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:

- The robot must be able to push with a force of 20 lb. This is to ensure it can move opponents and obstacles. This is based on the fact that rubber on asphalt has a coefficient of kinetic friction between 0.5 and 0.8. (25lb * 0.8 = 20lb)
- The robot can also withstand 20 lb of pushing force from opponent, based on friction and motor stall torque.
- The robot must be able to withstand at least 25 lb added weight in case another bot gets on top of it.
- The robot must move under its own power at a minimum speed of 1 foot per second.

Assembly Specifications:

- The battery should provide enough power to run the robot for 3 minutes continuously and be replaced or charged in under 5 minutes.
- The turning radius of the robot has to be at least 3 ft

Interface Specifications:

- The robot must include a master power disconnect switch as
- The control system must interface with driving motors as well and a remote control, which must maintain a reliable connection over a distance of at least 33.28 ft. This was calculated by finding the corner to corner span of the arena and adding 5 feet (SQRT((20ft^2) +(20ft^2)) +5 ft). Use an equation editor to make this look good. Also, be consistent in your unit symbols (ft, feet, 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. an
- Device must not have sharper than 1/8” radius edge.
- Device should cost between $500-$1000 and include receipts.

progresses

Basic numerical values that can be achieved were assumed, and the calculations were made based on those values. As the project progress, with more research and testing, the values can be increased or decreased according to the need of overall performance of the Battle bot.

Overall feedback:
You have what you need
Proofread the document