Manipulator Design Check List

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* Design in some kind of CAD program.
* Check, and check again.
* Create parts and assemblies document.
* Manipulator MUST have full control over the game piece for it to work well. Don’t leave game pieces “to do their own thing”.
* Must be light weight, especially if at the end of a long moment arm.
* Experienced teams suggest never running a motor on more than 50% of its stall torque.
* To reduce torque, you can: use a belt and sprocket system, springs, surgical tubing, counterweight.
* Burning out a motor is the ultimate shameful act. \*\*
* Keep track of weight (important for math, robot stability, and rules).
* Use Rivets instead of bolts.
* Know the capabilities of your motors.
* Standardize hardware.
* Use the right tool for the right job.
* Pneumatics are often a better choice than motors.
* Avoid set screws (robots undergo a lot of vibrations and set screws come loose), instead use pins, welding, keyways to attach parts to shafts.
* Don’t rely on gravity to do anything.
* The more joints the more places for failure.
* Know your limitations.

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