







Durable
Rigid (No Flex)
Light
Accessible

Å











How to build a Basic Frame



What is Needed?



Are these Arms a Good Design?



Simple Stress Test

SolidWorks Simulation Static Study

- Motors provide 400g thrust ≈ 3.92N force.
 - 1N = 1kg m/s^2
- One end treated as rigidly fixed.
- Other end has a 130N force applied upwards at the end.
- Yield stress for aluminum is 2.275 e+0008 N/m^2
 - Can be written as 2.275 x 10^8 N/m^2

Simple Stress Test



Mass = 0.024kg * 4 arms = 0.096kg ~ 100g

Simple Stress Test



Mass = 0.016kg * 4 arms = 0.064kg = 64g (36% reduction)

Evaluation?



Pay attention to the ranges of colors, not the colors themselves.

Simple Drop Test

Solidworks Simulation Drop Test Study

- Height of 1m.
- 1kg mass attached to end of arm.
- Arm at a 30 degree angle.
- Yield stress for aluminum is 2.275 e+0008 N/m^2
 - Can be written as 2.275 x 10^8 N/m^2

Simple Drop Test



No weight relief 1kg mass rigidly attached at end

Simple Drop Test



Weight relief 1kg mass rigidly attached at end

Evaluation?



Pay attention to the ranges of colors, not the colors themselves.

How to Make the Arms?



How to Make the Arms?

Important dimension !!! M2 [2mm] holes (for motor mount). 20mm center to center



Epic or Imagineering



Other Things to Think About

- Weight relief on the plastic sheet.
- Landing legs
- Where / how to attach the ESCs.
- Damping for the microcontroller.
- Other unique ideas.

