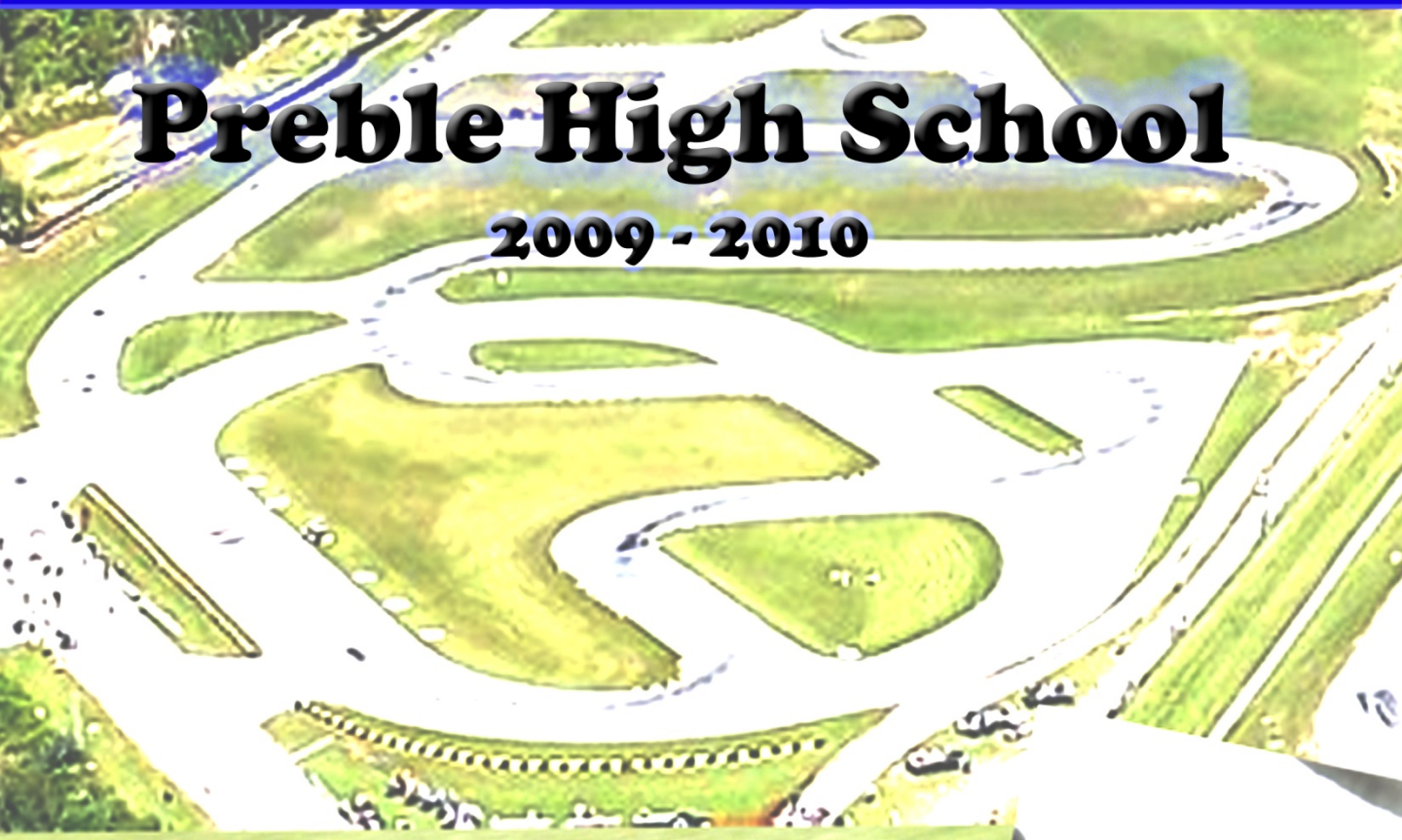
Team DELEERS MILLWORK

Preble High School

2009 - 2010



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FORMULA HIGH SCHOOL RACING TO LEARN

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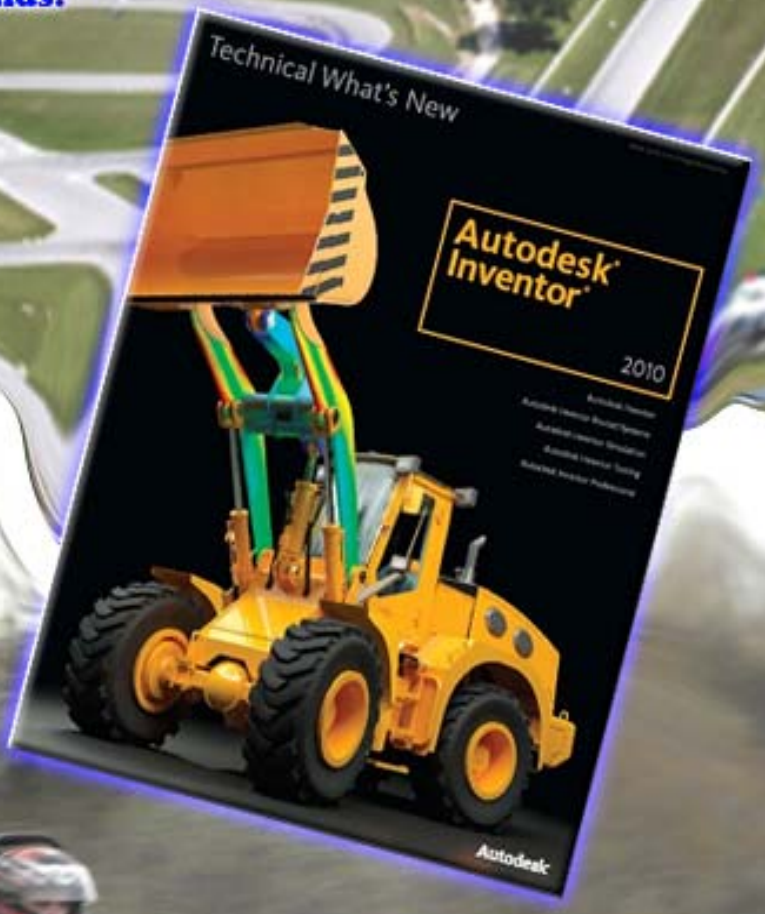
Engineering Design and Developement

Learn how to build a Formula M5 modeled car and compete against other schools. Construct models on Autodesk Inventor and design a car that will be suitable for the guidelines and rules. Having sponsers to help provide funds to build the cars can help students with their ability to get what they need for the build without having to worry about funds.

Solve problems along the way of making the M5. Experience hands on training from technology education teachers.



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Formula High School

The Wisconsin Formula High Schoolproject was created to allow students who are interested in motorsports, engineering, and technology areas a realistic outlet to showcase theirskills and talents. Students who are involved in athletic competitions have regular meets or games in which they compete to see how their abilities compare with other schools.

Students involved in Formula High School will now have the opportunity to compete against other schools in a controlled racing time-trial event. Each team is responsible for constructing a vehicle to a strict set of guidelines. These guidelines help the students construct a safe vehicle that closely resembles the current SCCA Formula First race vehicle. Although the competition vehicles may appear cosmetically similar, the differences in the drivetrains, alignment, and steering geometry make for spirited competition. Despite the Formula High School event being held at a prominent motorsports facility, the focus of the project is to help the students develop the engineering and technical skills that are vital to our nation's manufacturers.The goals of the high school formula project are:

-Increasing awareness of engineering and technical careers
-Promoting teamwork and interpersonal skills among competitors
-Construction of a product with specific tolerances and deadlines
-Applying knowledge from other disciplines to an engineering problem
-Connect the schools and students to their local manufacturers
-Apply the concepts of marketing and increase the student's public relation skills

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Chassis deisgn

The chassis was first built on Autodesk Inventor. Later it was built with sponsored materials. The regulations for the M5 to qualify is wheel base of 81"-87", width of 52" to 58" measured to the outside edge of the mounted tire, max overall length of 144" including the body shell, and ground clearance of 2"minimum to a 6" maximum.

CAD model designed by: Alex Crospey

Frame in progress of welding

Frame finaly welded up

The mill was used to cut an angle for the roll-bars. U.S. Auto Force bent the roll bars for us.

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Fiber Glass Body

The fiber glass body was made with Ken Glowacki, owner of Fiberglass Solutions. The mold of the body is owned by Ken . The fiber glass body was colored with black gel coat so paint would not be needed. Schools borrow the molds to make the body. After the body was molded and sent back to Preble, there was trimming that needed to be done before the body was finally wet sanded and buffed for a finished product.

Matt laying up fiber glass into the pre-made mold.

FIBERGLASS SOLUTIONS Inc.

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Parts from NWTC

Thanks to Northeast Wisconsin Technical College FHS was able to have parts cut out on the water jet. Parts like the floor for the chassis and seats were all cut out by NWTC. Making the parts in Autodesk Inventor first gave us time to test parts befor they were cut out. Alex Cropsey disigned the rear end cage that would house the rear axel assembly and gear box which was then cut out on the water jet.

Cut out floor

rear houseing for axel and gear box

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Northeast Wisconsin Technical College

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Final Assembly

View of the final assembly of the front end.

The front and rear axle was assembled later the first semester. Our drive train utilizes a Goodyear eagle pd belt system as opposed to a chain driven system. This will give quieter operation as well as good power transfer. Metal plates were made to mount the gas tank on the back towards the top of the chassis. Wirings for the car were done after the engine was mounted on the chassis. Seat, seat belt, and fire wall were installed onto the chassis last. Once the final assembly was completed, everything was taken back apart to prep for paint. We used a textured black chassis paint as well as high temperature paint for the exhaust and other components. After painting was complete the car was assembled to completion.

View of the rear end with gear box and engine mounted in.

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Day at Road America

Our track day went well for the first part of the day. We took first place with the fastest time on the small oval track. After taking 3rd place on the long road course our clutch became mis-aligned and we had some problems getting it fixed and that was the end of our track day.
Other then the clutch, the race day went well. We may have had spun out, but there weren't any other troubles with the car. The car was very dependable, performed very well and we were very satisfied with our end product.

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Day at Road America

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Day at Road America

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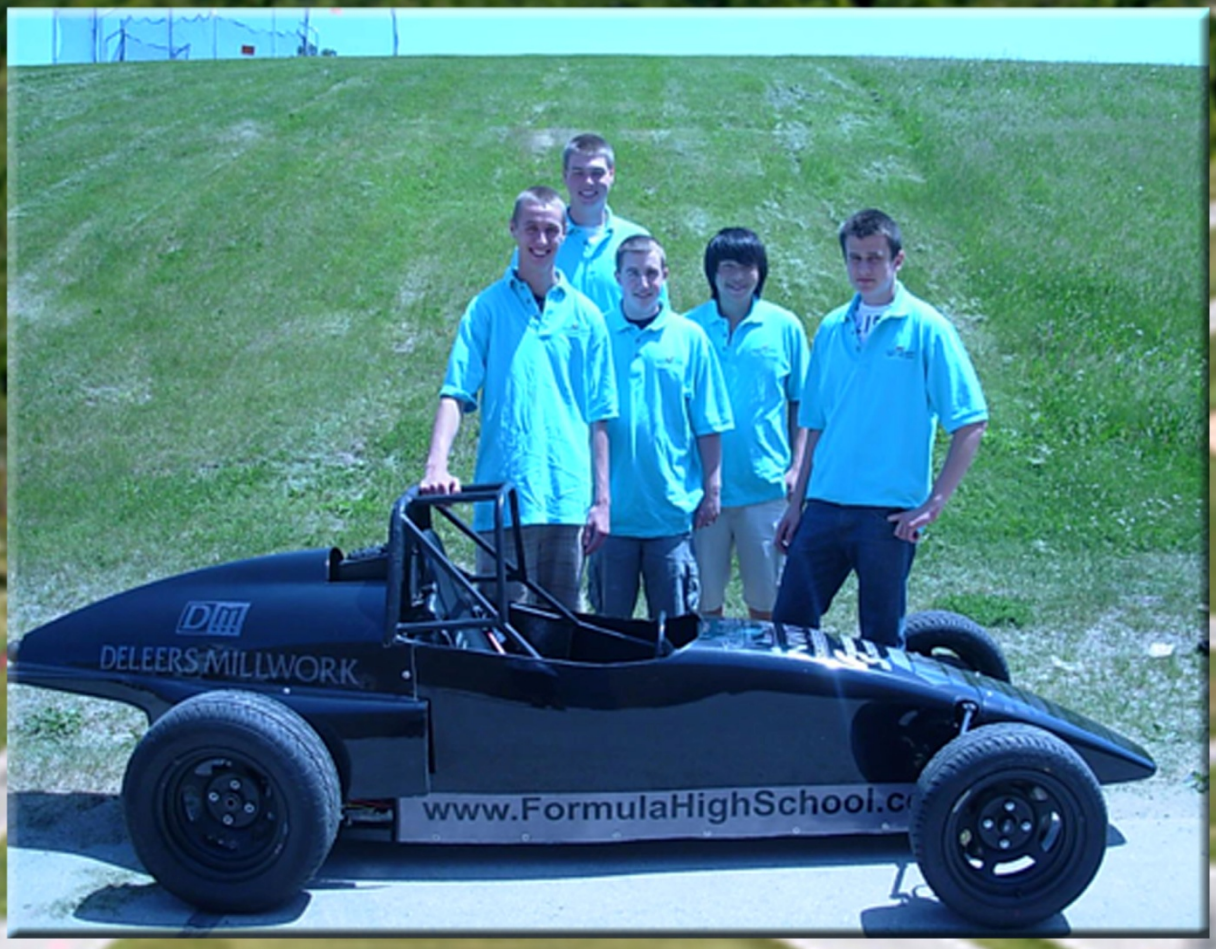

Left to Right: Kevin Wetly, Alex Cropsey (back), Matt Bronk, Kong Vang, Vladimir Pidkalyuk

Not in picture: Alexi Her