ARTBOTICS

Exploring Mechanisms with Arduino

Waving Crank
Mechanisms

- Convert rotary movement from a single motor into:
  - Smooth waving motions – Crank
  - Multiple rotary movements at different speeds – Gears
  - Linear motion – Cams
Waving Crank

- Rotary movement to smooth waving motions

![Diagram of a waving crank with joint connections and a rotary motion from a DC motor](image-url)
Waving Crank

- Rotary movement to smooth waving motions
Waving Crank

- **Connector** and **end bar** can vary in size
- **Connector** to **end bar joint** placement can vary
- **End bar** to **ground bar joint** placement can vary
Waving Crank

- Connector to end bar joint placement can vary

Joint is 8 pegs from the bottom

http://www.youtube.com/watch?v=hkb8JgMgVKc
Waving Crank

- **Connector** to end bar joint placement can vary

- Joint is 5 pegs from the bottom

[Video](http://www.youtube.com/watch?v=LOLtf_jcdFl)
Waving Crank

- End bar to ground bar joint placement can vary

Joint is 5 pegs from the left

http://www.youtube.com/watch?v=ob2qLidY1hQ
Waving Crank

- Rotary movement to smooth waving motions
Waving Crank

* Horse rider
“Clapping” Crank

- Rotary movement to smooth waving motions
Mechanisms

- Unplug your car motors from the Arduino plugs

- Plug the two white DC motors in your kit into the Arduino plugs for motor A and B
Mechanisms

Motor motorA(pin, pin);
Motor motorB(pin, pin);
motorA.rotate(duration, power, direction);
motorB.rotate(duration, power, direction);
motorA.stop();
motorB.stop();
delay(milliseconds);
Mechanisms

Motor mount

Motor head

Tiny screw

Long machine screws with nuts

Linkage mount

Linkage

Short machine screw with nut

Long machine screw with nut

Long machine screw with nut
Mechanisms

Linkage mount
Foamcore

Motor mount
Foamcore

Long machine screws with nuts

Tiny screw