Preparing Vehicles for the Shell Eco-Marathon Competition (Shell Team 2)

Overview
Shell Team 2 was faced with the problem of preparing two vehicles to compete in the 2012 Shell Eco Marathon competition in Houston, Texas. The Shell Eco Marathon competition is held each year and requires highly fuel efficient vehicles. The team was required to solve the problem with a mere $1000 budget and only 8 weeks to complete and fabricate the design.

Objectives
The main objective was to win first place with both vehicles at the competition. The team was also aiming to meet all customer needs provided by the sponsor, and to win a prize at the senior design showcase.

Approach
- Evaluated current design(s)
- Gathered customer needs from both Professor Engel and sponsor, Mr. Leroy Bealer
- Completed concept generation and selection
- Reviewed relevant patents
- Held conference calls and weekly updates via email
- Completed CAD models of components
- Analysed components with FEA via SolidWorks Simulation
- Fabricated components for vehicles with Learning Factory tooling
- Tested vehicles before and during competition
- Results were validated by placing 2nd and 5th with both cars at competition and winning two awards at the Design Showcase

Outcomes
- The vehicles will have better fuel efficiency due to weight reduction
- Easily repeatable manufacturing process due to careful documentation
- Gains in green technology
- Urban Concept 2nd place finish
- Prototype 5th place finish