

# Combat Robot Overview

- **Combat robot rules:** <http://sparc.tools/>
  - Three minute battles judged on aggression, control, and damage
  - Double elimination round robin format
  - No fire weapons, no entanglement weapons (i.e., nets)
- **Weight categories:**
  - Fairy weight: < 150g
  - Ant weight: < 1lb
  - Beetle weight: < 3lb
- **Finding robot battles:** Register early – 6 months before competition
  - Hickory Bot Battles: every August, CSC
  - Clash of the Bots: Schiele Museum, Gastonia, last week in June?
  - Regional and national: <http://www.buildersdb.com/>
  - Atlanta DragonCon: <https://www.facebook.com/robotbattles/>
- **Robots kits (and parts):**
  - FingerTech Robotics: <https://www.fingertechrobotics.com/>
  - KitBots: <http://www.kitbots.com/>
- **Parts:**
  - McMaster-Carr: <https://www.mcmaster.com/> Screws, tools, materials
  - HobbyKing: <https://hobbyking.com/> Lower cost, slow shipping from Asia
  - EndBots: <https://www.endbots.com/>
  - Hobby Town: US-70, Hickory. Limited parts, good technical support
- **Support:**
  - 3D printing: Catawba County Library
    - Public printer, print cheaply, classes on 3D printing & CAD
  - CAD: TinkerCAD, OnShape, Inventor (free for educational use)



# Combat Robot Recommendations

- Safety – weapons are dangerous!
  - Practice without weapons
  - CSC combat robot cage – available for teams, check in at front desk first
  - Check the rules – make sure you have required safety cut-offs, etc...
- Check weight often while designing/building
  - You will end up weighing more than expected
- Consider starting with a kit and modify heavily
  - Qualified controller, receiver, motors, batteries, and battery charger that are rules compliant to start
- Loctite threadlock everything before the event
  - Screws and nuts will fall off during battle
- Practice driving...a lot
  - Your robot is only as good as your driver
- Think about spare parts
  - Two battles per competition, 30+ minutes for repairs
- Batteries
  - You need them, but they weigh a lot. Consider run-time carefully
  - Voltage is as important as run-time. Higher voltage = faster motors

## Costs:

- About \$200-500 for first Ant weight bot, less subsequent years
- Beetle weight bot cost approximately 2x Ant weight

## Reading material:

- Short: <http://www.robotbattles.com/howto.htm>
- Long: <https://www.riobotz.com/riobotz-combot-tutorial>

