Electric Motors

Seminar Physical Computing

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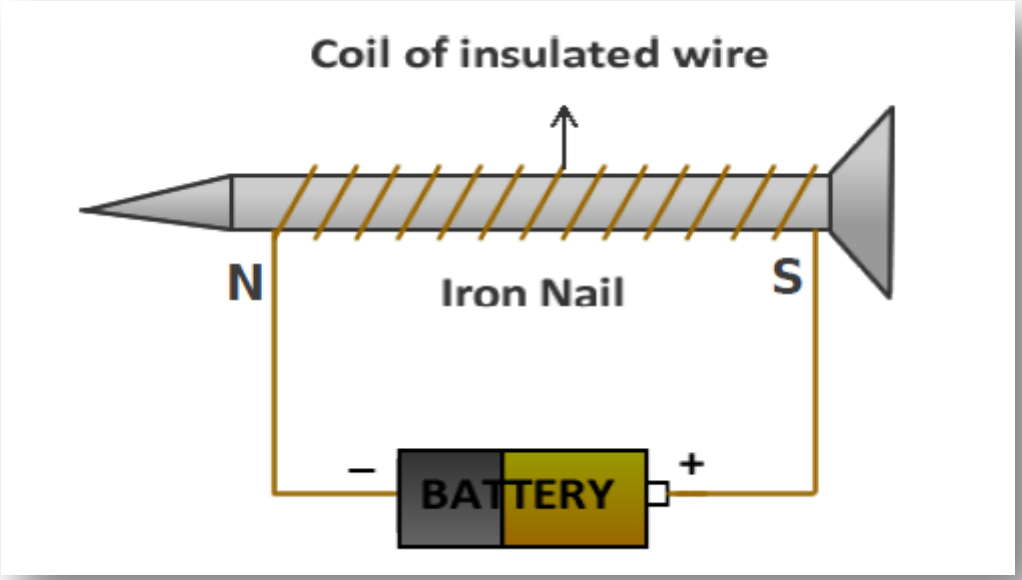
- DC motor
- Vibration motor
- Stepper motor
- Servo motor
- Field of application
- vvvv patch
- “May the Force be with you.”

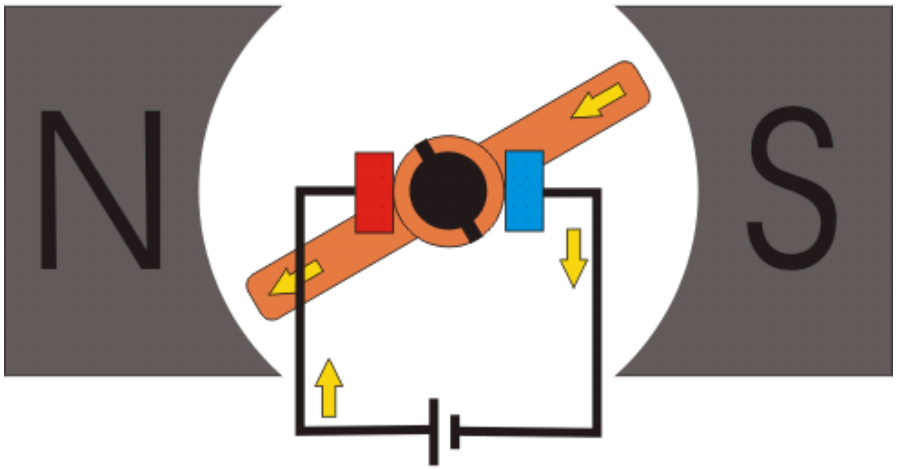
Electromagnet

- pre-condition for all electric motors
- magnetism is produced by the flow of electric current



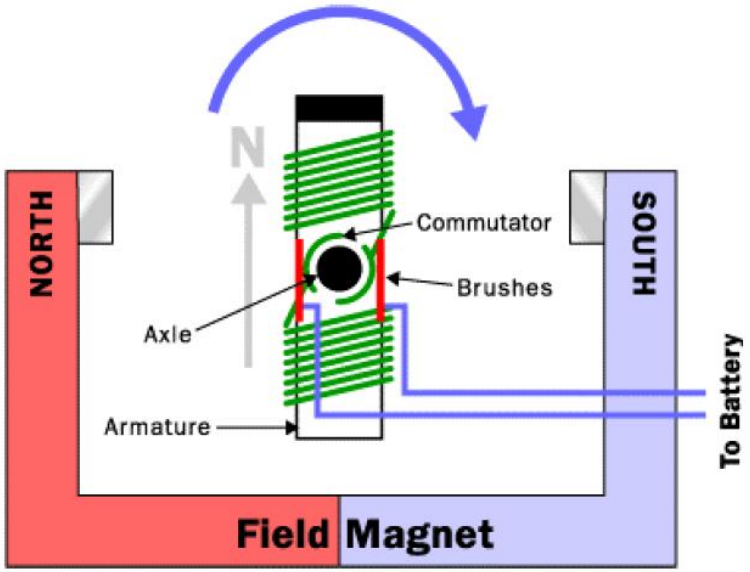
Basic principle

- electrical energy → mechanical energy
- with the help of electro-mechanical force



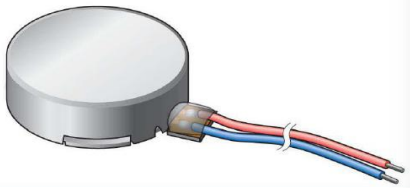
DC motor

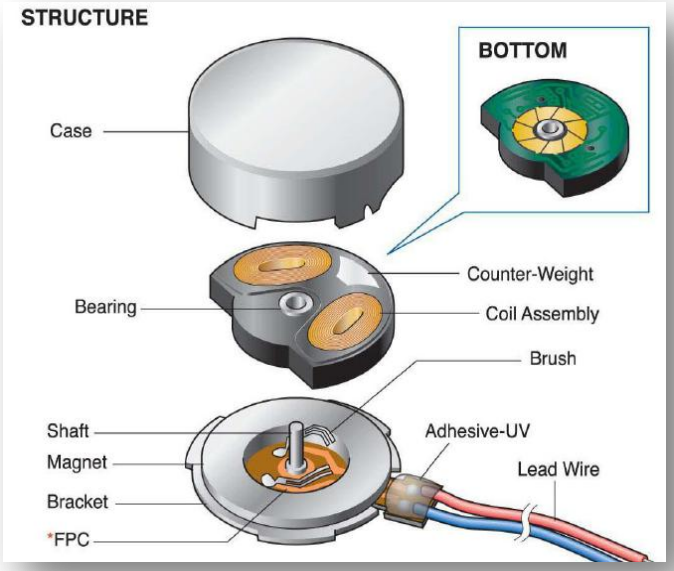
- direct current



Vibration motor

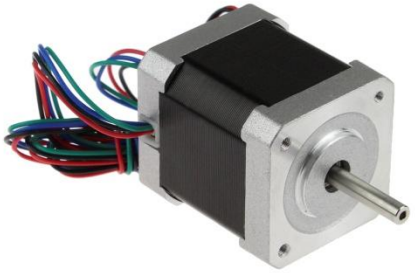
- Improperly balanced DC motor
- Intensity of vibration depends on
  - weight that is attached
  - weight's distance from axle
  - speed at which the motor rotates



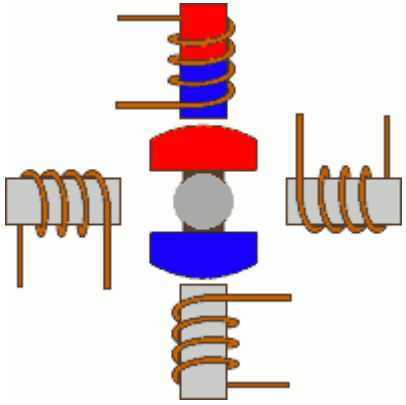


Stepper motor

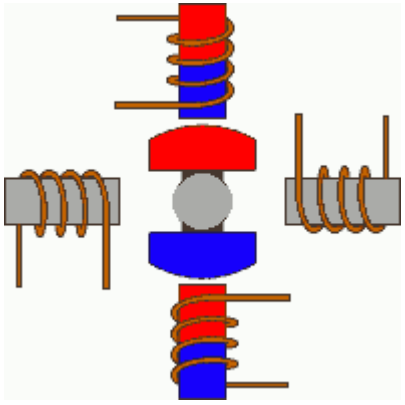
- Brushless DC electric motor
- Moves in increments or steps



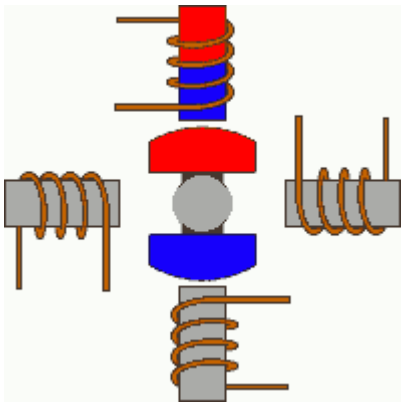
- Different driving modes



Single-Coil Excitation



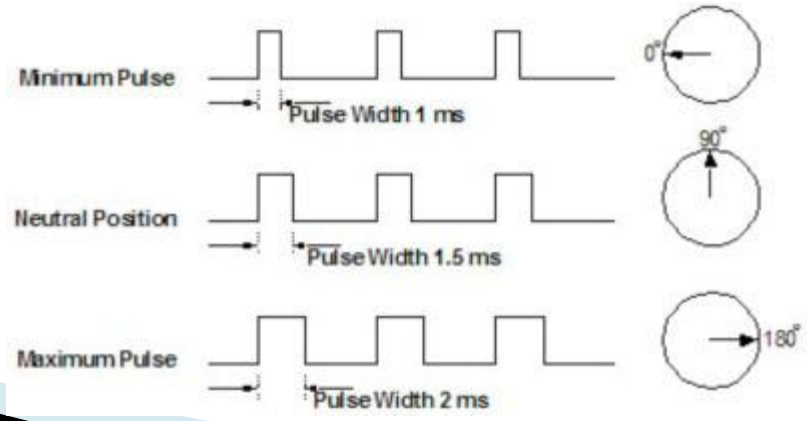
Full step drive



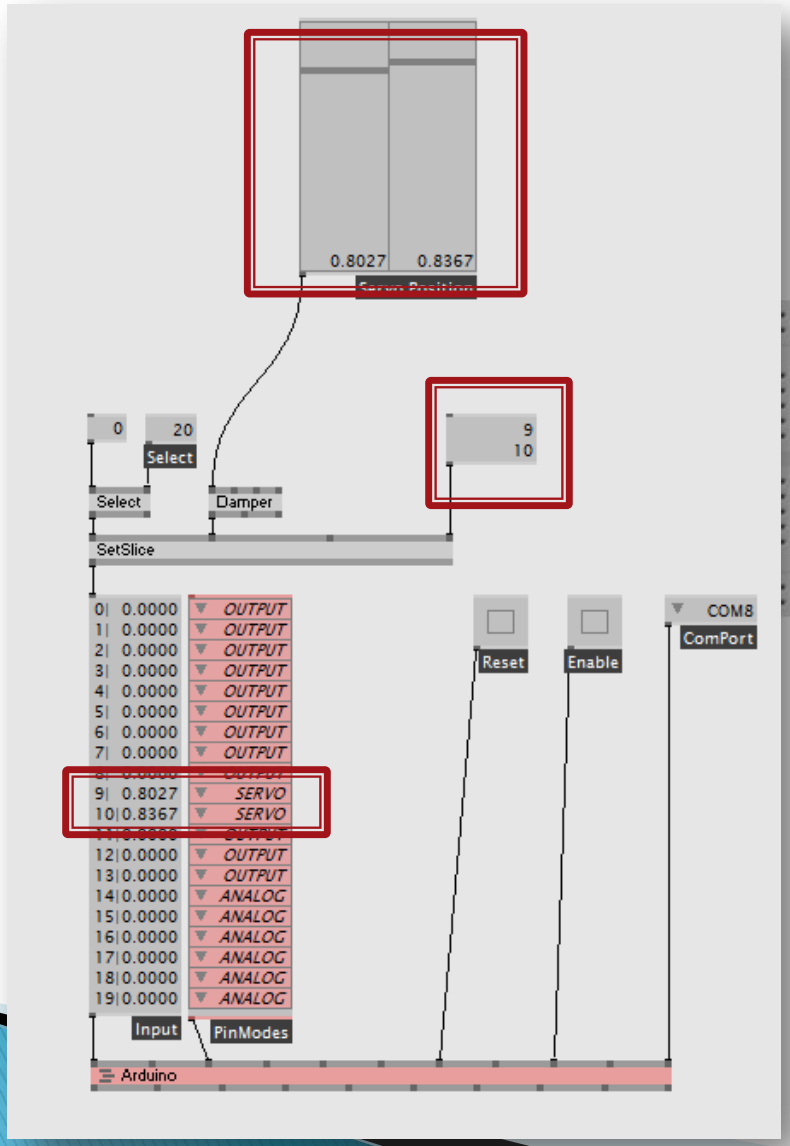
Half stepping

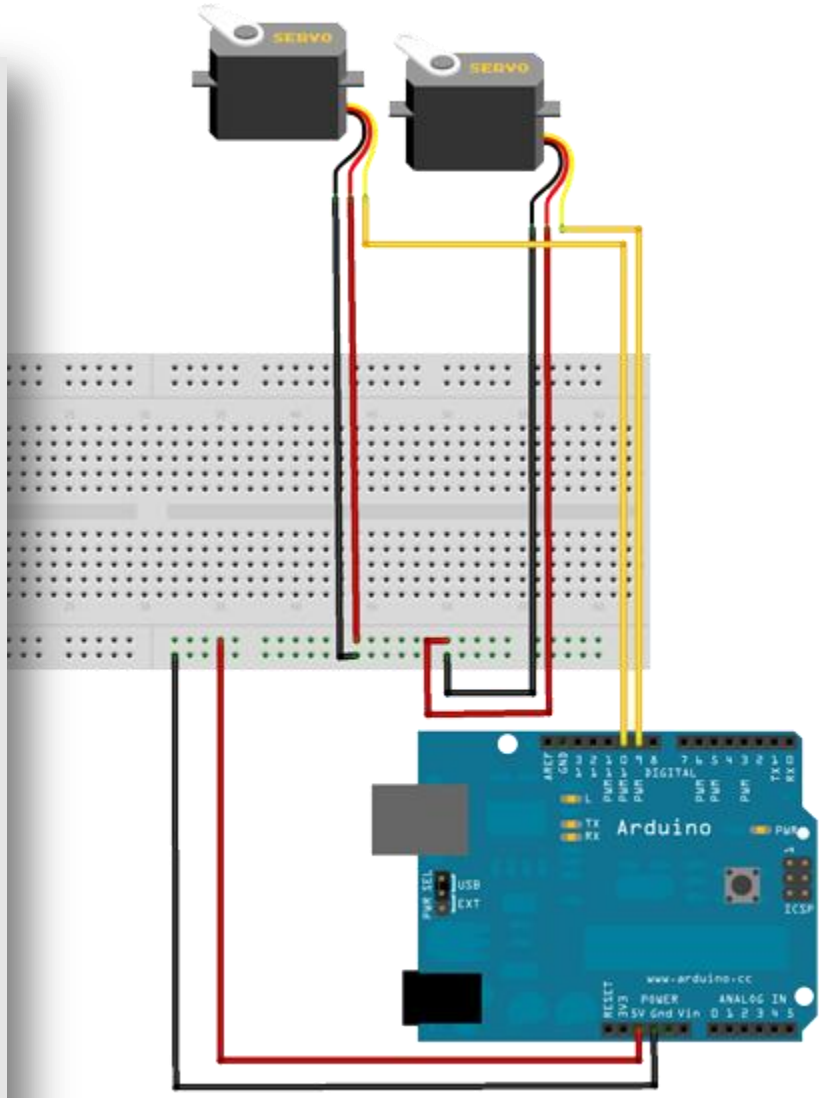
Servo motor

- allows for precise control of angular position
  - velocity
  - acceleration
- includes sensor for position feedback
- uses pulse width modulation
- compares signal with given position value



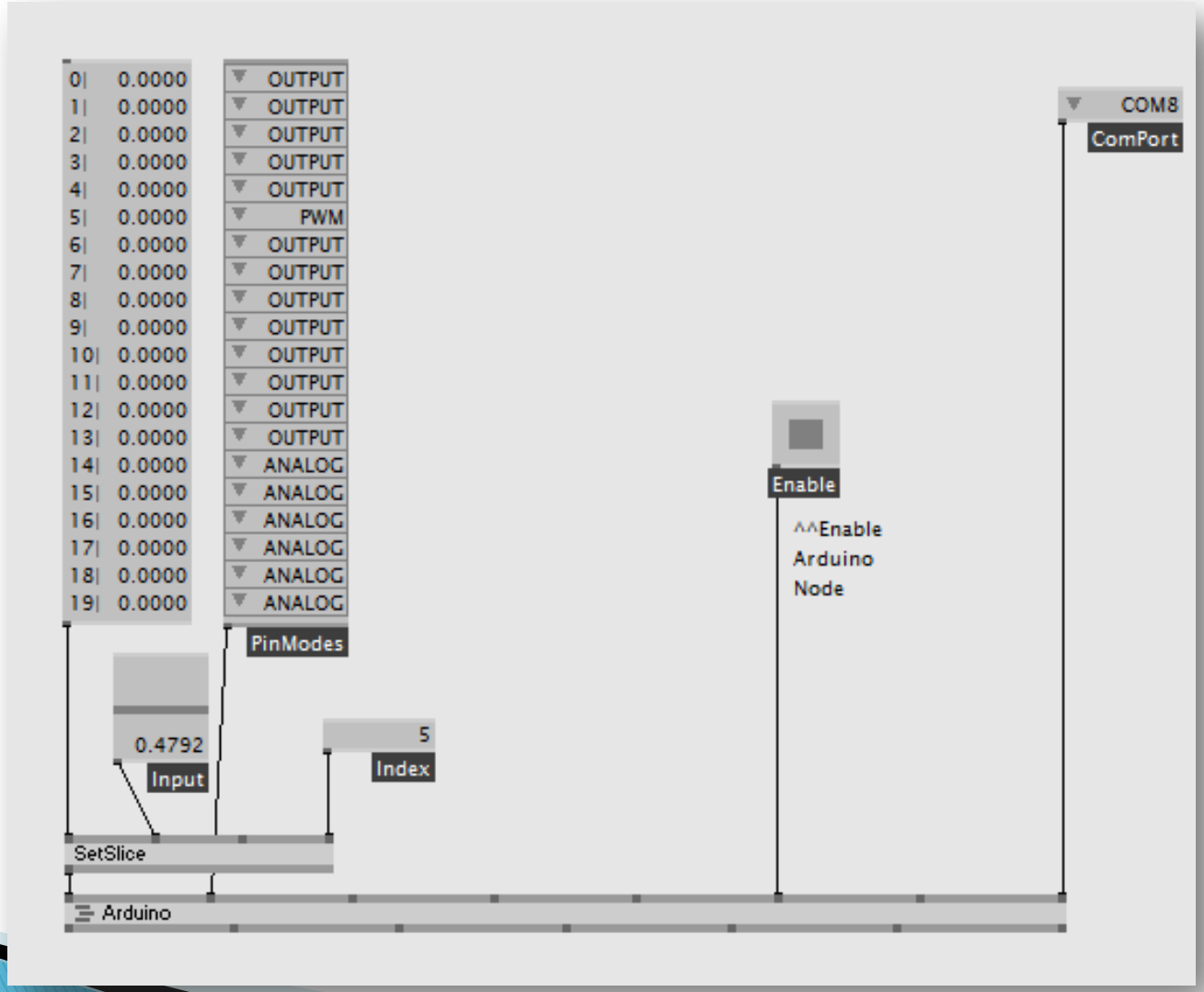
Using servos with vvvv





Field of application

vvvv patch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^^Enable
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Node

“May the Force be with you.”

Thank you.