* **Weight**
  + Dictates how robust system will need to be
    - Weights of some 1 ton offerings
      * [HF 1 Ton Gantry](https://www.harborfreight.com/1-ton-telescoping-gantry-crane-41188.html): 736.54 lbs.
      * [Titan Attachments 1 Ton Gantry](https://www.palletforks.com/workshop/cranes/1-ton-adjustable-gantry-crane/840042.html): 317 lbs.

* + - * [Jegs 1 Ton Gantry](https://www.amazon.com/JEGS-Performance-Products-Adjustable-Capacity/dp/B073Y9KBMM): 282 lbs.
      * [Eastwood 1 Ton Gantry](https://www.eastwood.com/eastwood-1-ton-capacity-gantry-crane.html): 550 lbs.
  + What motors and gearbox to choose
    - Their added weight
* **Tires**
  + Size?
    - Bigger tire, more impetuous required
      * Bigger motor or lower gearing
      * Greater traction
    - Smaller tire, more mechanical advantage
      * Smaller motor but still needs gearing to limit top speed
      * Lower traction
    - [Tire size calculator](https://www.inchcalculator.com/tire-size-calculator/)
  + Type?
    - Lawnmower
      * Cheaper, smaller, Grandpa has a bunch of lawnmower rims **(maybe even a good set of tires to use)**
  + Various tire offerings from the usual scumbags
    - [Kenda 15x6.00-6: $29.99](https://www.tractorsupply.com/tsc/product/kenda-k500-super-turf-tire-15x600-6-4-ply?cm_vc=-10005)
    - [Hi-Run 13x5.0-6: $25](https://www.tractorsupply.com/tsc/product/hi-run-replacement-tire-wd1053-13x50-6-2pr?cm_vc=-10005)
    - [RubberMaster 4.10/3.50-4 4P: $22](https://www.tractorsupply.com/tsc/product/rubbermaster-410-350-4-4p-stud-tire-450021?cm_vc=-10005)
    - [10-inch tire with hub: $8](https://www.harborfreight.com/10-inch-pneumatic-tire-30900.html)
    - [13-inch tire with hub: $14.50](https://www.harborfreight.com/13-inch-x-4-inch-pneumatic-tire-67467.html)
* **Impetuous**
  + Electric or hydraulic?
    - I’m more familiar with electric
    - Hydraulic becomes costly quickly
      * Could DIY some components myself
  + How much “oomph”?
    - Weight?
    - Speed?
      * Depends on tire, top speed of unit should be under 5 MPH
        + Don’t want Grandpa to run into things :)
* **Electric motors**
  + AC
    - Single-phase: No speed control, start capacitors
    - Three-phase: Speed control, no start capacitors, no prior experience
    - How power? 120V or 220V
  + DC
    - Prior experience, easier to control
    - [2000 W BLDC motor kit: $145](https://www.ebay.com/itm/233567208649?_trkparms=ispr%3D1&hash=item3661b0c4c9:g:p~gAAOSwRCZfmk-n&amdata=enc%3AAQAGAAACoPYe5NmHp%252B2JMhMi7yxGiTJkPrKr5t53CooMSQt2orsSRAQR8FABHjfpFoyRlXhWmRt16Etr1t3X1aXtjgQAeq1XUOkEfTekoZMTHtoXngajloZBOXm7Hi0wLrq23J2M3BjDmiu7Bue4q9FK3nUmPgaz2ikIg7zZ9Rvw6Fh0oGv%252BIP%252BRwze%252FR39UotfOiRy9Q8%252Ba3S9Ym7Dl72QcFHfDix2VO%252BwKEV5UNFtLJAiM8z1OK%252FPUbNY6ELFJIAZ1ZxSx3TyN%252FecmtIlhhWFE4PSU2uIOfTNKwKM5D1fIBC1wUdh6s504PFpWhRO4cet80ajQDdZRsjYl5m3p%252BwsWJSbFoK%252BSRqoQjf2AuiQmlVdTbPQC3H%252BMwLFiJXj8G8QdVhzT5VHWfEolxJjcK2eLkXdxz2m3b%252BPHtS%252FMbAJ4rzxWub5k5T8Hj7jMaGbiaK%252FXql5jdlXIPbWIlQnaqSSw07r%252FaDJugx8U%252F8KEDhk9jVREUw3lMb%252FO9fYJDlSWbZj9JRyPNjo8RLmJ8p0vXDYoptzeXki18BzGA1BgPflnFz4kitajskSHZAXf0oHwhfEw2JnDbzoFTBDIt8CBq8R5BZiah9KYE4prYgY%252BarqbH1i97rUSnAfPW8MWwySqNHmLisdvIg2LrdU8nCtwHxE86DHme7BEKMerfYFXK9qLcJfZ4q7bvN9yz25tgslZttWzYfY5c%252FX%252BBXkCvIcQ3Fn4iyPuL77GCHdq0hdj%252BrURp%252BV%252BFoc%252BiXKWscPmppms3cVgKc%252BbD5A9QL2ewM0zenUC7jJ7XGWAfcL0K4rnnTDDLUxYpTDqa%252B9mtpiBvv%252BBPAV2jg7Lyfq4SeNyyJ87gXuByHRvct8l9CB1rdkYHbFlObhy9JWVkgQ6gZh%252BNIcCuzYr75KFrg%253D%253D%7Cclp%3A2334524%7Ctkp%3ABFBMwLjetM1f)
      * Should provide ample power, comes with sprocket on output shaft
        + Perhaps overkill
    - [750 W BLDC motor kit: $105](https://www.ebay.com/itm/313787256725?_trkparms=ispr%3D1&hash=item490f2d8f95:g:138AAOSw7q9hWfTz&amdata=enc%3AAQAGAAACoPYe5NmHp%252B2JMhMi7yxGiTJkPrKr5t53CooMSQt2orsSB0Xm7k0guzAysaIMfJcbBEUR%252BPT%252FOxEXDKI%252B6bryLQlweGbhb73CIVndAOh3x1ODrlSD4j4ZGPfurX1XELA6km%252FKSiYUXRz2vRiTQlbVS9Oa%252F9xv%252Bt08VHtSKLrWPOu3U%252FHt6nHbIsVkbKgZyGEawgyrpX2tCrJ18zv%252FIlihTDwA%252FnU%252F7OyNYFJYYVoYxlFbpRthDRsjb0Bg73WsfY66i%252B1HPXpN5%252F36b0tfXqW1UGHQNRNSzK9vKxgBPlqj3acjnthTppACTpn9HFw56DxTj1%252BixXUjpPri8PsdfyPL50Y3LwxAosa9KwP%252BUWUeCx%252FNHBn%252F1nEDFEfbmgiTcM54CCPIDrYay19r4ls6k2PflUdlLK%252FThani%252Be2WXRP6ybOWuJ4awiHRp5CXtcHpfio%252BWoaly1pj9mFVCz9UOaRN2xx3q4OaXZwTmWyMVbB%252FToDDzQPJo3ruiKpIOHtK3uZ958%252Bgo3Z2NgA3j2iEzbLIJzBbi%252BfbdCon5w9N4Bn4RlvYiwFqQ6PQTUEfinKn4w5QryI3zC7BxZyCeuxCXcjTaBaMmAyw6pt2yWoLrsSjr2OT31mvQBw%252FIjoBMBd95wb5NCKl8uc7hKsZFUGTryGM%252BxLG4nsmEjWPSyRzL63hnKuMebSHRuODaQacyOap7LCBAB2%252FTORtVyI8YwniKu044t5rX3kKTpVIBzAzgGDsHC6UQPC1P%252FzpomoYojadDa3IXGTtUnlKy7SPMxKaMaLjyrqDKWcDY6do7ruaGjyWgmJFHG84u66k9IJUbU6MDwQm56Qs0OTlcpXJdsai%252Bpqu7NaTFuD2C1yjcz8JCNBNE1IRVr1DJybZJBkn%252F%252FfqJ%252FLsjw%253D%253D%7Cclp%3A2334524%7Ctkp%3ABFBMwLjetM1f)
      * Two of these should provide adequate power but would be cutting it close
        + Could always lower the desired velocity
* **Power transmission**
  + How to get desired output speed and torque?
    - Gearbox
    - Chain
      * Cheaper
      * Bike chain allegedly withstands up to 1 kW and 2000 lbf
      * [50 tooth, beefy sprocket: $45](https://www.ebay.com/itm/174420571819?hash=item289c46b6ab:g:EqMAAOSwXjRfUQo4)
      * [Another beefy, 50 tooth sprocket: $40](https://www.ebay.com/itm/224089320925?hash=item342cc3addd:g:XycAAOSw9L1frxaG)
* **Powering this contraption**
  + [48V Li ion battery pack: $250](https://www.amazon.com/Lithium-Battery-20000mAh-Electric-Bicycle/dp/B08XLWXJST/ref=sr_1_5?crid=CHCTXI5IKBMG&keywords=48v%2Bbattery&qid=1642478197&sprefix=48v%2Bbattery%2Caps%2C89&sr=8-5&th=1)
  + 12V car batteries: 4 X $60
  + On-board generator and 120 VAC to 48 VDC converter: **expensive**