Design Specifications

As designing the battle bot, it was important to design it within the given constraints. The main design specification was the size of the battle bot. The size restrictions were as follows,

* Total weight of the battle bot must be under 25 lbf
* The total allowable dimension would be 18”X18”X18”
* Battle bot can have extended arms, flails, chains, clubs, batons, etc. but must stow within the dimensions given above.
* Minimum radius of exposed edge including frame elements, weapons etc. is 1/8 inch.
* Total cost must be under $1000.00

Similarly, the weapons system had its own restrictions. They were,

* No Flames or flaming liquids
* No chemical weapons such as strong acids or bases
* No untethered projectiles, o No explosives or explosively-driven weaponry
* No blades, spears, or edged weapons.

To overcome the weapon limitations, the choices made were stud roller, hammer, and hydraulic wedge. As the design for the rollers, it should be fit in the dimension provided. Diameter of the roller would be smaller, so that it could give more torque, which would allow the roller to spin faster and make severe damage to the opponent. Equal spacing of studs in the roller was also an important design consideration. Next the hammer; the size, weight of the hammer and allowances within the dimension of the battle bot provided were the necessary consideration in making the hammer. Likewise, the hydraulic wedges\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Power requirement for the battle bot is another challenge. The battle bot has to fight a 3X 3 minutes fight with a break of 5 minutes intervals between each of them. So at least two batteries should be used, and each battery have to provide power for at least 12 minutes to the whole system. The battery power must be distributed to the motor to run the battle bot, servo as turning mechanism, motor to spin the stud rollers, power up the hydraulic wedge system and/ or activate the hammer.

Material specification, tooling specification, Gear and motor specification, electronic secfication