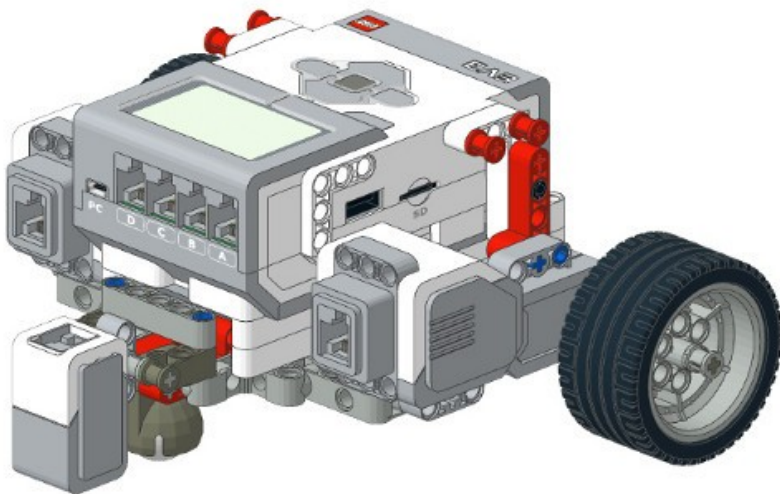




MINDSTORMS[®]

EV3

Robot Base



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Robot Base

- Most of the time, it's easier to build a good robot base first, then add attachments to it to accomplish missions
- A good robot base can be reused from year-to-year, and for different competitions
- The robot design provided by the Lego software, is not a good design for competition; try not to use it.

Wheels

- **Smaller Wheels**
 - Slower, but more accurate
- **Bigger Wheels**
 - Faster, but less accurate
- **Medium wheels** (wheels that comes with set)
 - Usually the best choice



Wheels

- Far Apart
 - Far apart wheels turns slower, but more accurately
 - Accuracy is usually more important than speed

Far
Apart



Close
Together



Wheels

- Thin Wheels
 - Thick wheels have a large contact area
 - Contact area may change as the robot move
 - Results in inconsistent turns



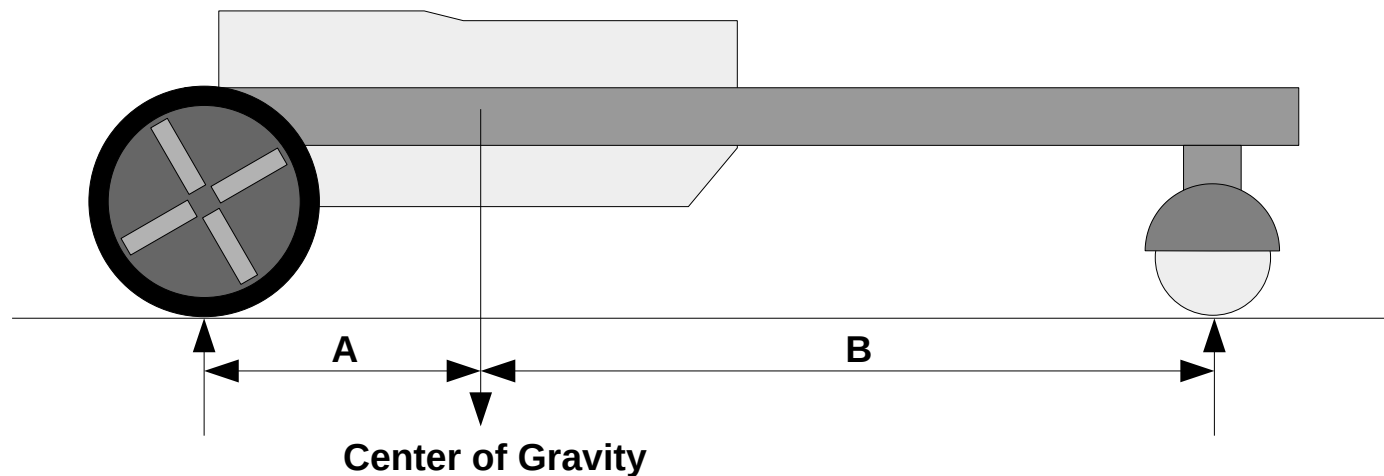
Thick



Thin

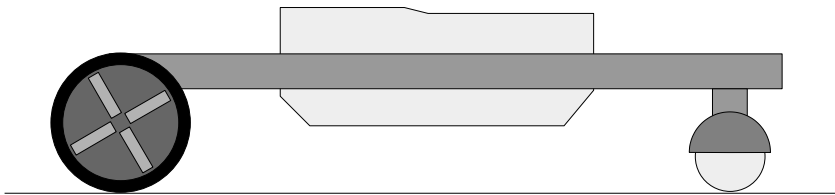
Center of Gravity

- Center of gravity close to wheels
 - Better traction for the wheels
 - If traction is insufficient, wheels will skid and cause...
 - Big inaccuracies
 - Weak at pushing objects

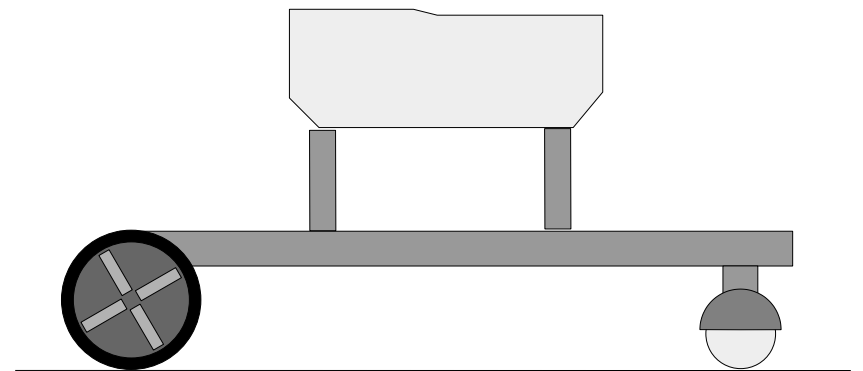


Center of Gravity

- Keep Center of Gravity low
 - High center of gravity makes robot unstable
 - Tends to topple over when stopping
 - Wheel may skid easily when starting or stopping



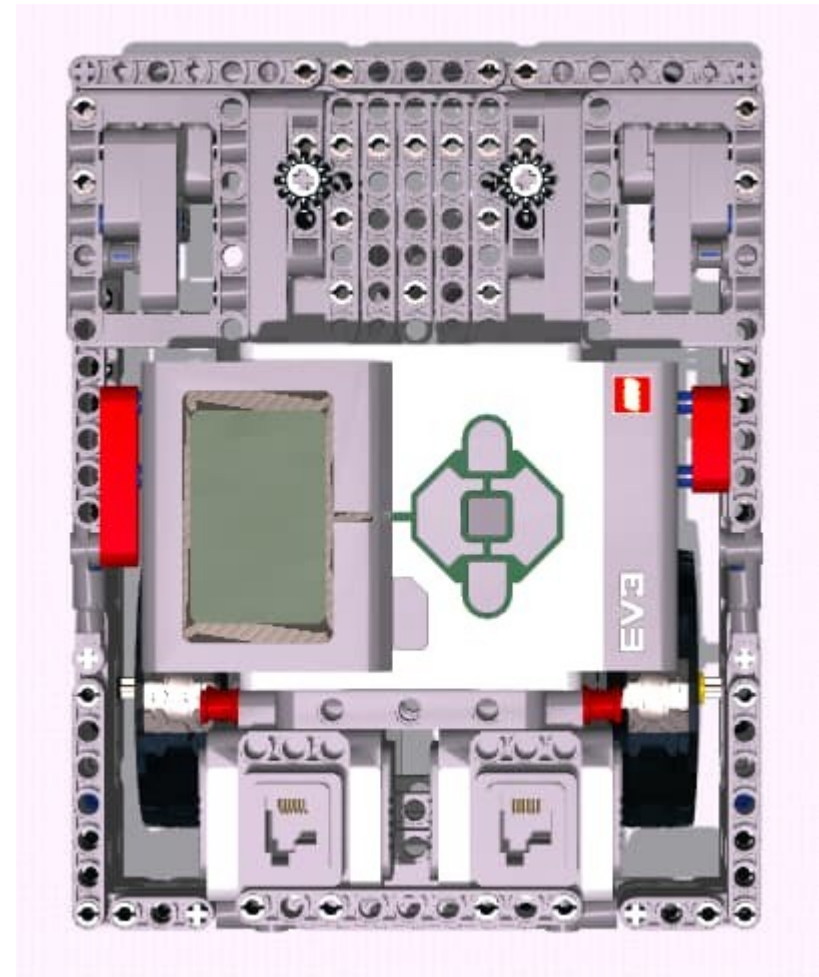
Low Center of Gravity



High Center of Gravity

Back

- Long and Flat
 - Important for aligning starting position
 - Ensures that the robot starts in exactly the same direction every time



Summary

- Wheels
 - Small
 - Far apart
 - Thin
- Center of Gravity
 - Low and close to wheels
- Body
 - Flat back

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