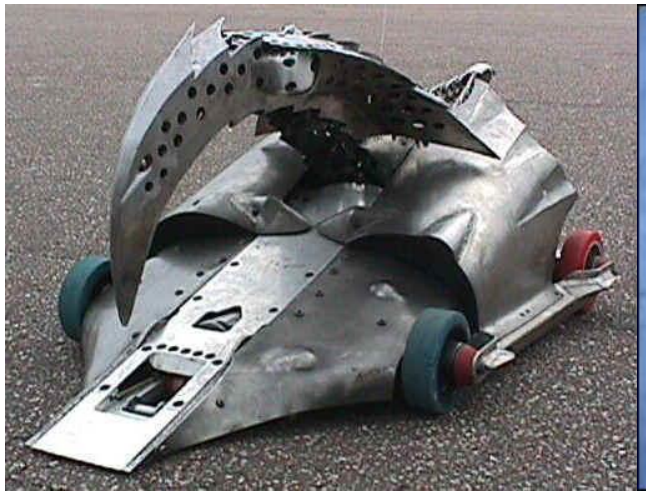
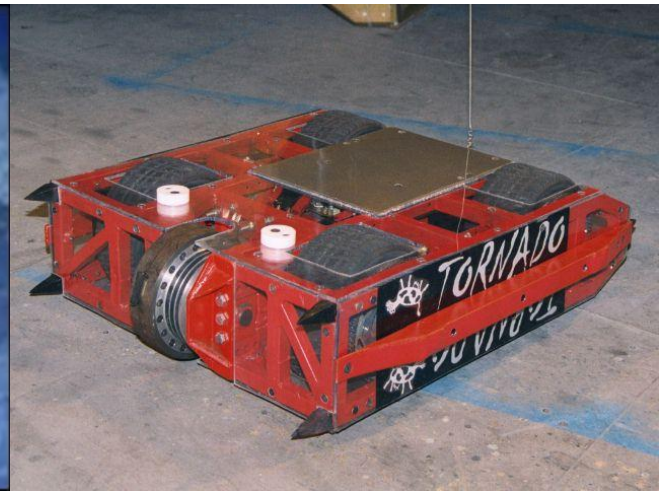
Antweight Robots for Geeks

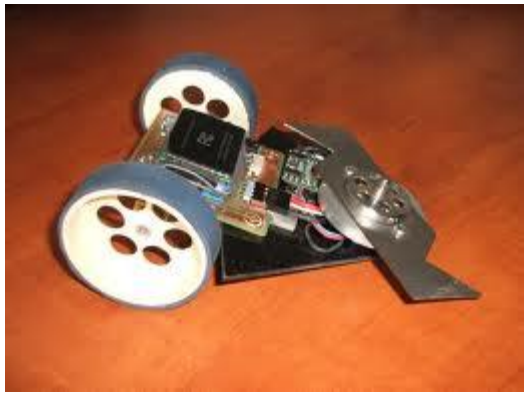
By Simon Windisch
@simonwindisch
simon@windisch.co.uk

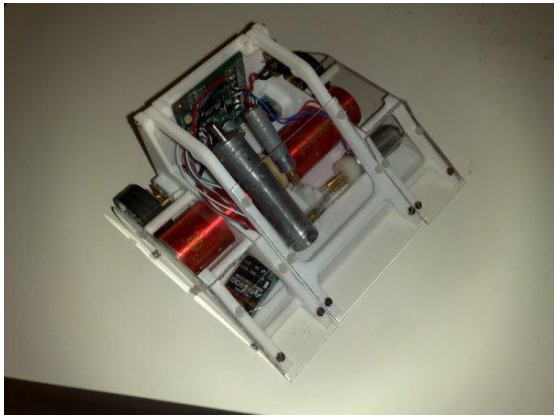
- TV show featuring remote controlled combat machines 1998-2004





Mostly 100kg robots (heavyweight). We build antweights (150g)





- Rules: 150g max and must fit in a 4 inch cube http://www.antweight.co.uk/rules.htm
- Arena is 30 inches square – last robot moving on the arena wins.
- Bulletproof polycarbonate battlebox

Technology: remote control

- Servos: originally for model aircraft ailerons
  Can be modified for 360º rotation or…
- Motor/speed controllers
- Both controlled by transmitter/receivers.
  Now use 2.4GHz

Technology: batteries

- Lithium Polymer
- Advantages
  Excellent discharge rate
  High capacity
  Lightweight
- Disadvantages
  Can get very warm!
  Over discharge will kill them.

Technology: materials

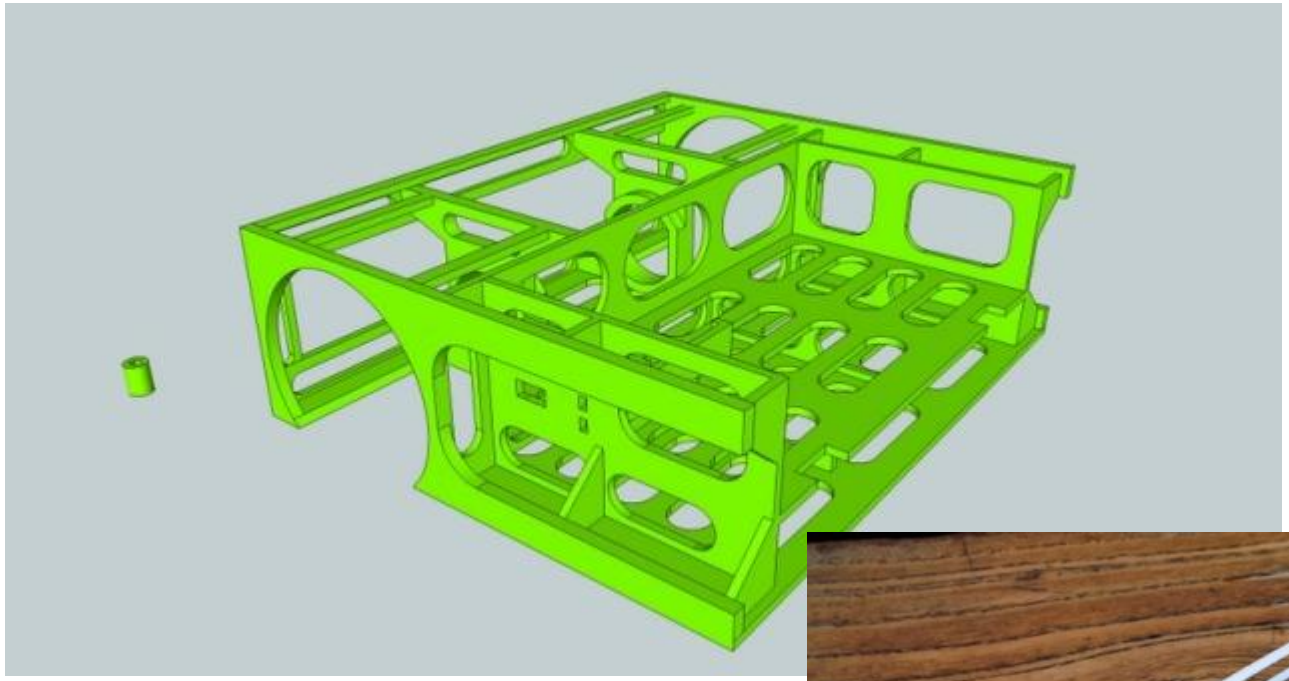
- Polycarbonate: bulletproof
  cold-foldable – very tough

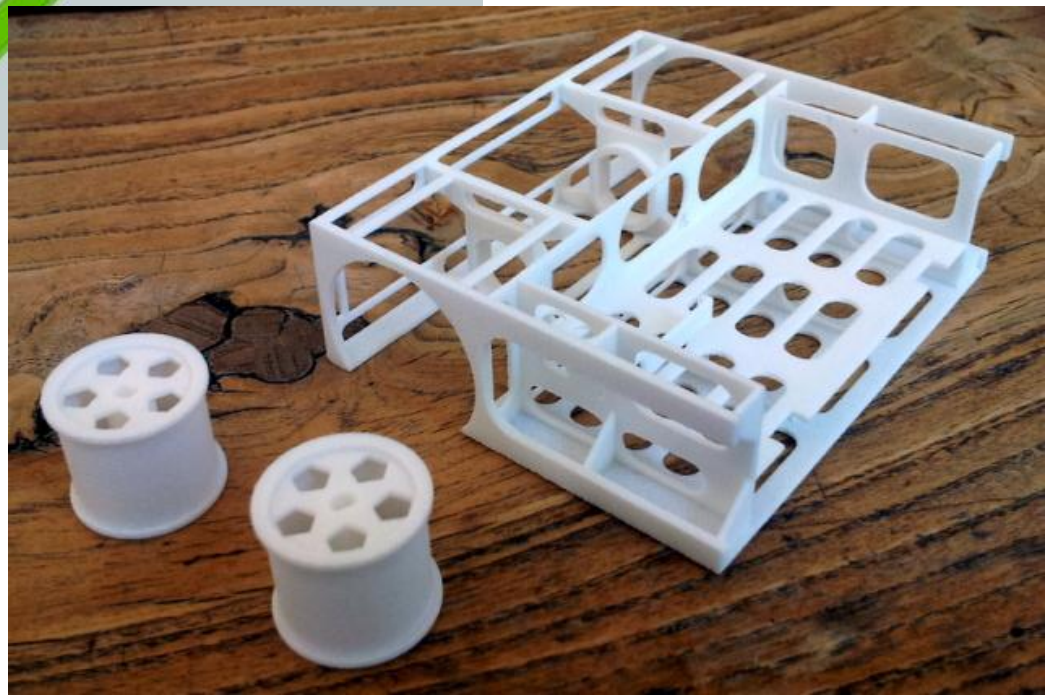
- Titanium: Light and strong
  very stiff

- HDPE: inexpensive, easy to work

- Shapeways
  3D printed
  PA2200
  Strong as long as
  it’s not too thin

Technology: materials





This is what can be done with Shapeways 3D laser sintering

Technology: materials

- Laser and water jet cutting
- DIY electronics plus many people are building and selling 2.4GHz equipment
- More basic equipment also used
  - Dremmels / Pillar drills
  - Lathes / Mills
  - Hot Glue / Superglue / Gaffa tape!

The Robot Community

- Antweights mix with featherweight/heavyweight community
- Small but friendly group.
- Around 10 featherweight/heavyweight events around the UK every year
- Around 6 dedicated antweight events

Where to go next

- www.robotwars101.org
- www.fightingrobots.co.uk
- www.robotslive.co.uk
- www.roamingrobots.co.uk
- www.windisch.co.uk/robots