**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 so 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,

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