

Project Title:	Team Olivet Mini-Baja 015: Drive Train Design and Team Manager
Client:	ONU Engineering Department
School Year:	2002-2003
Students:	Joel A. Mingus Jr.
Summary:	<p>This past year has been a lot of fun with my engineering design group. We had a challenge of designing and manufacturing a Mini-Baja car. This would be a car that would go through rigorous testing and would also require us to do considerable documentation work. It was for a collegiate design competition under the direction of SAE. It has some main considerations such as manufacturability, aesthetics, and attractiveness.</p> <p>We had an extremely slow and rocky start. We lacked direction and did not know where to go. We were in a sense the guinea pigs for the possibility of a new type of senior projects. We had nothing to really start from and no idea what we would end up with.</p> <p>As the first semester progressed we made plenty of timelines and ideas. We started work but had nothing to really show for ourselves besides plenty of ideas and a lot of frustration about where to put what and how to begin. Some of us thought we should start with the frame and do an inside out approach, others thought we should start suspension and do an outside in approach. The power train design was stuck in the middle either way.</p> <p>We ended up having some grave difficulty overcoming this conflict. The main difficulty was being extremely pressed for time when second semester came. The suspension team and power train team started thinking about what we were going to do for each of our parts. We ended up sketching the frame, as it would need to be laid out for the suspension and power train we were looking at. Most of this frame became what we used for our team frame though several revisions amongst Lauren, Joel and myself putting it into Pro-Engineering.</p> <p>The car that we ended up designing has a dual A-arm suspension on each side in the front, a single swing arm in the back, a C.V.T. for a transmission, and a series of drive shafts for a gear reduction. This Baja also has a nice light Kirkey seat, along with a 5-point harness. We placed a lock-to-lock steering in it with a removable 12" steering wheel. The brakes are off of a large four-wheeler and are dual disk brakes in the front with a rear axle brake in the back. The frame is made out of 4130 of various sizes with steel used on plates and mounts. It is also soon to be bodied with sheet aluminum and will have protective foam on all pipes that have potential to come into contact with a body.</p>