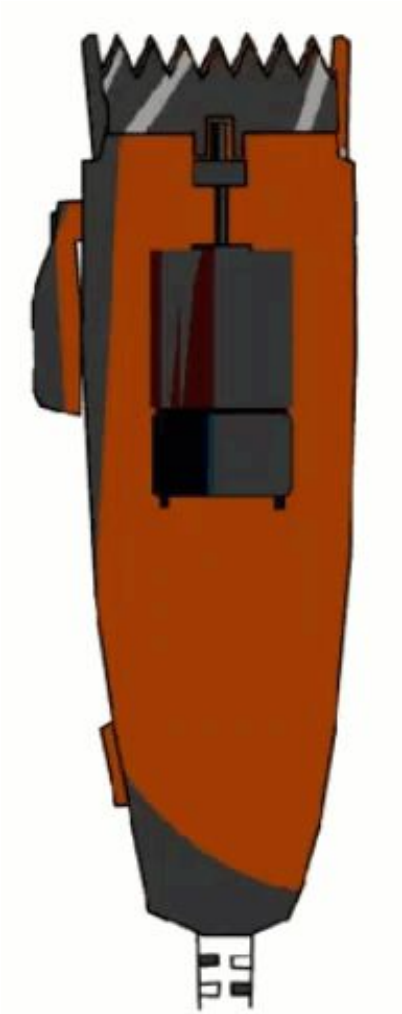
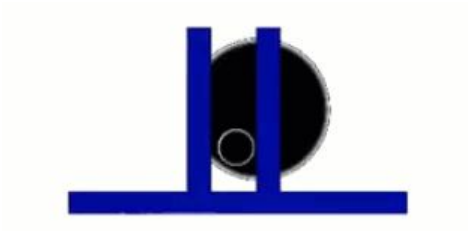
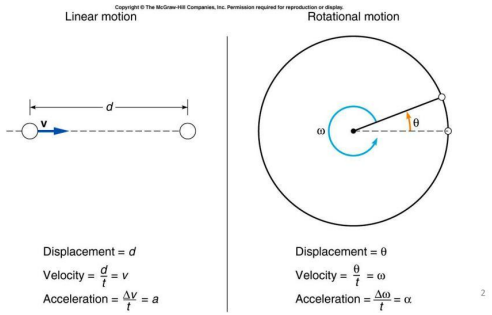
Rotary Motor





Circular motion to linear motion

– ***Rotational velocity*** is how fast the object is turning.
  - Units: revolutions per minute (**rpm**); degrees per second
  - Analogous to linear velocity



Gear:

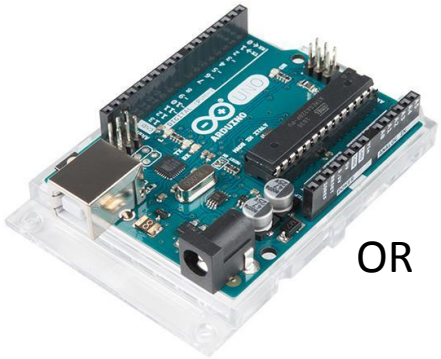
- Paddle Wheel Pack for TT Gearbox Motor
- DC Gearbox Motor - "TT Motor" - 200RPM - 3 to 6VDC
- Cheap Arduino Nano – Amazon
  - OR Arduino Uno - R3

Code Suggestion(s):

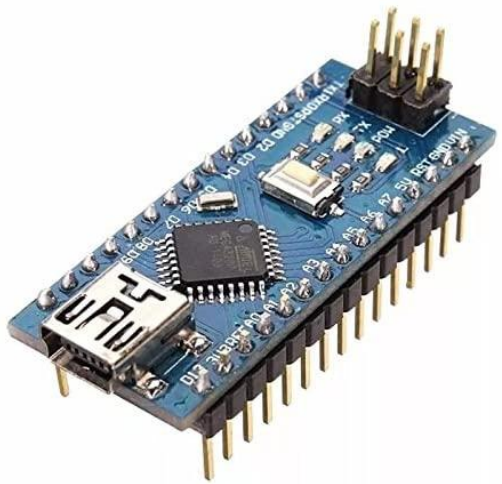
- Set speed of clippers

Science Suggestions(s)

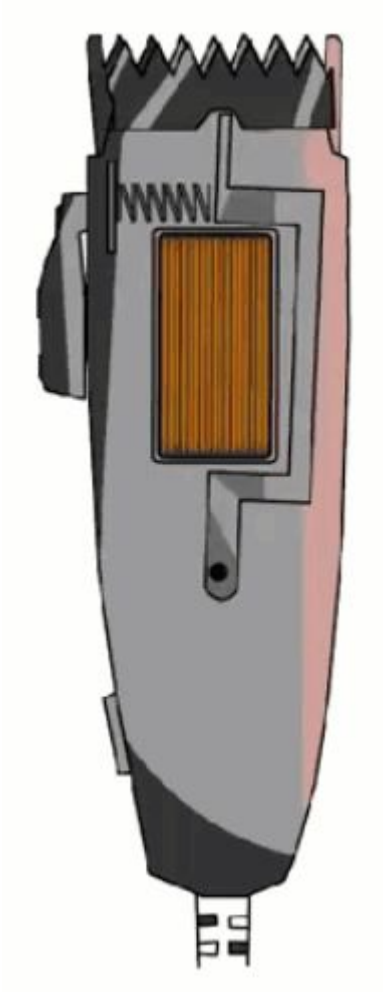
- Translate angular speed/position to linear speed/position

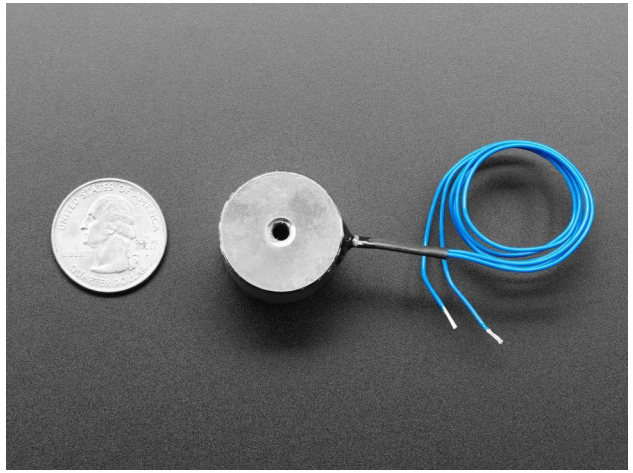


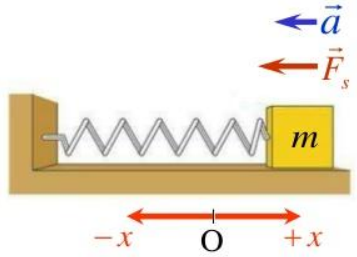
OR



Magnetic Motor







Gear:

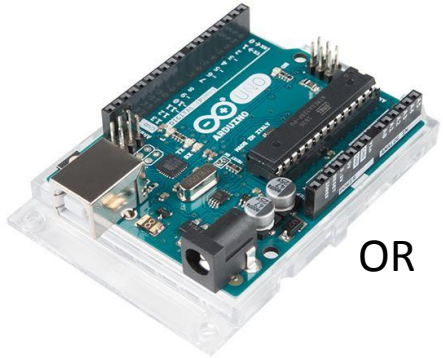
- 5V Electromagnet - 5 Kg Holding Force - P25/20
- Springs of differing k values and lengths
- Cheap Arduino Nano – Amazon
  - OR Arduino Uno - R3

Code Suggestion(s):

- Magnet On/Off

Science Suggestions(s)

- Spring constant
  - Need to figure out proper k for spring
    - Calculate magnetic pull on arm



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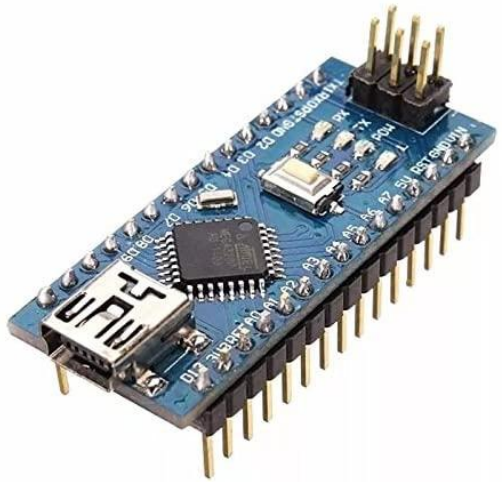
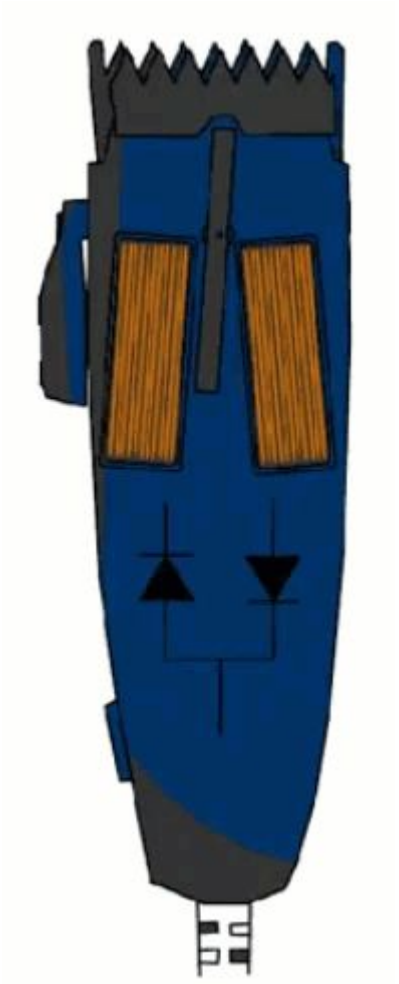
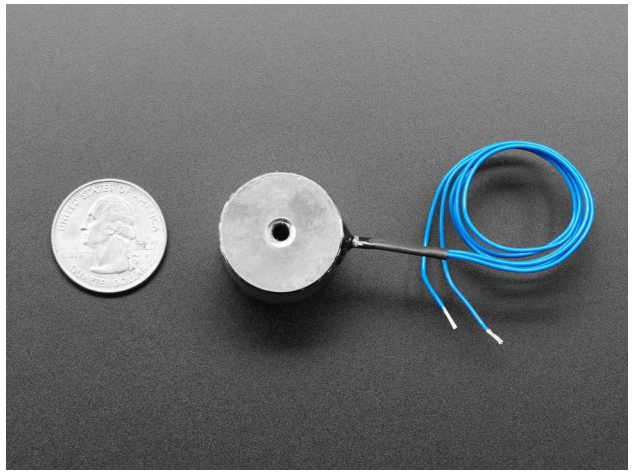
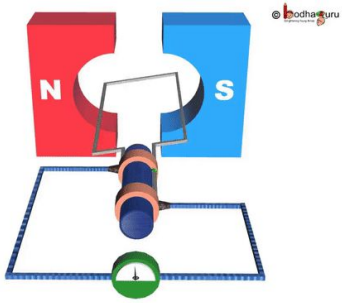


Pivot Motor







Gear:

- 2 - 5V Electromagnet - 5 Kg Holding Force - P25/20
- Hall-Effect Sensor - US1881 (Latching)
- Cheap Arduino Nano – Amazon
  - OR Arduino Uno - R3

Assembly note:

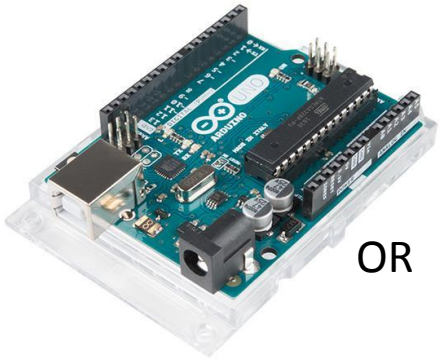
- Attached Hall sensor to arm (front and back each facing a different magnet) and use different pole for the two magnets

Code Suggestion(s):

- Using bipolar hall sensor – have sensor turn off the magnet it gets close to and then turn on the other magnet (on a loop)

Science Suggestions(s)

- Talk about Alternating current



OR