

Saddleback College

Spring 2006 – Drafting 289

Project for RAPID PROTOTYPE
TECHNOLOGY: CAD MODEL MAKING

TEAM GREENE IS:

- Destry Sherwin
- Tyler Schmidt
- Alvin Huynh
- Will Graff
- Jorge Gordillo

Objective

To modify rear suspension of a RC car from an A-arm to Trailing Arm, for a rolling chassis kit.

Benefits:

- Increased Suspension Travel
- Stronger Design
- Better Off Road Handling.
- More Stability in Jumps

WHY Suspension Re-design?

- Because current suspensions are “road” suspensions, off-roading requires a specialized suspension for better performance.



Target Market

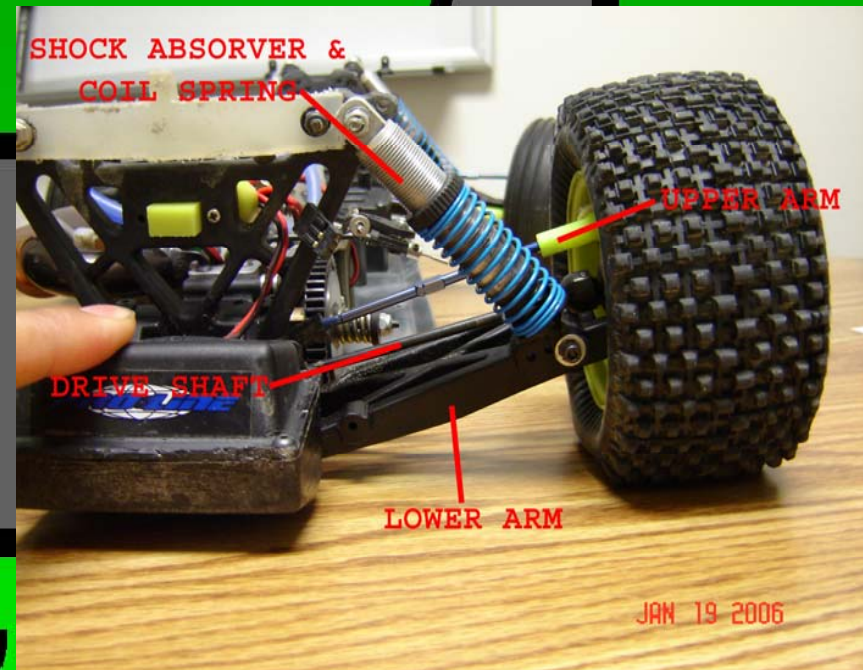
- Target market will be the RC hobbyist who will be looking for better alternatives for off road tracks.



Component ID

Current Suspension components are:

- Shock absorbers
- Tie rods
- Lower arms
- Drive shafts



Redesigned Components

The following components on the new design are:

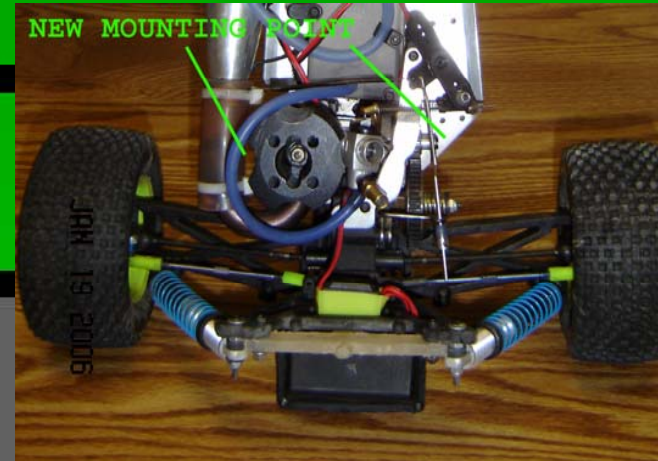
- Chassis (new lower arm pickup points)
- Trailing arms
- Shock absorber mounting points



Chassis Design

Chassis design is modified for the following requirements

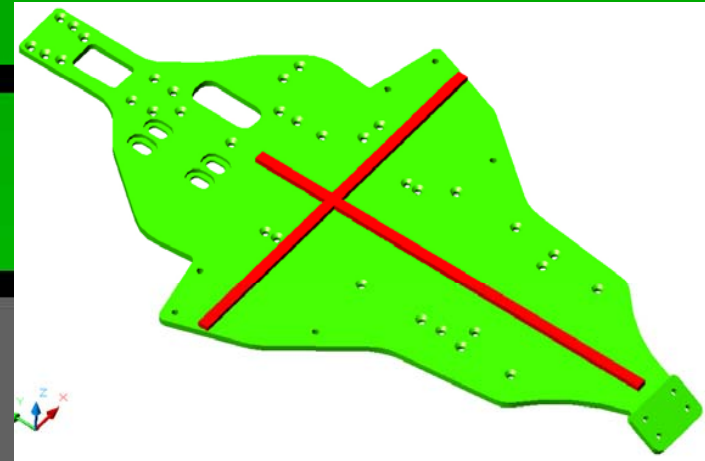
- Design new lower arm mounting points



Designing Chassis

Considered a couple of ideas:

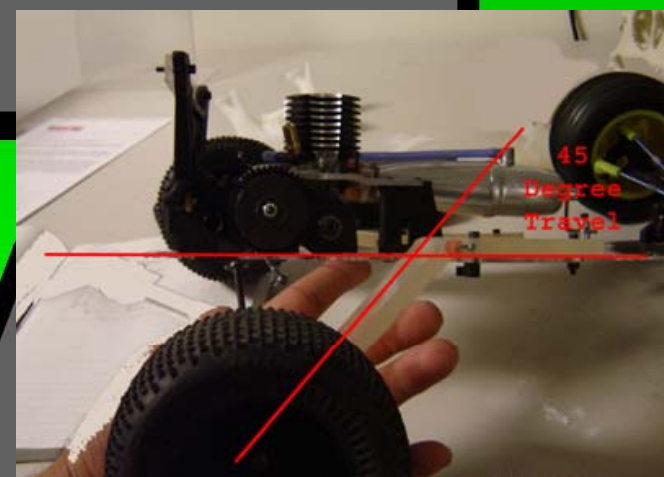
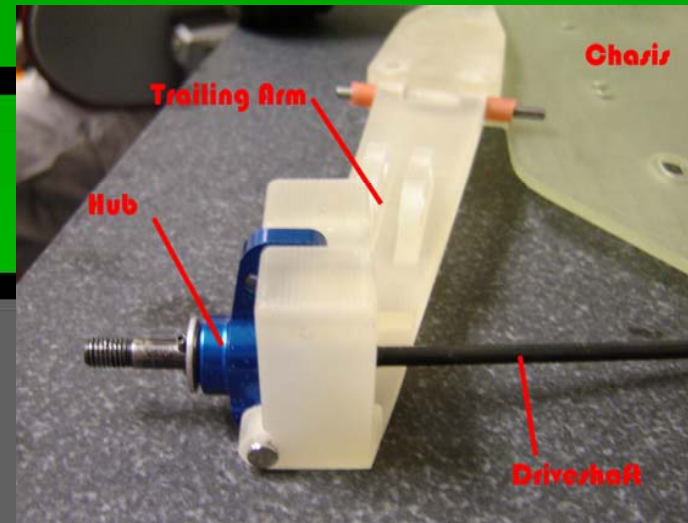
- Reinforced chassis
- Lightened chassis
- Kevlar reinforced chassis



Trailing Arm Design

Original Arm suspension is to be redesigned for the following improvements:

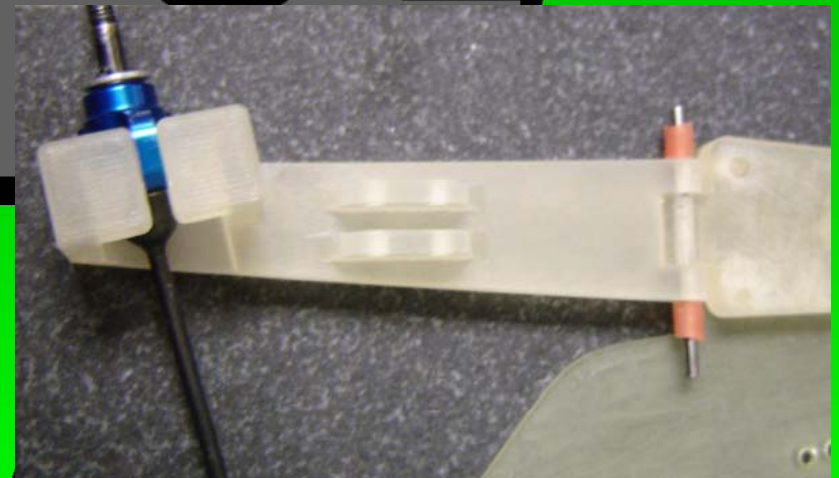
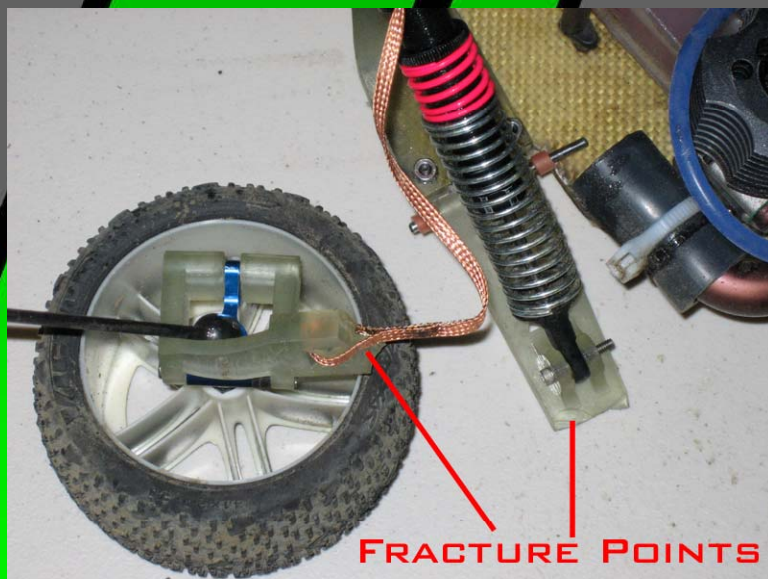
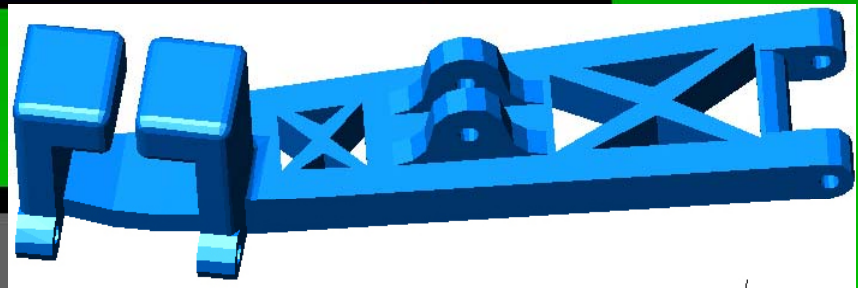
- Trailing arm allows for better off road performance.
- No need for upper linkage.



Designing Trailing Arms

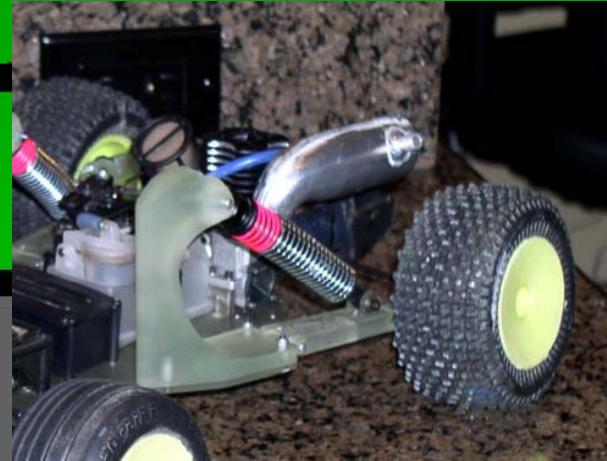
Considered the following:

- Solid Arm
- Lightened Arm



Shock Absorber Mount Design

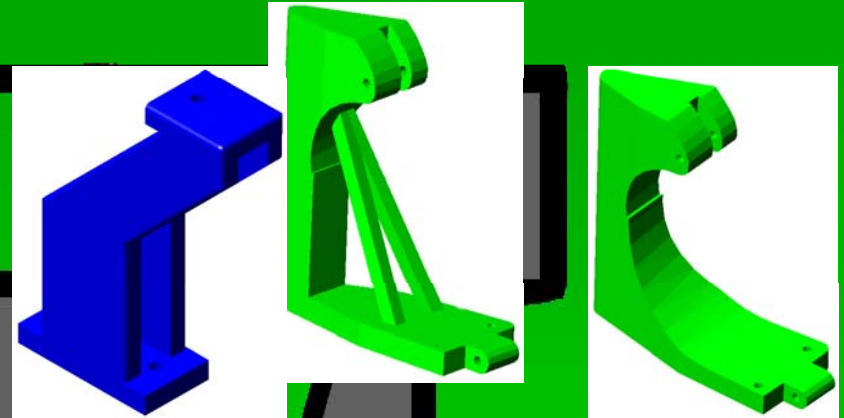
- The new geometry will require re-positioning of shock absorbers.



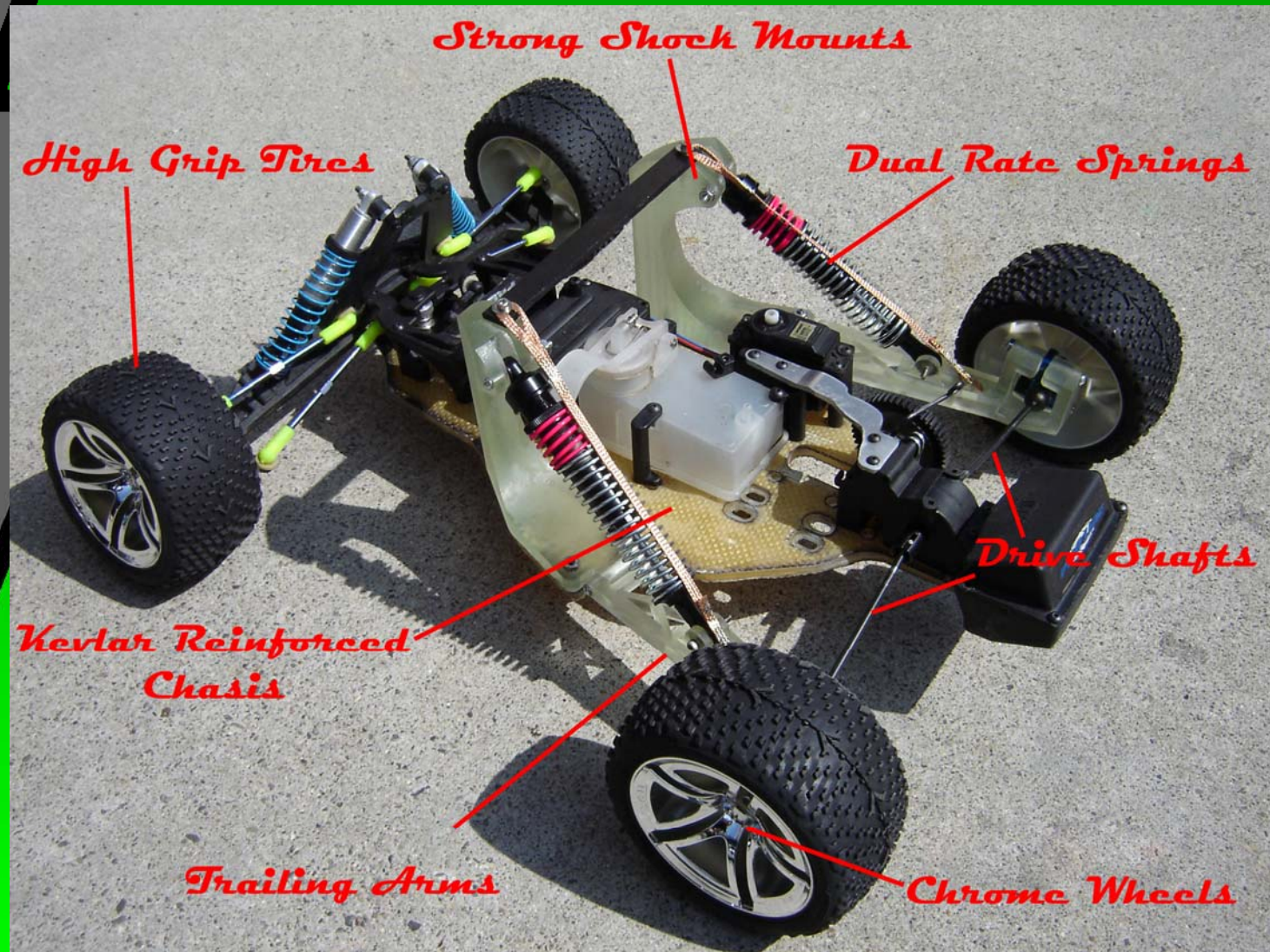
Designing Shock Mount

Considered the following:

- H Beam Mount
- Truss Mount
- Single piece Shock Mount



Finished Racer Kit



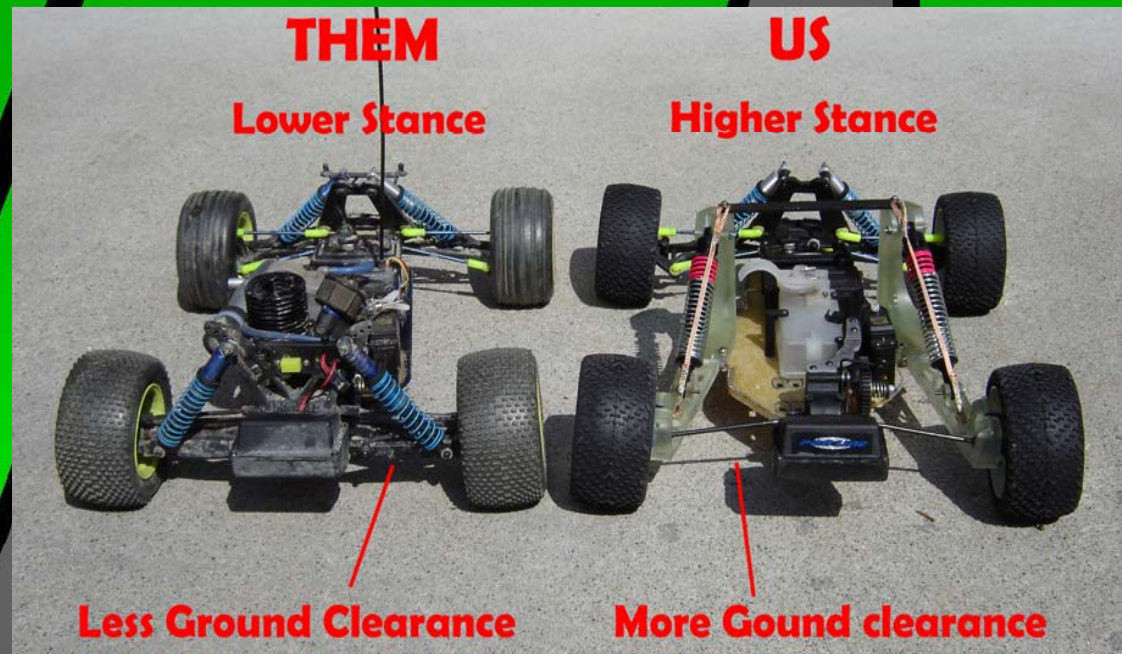
Testing



Comparison

Comparing current design to new setup, this design will outperform the competition with:

- Higher Stance.
- More Ground Clearance
- More Stability
- Better Traction
- ALL FOR THE SAME PRICE



Sales - Manufacturing

Materials:

- ABS Standard Kit - to be used as the Introductory kit
- Aluminum Kit – to be used as the upgrade for more professional users.

Sales - Pricing

Pricing requirements for this kit:

- Standard kit will be inexpensive for starting racers, priced the same as the current kits.
- Upgrade kit will be more expensive offering more durability and stiffness.

