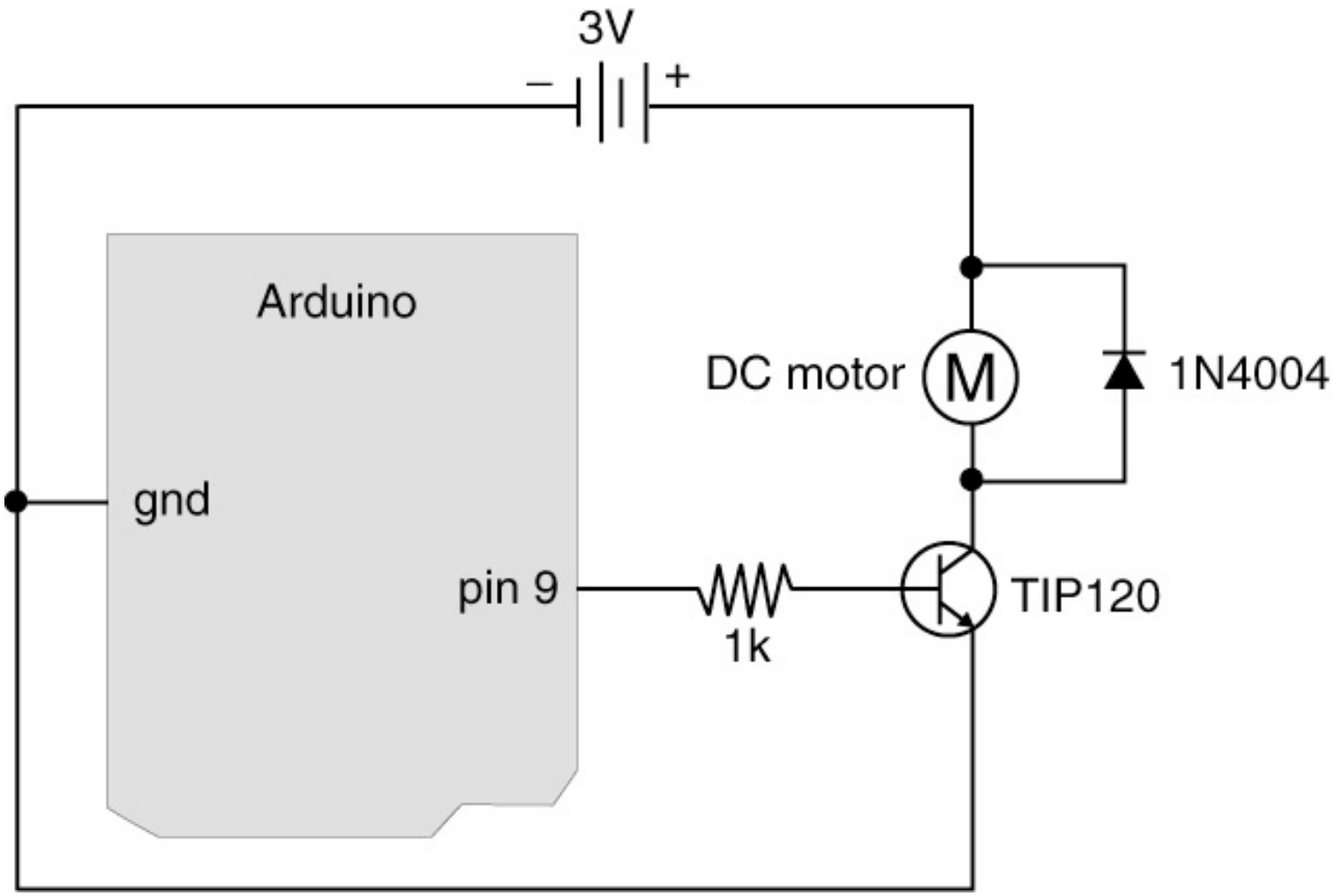

3V
–
+
Arduino
DC motor
M
gnd
pin 9
1k
TIP120

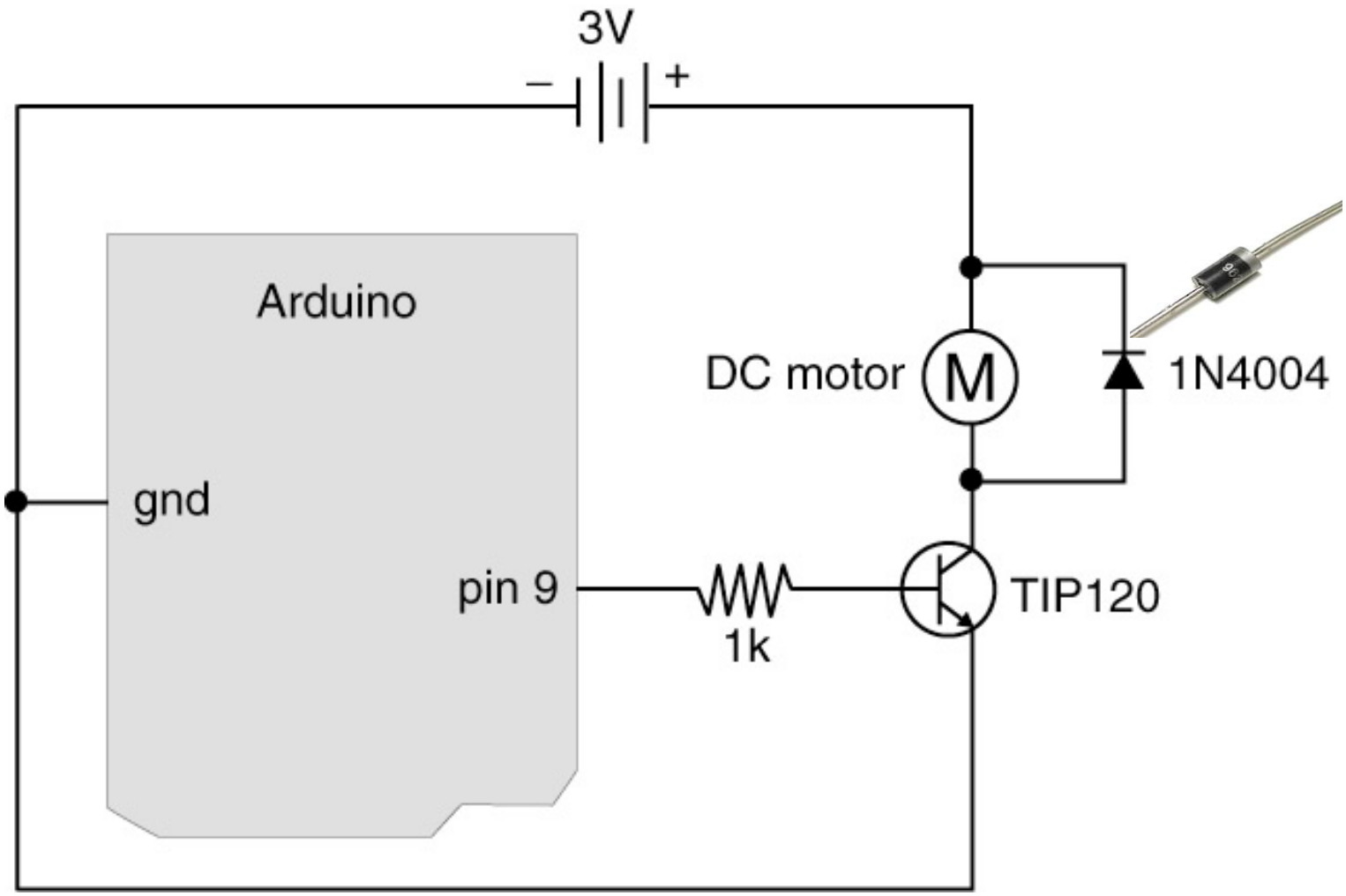

3V
–
+
Arduino
DC motor
M
gnd
pin 9
1k
TIP120

Transistor




3V
–
+
Arduino
DC motor
M
gnd
emitter
base
pin 9
TIP120
1k
collector

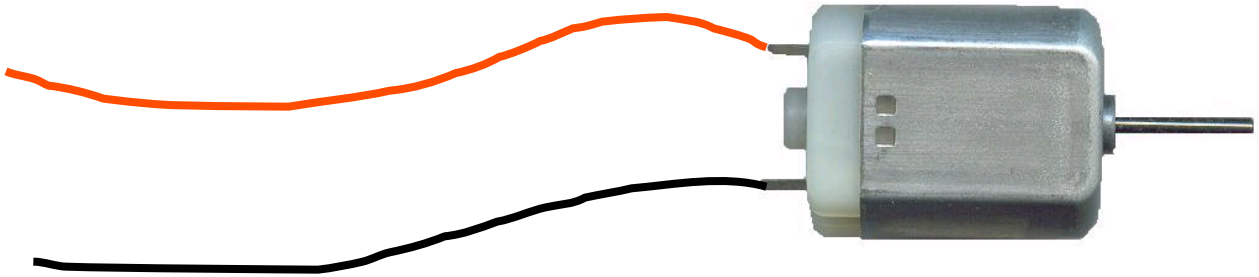

3V
–
+
Arduino
gnd
pin 9
1k
DC motor
M
1N4004
TIP120


3V
–
+
Arduino
gnd
pin 9
1k
DC motor
M
1N4004
TIP120

In Class Exercise

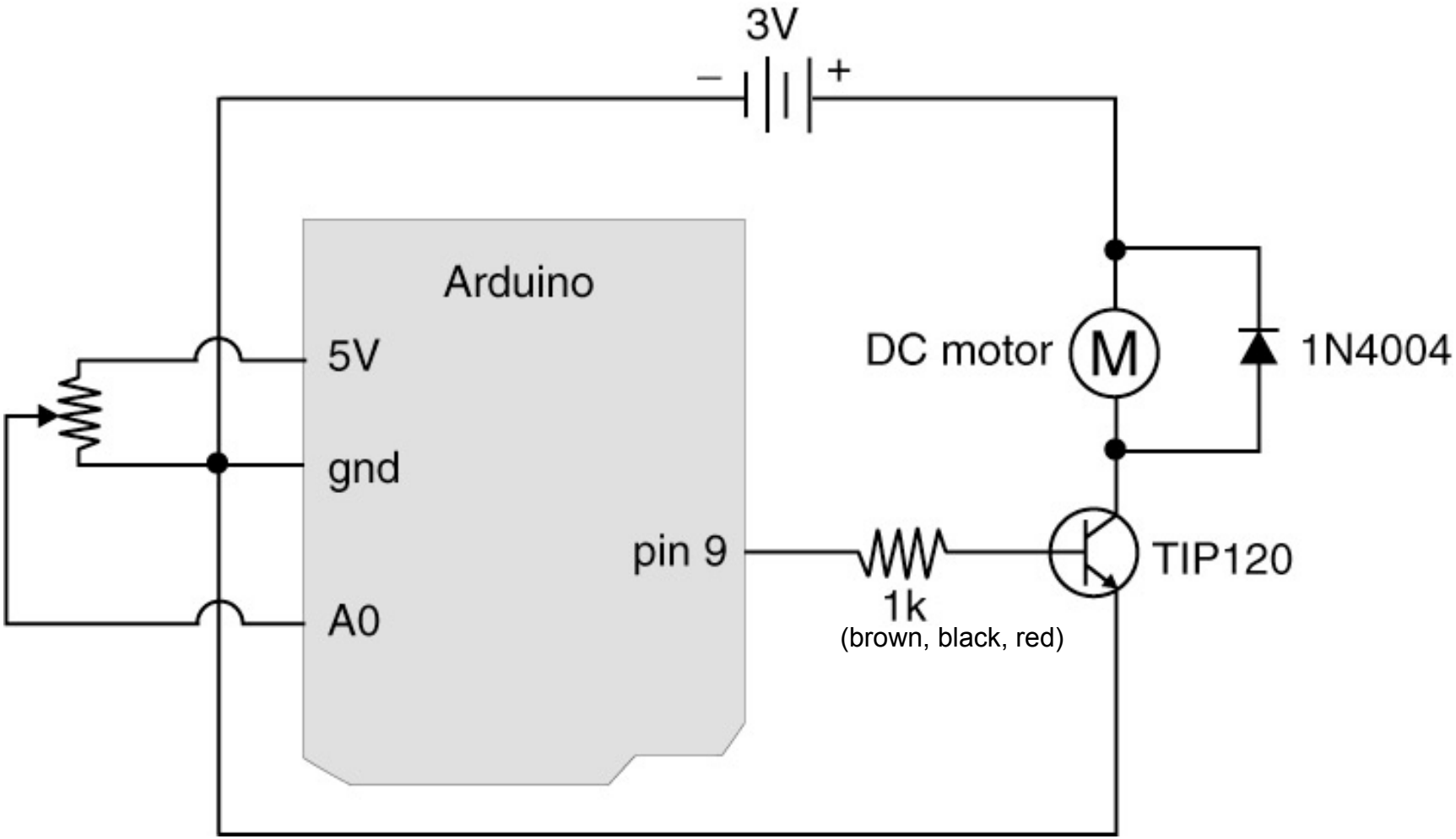
1. Solder wires to the motor
2. Build the DC motor circuit
3. Try your input sensors
4. Explore different propellers and eccentric weights

DC Motor



In Class Exercise

1. Solder wires to the motor
2. **Build the DC motor circuit**
3. Try your input sensors
4. Explore different propellers and eccentric weights


3V
–
+
Arduino
5V
gnd
A0
pin 9
DC motor
M
1N4004
TIP120
1k
(brown, black, red)

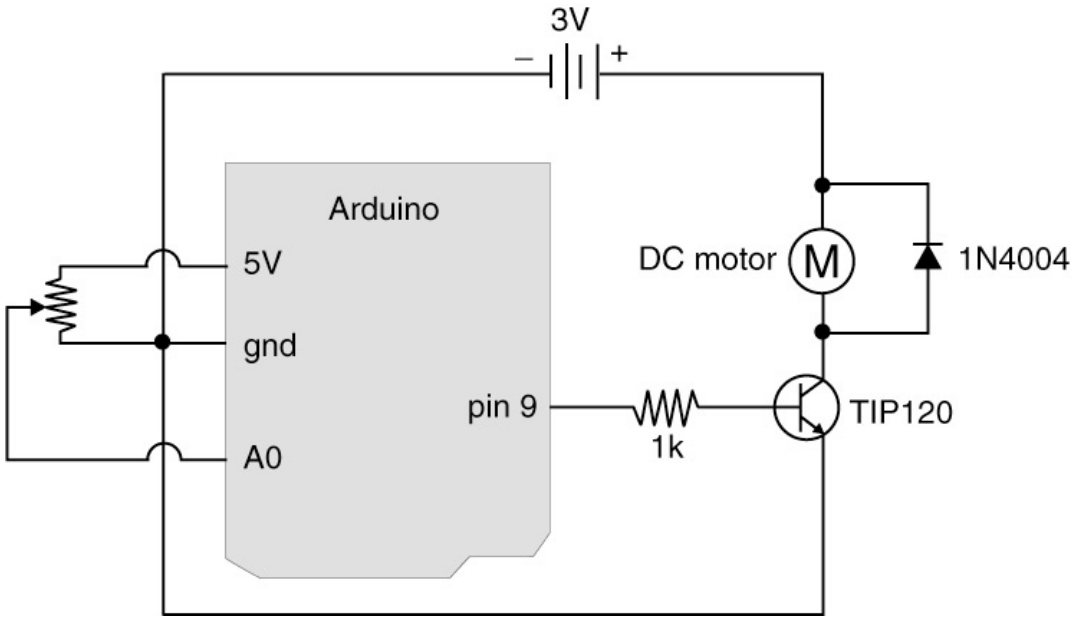
In Class Exercise

1. Solder wires to the motor
2. Build the DC motor circuit
3. Try your input sensors
4. Explore different propellers and eccentric weights

PotControlsMotor

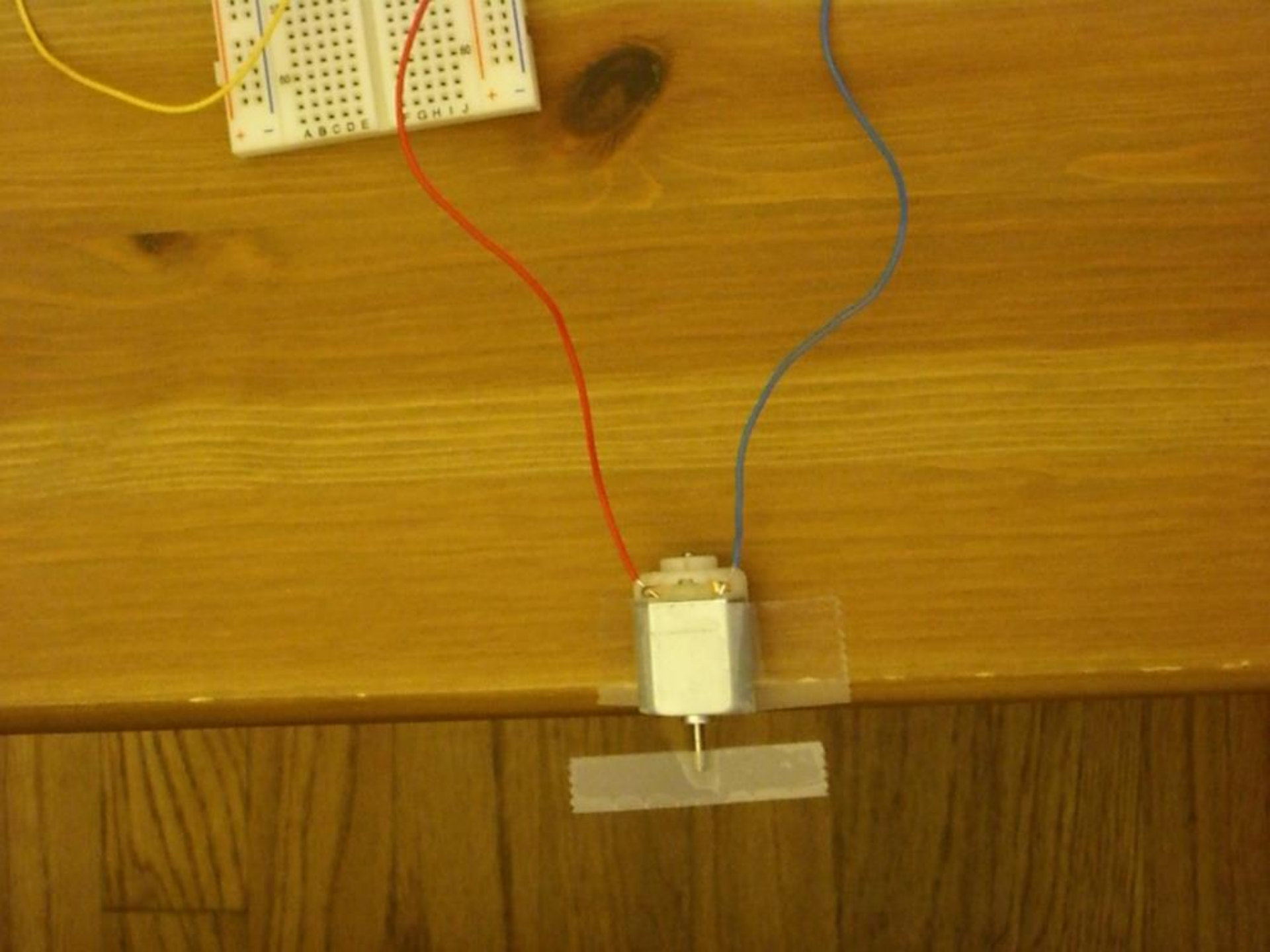
PotControlsMotor

```
/*
 * one pot fades one led
 * modified version of AnalogInput
 * by DojoDave <http://www.0j0.org>
 * http://www.arduino.cc/en/Tutorial/AnalogInput
 */
int potPin = 0;    // select the input pin for the potentiometer
int ledPin = 9;    // select the pin for the LED
int val = 0;       // variable to store the value coming from th
void setup() {
  Serial.begin(9600);
}
void loop() {
  val = analogRead(potPin);    // read the value from the sensc
  Serial.println(val);
  analogWrite(ledPin, val/4); // analogWrite can be between 0-2
}
```

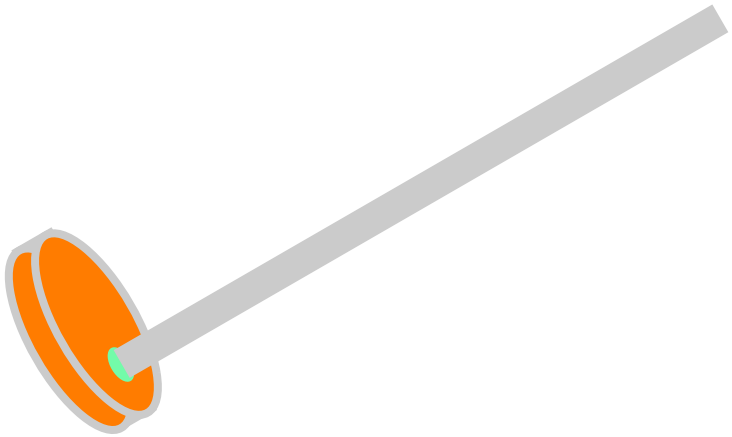


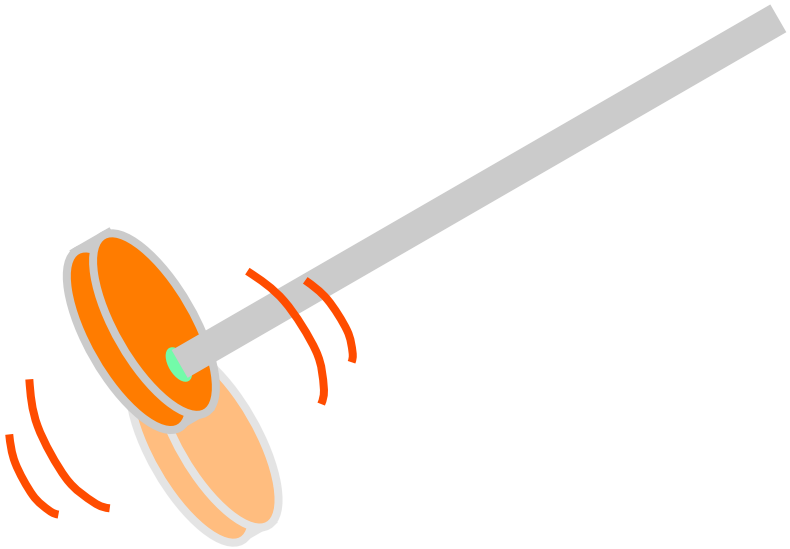
In Class Exercise

1. Solder wires to the motor
2. Build the DC motor circuit
3. Try your input sensors
4. **Explore different propellers and eccentric weights**

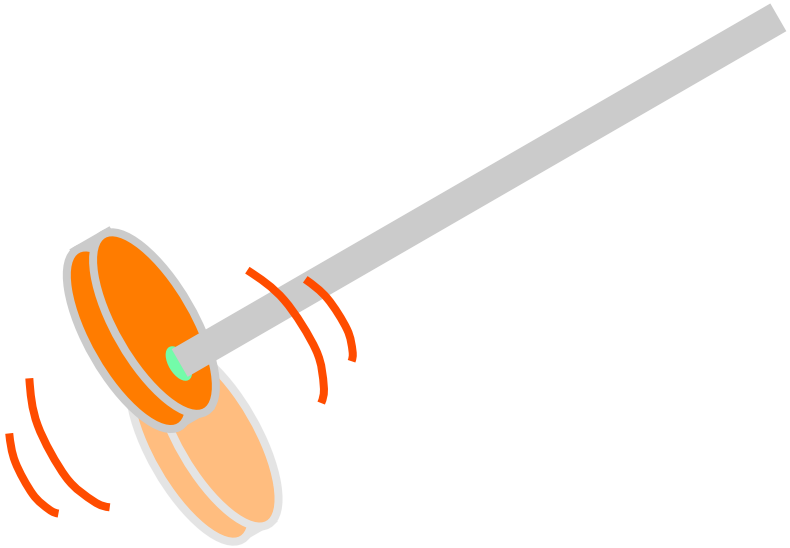


Cork Eccentric Weight

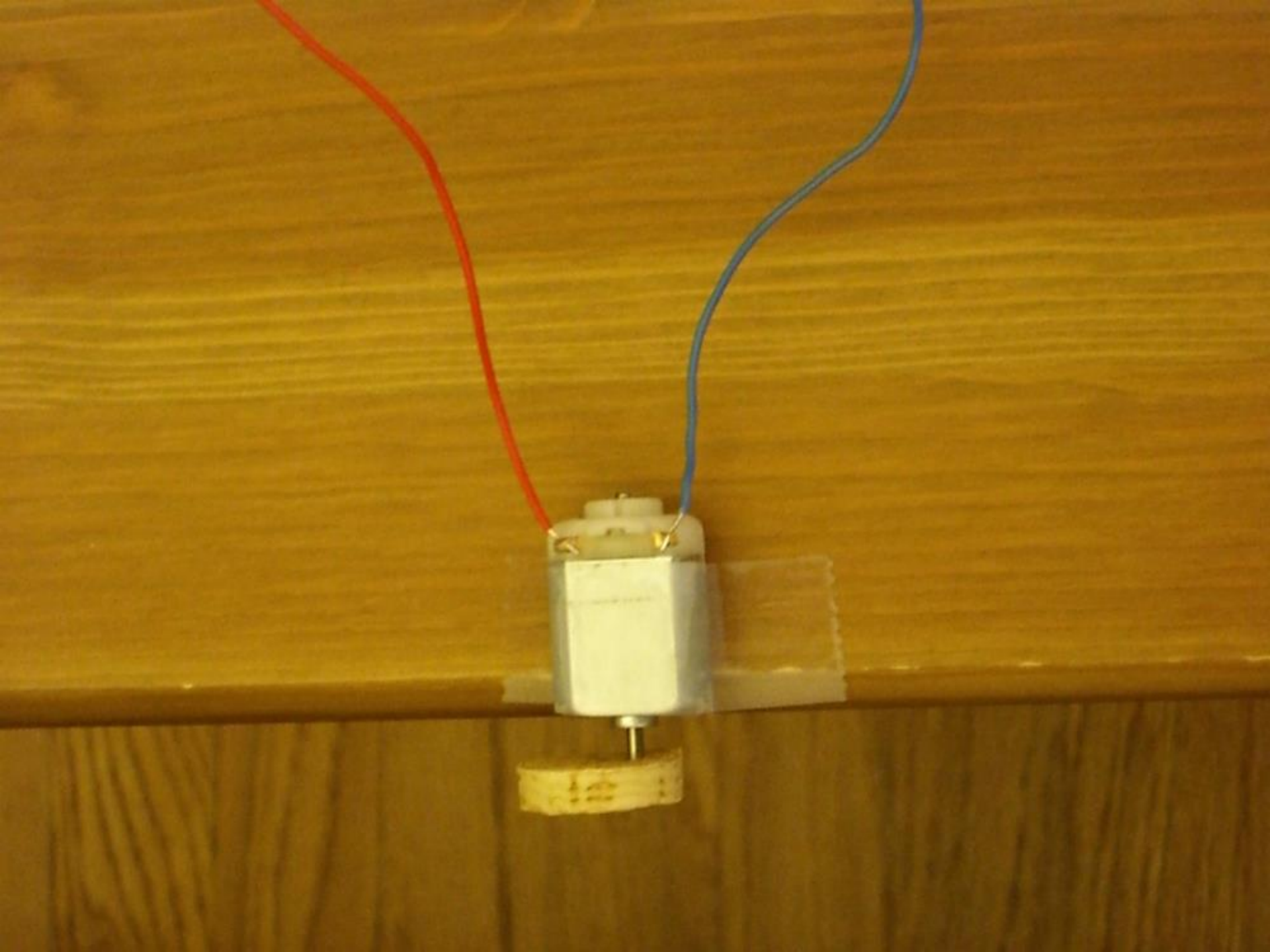




Eccentric Weight



Cork Eccentric Weight



Supplement Reading

Making Movement: Chapter 10 of O'Sullivan and Igoe.

Assignment this week

Explore motion as an output (in a form of display or tactile feedback). Use your DC motor to create vibration or rotational motion (e.g., pinwheels, dancing wires, etc.).

Optional: Combine it with other output (sound, lights, etc.)

Thanks!