**Chapter III. Background**

With such an open ended project proposal as to simply design a combat capable robot which adheres to the competition guidelines, our design options are nearly infinite, as is all background research which will lead to a stable, well rounded bot. Some main areas of interest are as follows.

Manufacturability:

Different materials to use for electronic housing, armor, chassis, and wheels are being considered. (Factors of each include Strength/durability/toughness vs weight/cost/machinability/heat resistance for electronics). For example, we are considering using aluminum 6061 for parts of chassis which does not have to withstand much abuse, due to its lightweight and machinability. Alternatively

Design Alternatives:

Well rounded

Small, low profile? Low center of gravity, quick

Ideally, we

Controls:

Bluetooth?

Stripped RC car?

Mobility: (Speed vs stamina)

Live Vs Dead Axle

Thinking dead axle (tank controls). Live axel (based on our research) appears cost prohibitive, a larger time investment

Motors:

Drill motors. Lightweight, cheap, higher quality options such as dewalt

\*Motor voltage must match rest of electronics

Weaponry:

Studded Roller

Hydraulic flipper

Electromagnet

<https://www.instructables.com/id/How-to-design-and-build-a-combat-robot/>

Banebots, good 42 mm motors

RobotMarketPlace