**Chapter IV. Design Specifications**

## Chapter IV. Design Specifications

This chapter contains the basic user requirements - sometimes identified as 'Level 1 Specifications' . The engineering values that are derived from these basic user requirements are your design specifications. They include engineering targets which are usually hard numbers and not-to-exceed values. If your device works with another component or system (nearly all devices do!) then the interface specifications are identified in this segment. If necessary, a brief discussion of how you arrived at your specifications may be included. Itemized or bulleted specs are standard. Your specs should include as many numerical values as possible as long as they are accurate and traceable to some firm requirement. You should tie these in with the information in the preceding chapters.

Due to the fact that this project proposal is a type of competition and lacks both a sponsor and firm/OSHA/professional/industrial standards, many specs will be either required by the competition guidelines or the personal targets for the group.

Offensive/defensive Specs

* If a wedge or flipper is utilized (see Chapter V) the device must be able to lift/push a 25 lb object with ease. Shooting for >30lb.
* If an externally threaded (or studded) roller is utilized, it must also be able to inflict at least \_\_ lb of force.
* If a strictly geometric wedge is used, (no hydraulics) the bot must be able to gain enough speed to push around another 25 lb bot.
* The power supply will idealy be able to run the bot for 10 minutes (or at least for 3 minutes and be accessible enough that it can be replaced in under 5 minutes.)
* Optimized battery life, weight, and force

Interface Specs:

* Must include a master power disconnect switch
* If a Bluetooth is used with a store-bought controller it must interface with an Arduino, which in turn interfaces with the motors driving the wheels/track as well as roller/hydraulic pump/wedge.

Material Specs:

* Device (Not including peripheral equipment) must weigh less than 25 lb.
* Device must stow into am 18” cube.
* Device must not have sharper than 1/8” radius edge.
* Device should cost less than $500 and include receipts.
* Aluminum is being strongly considered for its light weight and easy machining/welding
* A layer of stronger material may be included to improve hardness/durability.