Opinion: Why Combat Robots?

● by Troy Mock

For a third of my life, I've been a competitor and champion in the world of combat robotics. Instinct still causes me to flinch when steel clashes with titanium, sending bright white sparks and a blur of a robot into the lexan-clad arena. Little has quelled my nervous exhilaration when I pit my latest fighting creation and driving skill against some of the best competitors in the country.

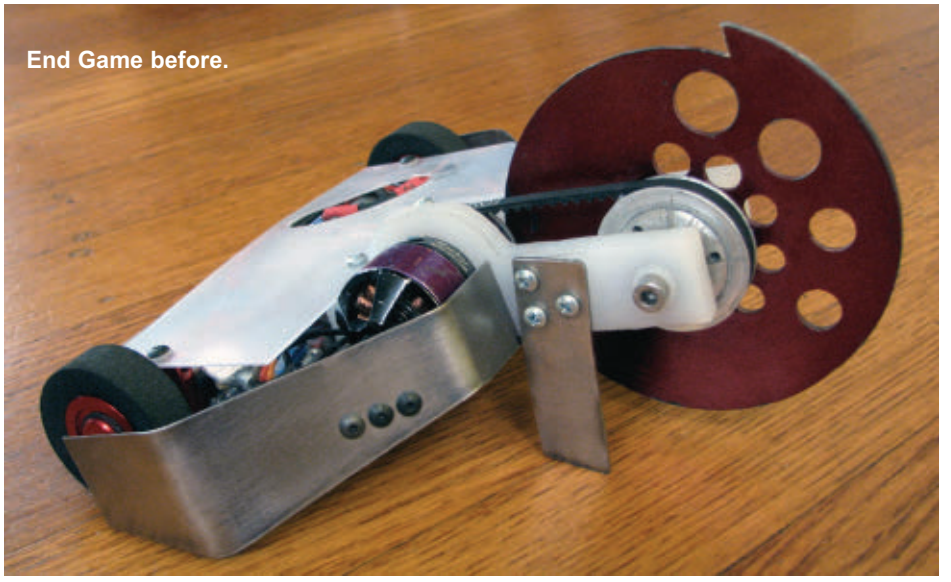
However, it is the pursuit of unattainable perfection that keeps me coming back for more. I am never done considering the crossroads between functional design, balanced simplicity, and brutal effectiveness.

I was first introduced to these mystic machines in the fifth grade at a local robotics competition. I observed in awe as heavyweights, Sewer Snake and Last Rites clashed with a crescendo of steel integrity and brute force. My young mind was hooked, whirring with audacious designs as fast as Last Rite's spinner bar.

Yet, at that time in 2007, there were few kits to ease the plunge into the technicalities of combat robotics. So, while I waited for my construction skills

Author in 2009.

Author in 2013.



End Game before.

to develop, my creative prowess was ablaze with outlandish weapon designs. I planned my ascension to the top of the combat robot world through the tinted shades of adolescence.

In 2009, I began my endeavor into combat robotics with an Inertia Labs' chassis and a "How to Make an Antweight" Instructable. With my first Antweight and its lowly wedge as a "weapon," my inexperience led to a simplistic design.

As my experience grew, my technical abilities caught up with my creative mind, and the portal of construction possibilities opened wide.

I've become more aware and curious about nuanced details and their effect on overall design because of this deeper technical understanding. Will resilient UHMW plastic frame rails be stiff enough to support a weapon blade? Or, would heavier aluminum work better? How will the robot function if it becomes inverted? My analysis of the details differentiates my robots from a field of determined contenders.

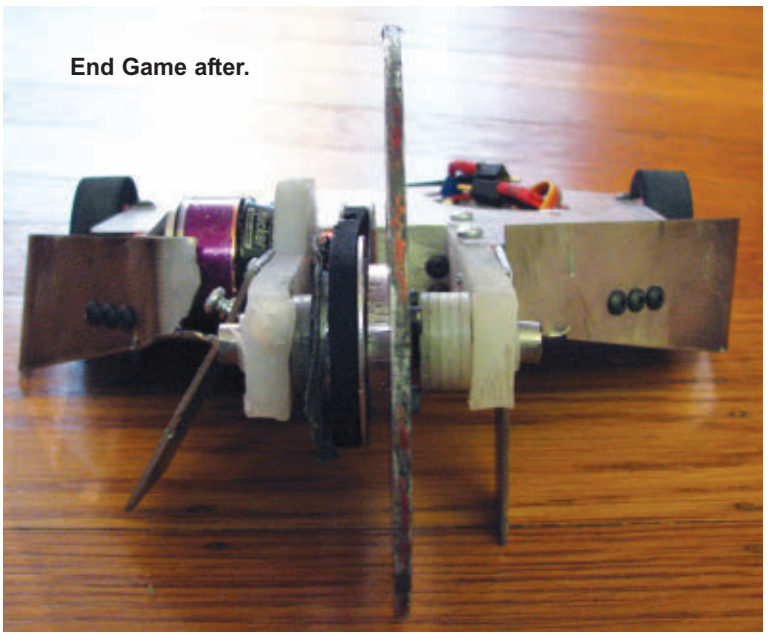
After a competition, my previously pristine robot is now transformed from battle damage, my body is exhausted from the stress of driving and combat strategy, but my mind is churning with possibilities for the next event. This continual evolution of successful design is addicting. As the opponents I face in the arena become more refined, so does my own craving for victory.

Throughout my years of experimentation, construction, and competition in the Insect class, I've continued to hone my design principle: Create exciting, winning robots. Success is paramount regardless of the design I build. Yet, success doesn't necessarily drive my design process. I want to challenge myself both conceptually and technically. If success was my sole focus, then I would build indestructible wedges and refine my driving skill. However, that doesn't excite me.

I want to figure out how to design an asymmetrical weapon blade without expensive CAD software, and how I could make that blade myself without fancy waterjet machines. As it turns out, the first asymmetrical weapon I made using basic machine tools for my Beetleweight, Attitude was flawed in its design and slightly unbalanced, causing maneuverability issues as my bot vibrated across the arena. Of course, there is no journey if the destination is so reachable.

In a broader sense, my learned principles from combat robotics have dictated my utilitarian perspective on design. Equal consideration must be paid to both the overall design and the details that shape the end product.

This same thinking applies to any design — whether it's revolutionary startups like Uber that are changing producer-consumer relationships, or Red Cross mobile blood drives that aim to create a more pleasant donor experience.



End Game after.

Experience has taught me how to transform a robot concept on paper into a functional fighting machine. Beyond that, combat robotics has given me the skills to turn any idea into something tangible.

I never expected that the pursuit of perfection inside an arena could lead me to a pursuit of knowledge in a sphere infinitesimally larger. SV