**Chapter IV. Design Specifications**

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 specifications will be either required by the competition guidelines or the personal targets for the group. The specifications were categorized as follows;

Offensive/defensive Specifications:

* If wedge or flipper is utilized (see Chapter V) the device must be able to lift/push a 20 lb object with ease. Shooting for >25lb.
* Bot can also withstand 20 lb of pushing force from opponent, based on friction and motor stall torque.
* Must be able to withstand at least 25 lb added weight in case another bot gets on top.
* If an externally threaded (or studded) roller is utilized, it must also be able to inflict at least 20 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.

Assembly Specifications:

* Battery should provide enough power to run for 3 minutes continuously and be replaced or charged in under 5 minutes.
* Motor and wheel assembly must provide as well as withstand a force of 25 lb.
* Turn radius of the Bot has to be at least 3 ft

Interface Specifications:

* Bot must include a master power disconnect switch
* Control system must interface with driving motors as well and a remote control which is reliable over at least 33.28 ft. (SQRT((20ft^2) +(20ft^2)) +5 ft)

Material Specifications:

* Device (Not including peripheral equipment) must weigh between 20 and 25 lb in order to meet requirements and not be pushed around easily.
* Device must stow into am 18” cube.
* Device must not have sharper than 1/8” radius edge.
* Device should cost between $500-$1000 and include receipts.

At this level, the basic numerical values that can be achieved was assumed, and the calculation were made based on those values. As the project progress, with more research and testing, the values can be increased for decreased according to the need of overall performance of the Battle bot.