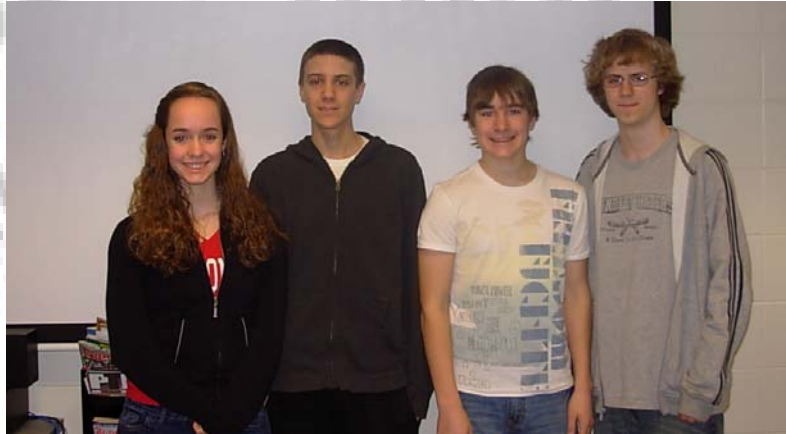


January 20, 2011
Semester Review

Team CLC



Meet Our Team: Our team consists of two groups of four students each from Preble High school. There is a team in third and sixth hour. In third hour, the team is comprised of Aaron Figgins (senior), Philip Witte (Junior), Lizzy Lovering (Junior), and Eric Torbenson (Senior). Aaron has taken IED, an intro to engineering class at Preble, and has experience welding. Philip and Lizzy have taken IED and AED, an advanced engineering class at Preble. Eric has also completed IED and AED, and a semester of welding. Aaron has really taken charge of communicating with our sixth hour group, and has put in many extra hours for the construction of our car.

Background: Formula High School is an equal opportunity program that was created to “allow students who are interested in motorsports, engineering, and technology areas a realistic outlet to showcase their skills and talents” according to Formula High School’s official website. In other words, this program gives students a chance to excel and build their talents in a more professional atmosphere outside the classroom. We compete against other teams in our school, along with teams from other schools across the Midwest. The schools compete in time trial race, to see which car had the best design. At first glance, the cars look very similar. This is because of the safety guidelines placed on the construction of the vehicles. Although they may look similar, there are many parts of the car designs from scratch by each team for their given vehicle.

Differences in the back end design, alignment, drive trains and steering mounts gives the cars hope to come out on top on race day. Because of the fact that students have to find companies to sponsor their vehicle, it gives students a glimpse at how the business world works. Formula High School aims to show students the possibilities out there for careers in the engineering field, along with connect students with manufacturers to make those possibilities into realities. Working in a team environment allows the students to refine and shape their problem solving skills and see the importance of keeping to a plan, and reaching deadlines. This program gives students real world experience in problem solving, and team work.

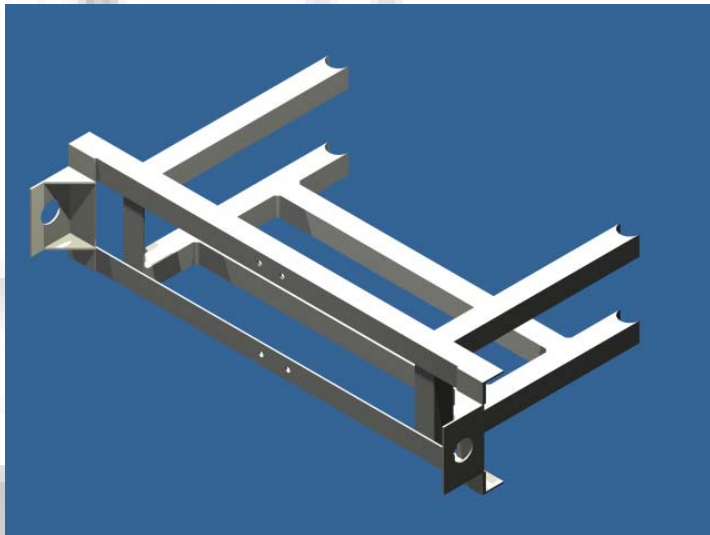
Construction: After a week of designing the chassis on Autodesk Inventor we were eager to get into the shop and start construction. We first laid out the bottom of the chassis and attached the roll bars and floor frame together. We then made the support bars that would connect it all together along with the halo shortly after. The floor was cut out by the water jet at NWTC and welded onto the bottom of the chassis. The steering column was



then mounted shortly after. Our battery mount, master cylinder, and nose cone housing is unique compared to the other cars but we hope that it will be a lot more efficient. The pedals were designed on Inventor and cut on the water jet at NWTC. The differential came through the mail and we were able to figure out where it needs to go along with the engine. The back end then was assembled and

put on the car. The differential was mounted the same day. The seat that was used last year was heavy and bulky so we redesigned ours out of 1/8 inch aluminum sheet metal.

Design: Our goal from the beginning of the year has and always will be creating a unique car that can give better performance than the other teams. One problem every car faces is the balance of weight in the car. The engine is mounted in the back of the car, creating extra weight in the back then in the front. To try to balance the weight difference we have designed our car with the battery in the front rather than in the back. This idea is unique to our team and theoretically will give better performance than the other teams. All of the teams were given a choice to include a fixed differential or a Hilliard differential. Our team decided to go with a Hilliard differential because it allows one tire to spin faster than the



other tire while taking turns. This advantage will allow us to take turns faster, giving us a cutting edge come race day. Due to the change of differentials we also had to buy a new engine. The previous engine supplied to us was a horizontal shaft engine. This engine would have not worked with our differential so we needed to buy a vertical shaft engine. Although

the main part of the chassis was already designed for us on Autodesk Inventor, there have been several aspects of the car that we have had to design from scratch. An example includes the back end of our car where we will mount our engine and gear box. Another aspect of the car was a new seat. The previous seat was very heavy, so we designed a light-weight seat that will reduce the car's weight.

Acknowledgments: We would like to thank Canadeo Lawn Care LLC as well as Stifel

Nicholas and Company for their generosity in sponsoring us, as well as Briggs and Stratton for

donating the engines. We know that this build would not be possible without you. We would also like to thank NWTC for allowing us to use their water jet cutter to create our flooring, and battery box. They also assisted us in the construction of our seat. They have been a great help to speeding up our construction process. Thank you to all our sponsors. See you at the track!

