



Mississippi State University

X-cited!

Special points of interest:

- Team members get valuable information at a workshop in Detroit, see adjacent article.
- See what each thrust is working on in our regular Thrust Update Area.
- Jimmy Mathews is featured as this edition's Student in the Spotlight.
- Elementary school students! Give us your ideas for a name for our Equinox! See page 2.

Team Members Attend Fall Workshop

Six members of the MSU Challenge X traveled to the heart of American car manufacturing last month to learn about modern vehicle design processes.

The 3-day workshop in Detroit, Mich., held September 29 through November 1, focused on training sessions on competition events, GM vehicle communications, GM Diesel engines, and the proper use of equipment. The students will use this information as they implement their unique design for their hybrid vehicle.

"This workshop really gave us motivation to work harder on getting our vehicle ready for competition," said Kennabec Walp, a graduate student in computer engineering. The students had opportunities to make personal contacts with



The team poses with an antique Cadillac as they tour the GM Heritage Center in Detroit.

GM engineers and recruiters from Challenge X sponsoring companies.

Walp's teammates that also attended the workshop included mechanical engineering

graduate students Christopher Whitt and David Oglesby, computer engineering graduate student Ron Lewis, electrical engineering graduate student Jimmy Mathews, and mechanical engi-

Thrust Update Area: What are they working on?

Vehicle Modeling and Controls

After having run quite a few simulations in PSAT for analyzing both the default and newly-devised control strategies, we are now putting together the actual production control strategy. We have begun from scratch by documenting all possible modes of operation of our hybrid and are presently conjuring the logic diagram for mode-transitions and optimal torque distribution. We are also deliberating about some critical features that our strategy should possess.

Thrust Leaders: Jimmy Mathews and Kennabec Walp

Mechanical

The mechanical group has been working on light-weighting issues, building a battery box for our trailer, and just removed the "spare" Equinox's engine.

Thrust Leader: Brian Christian

Electrical

We have been working on getting the Ballard drive wiring harness finished. Helping the controls group with the control strategy.

Working on implementing the lead acid battery pack for testing purposes.

Thrust Leader: Ron Lewis

Powertrain

We have been continuing our work on the rear cradle redesign, the Ballard cooling system, and updating the fuel system schematic. Began collecting the CAD files necessary to position the GM Diesel engine and the transmission.

Thrust Leader: Christopher Whitt

Outreach Program

Our team was featured in the October 9th Starkville Daily News with an article and pictures of team members.

We'll be at Discovery Day on the Drill Field with the Equinox on October 22. Stop by!

Thrust Leader: Amanda McAlpin

neering undergraduate student Brian Christian. Marshall Molen, faculty advisor for the team, also made the trip.

Molen expressed how important the trip was for the students.

"The students had the opportunity to have one-on-one interactions with GM engineers which further enabled them to understand the design processes employed by automotive engineers. This unique interaction with practicing engineers and their vehicle design processes was an invaluable experience for engineering students."

The team will now have to put the training to use as they begin working on removing the drive train from the Equinox and replacing it with their own design.

Atta-Dawgs

- Good job **Stephen, Brian, and Ron** on the nice progress made on our battery test trailer.

Upcoming Events

October 20—Outreach Report #1 Due

October 22—Discovery Day—We'll be on the MSU Drill Field with our Equinox from 9 a.m. to noon. Come by and see our booth!

November 4—First team progress report for Year 2 due.

"Name our Vehicle" Contest

Open to grades K-8

Submit your idea for a great name for our vehicle! If your idea is chosen by the Challenge X team, we'll put it on our Equinox and you'll get a prize!

Deadline January 15

Please submit name ideas with your name and contact information to:

Challenge X
200 Research Blvd
Starkville, MS 39759

Students in the Spotlight

This column gives you a behind-the-scenes look at the students who are working on the Challenge X competition at MSU.

This week's student in the spotlight section features Jimmy Mathews, a leader of the modeling and controls group. Jimmy joined the Challenge X team in May and quickly became one of our key members thanks to his talent, skill, and get-the-job-done attitude. Jimmy is an excellent student, and it carries over to the quality work he does on Challenge X. That is why we chose him for this edition's spotlight.

Name: Jimmy Mathews
Hometown: Mumbai, India
Major: Electrical Engineering

Jimmy Mathews was relatively new to the team in June as they traveled by van to the Year 1 competition in Detroit. But as the team got to know him, they found him to not only be very personable, but also intelligent and talented.

Jimmy now helps lead the controls and modeling group, and he's very enthusias-

tic about Challenge X.

"I am simply awed by the sheer abundance and diversity of talent that the MSU

Challenge X team possesses. I feel lucky to be a part of something so creative and mind-stirring," said Jimmy.

Jimmy said that he gets a lot out of being a part of Challenge X.

"Challenge X has given me the privilege of walking up to some key figures involved in changing the face of the global automotive industry and hear their



Jimmy poses with an engine.

thoughts. That includes distinguished people from top officials in General Motors and Argonne National Laboratory, to our very own Dr. Molen. Also, having had many opportunities to interact with students from universities across the US involved in Challenge X, I value the sense of camaraderie and commonness of the trials and tribulations that we share."

Of course, as the name implies, Jimmy knows there are challenges to be met with the competition, also. Jimmy said one of those challenges for him is ensuring that the vehicle eventually would be mass producible, not just a prototype.

As the team heads into the second year of competition, Jimmy is looking forward to several things.

"The mere thought of doing well at next year's competition gets my adrenaline pumping. All tiny bits and pieces of stuff that we put together will be subject to some real tight scrutiny. I am impatient to hear the engine rev-up and the motor spin. I am looking forward to seeing the grin on everyone's faces."

Not only does Jimmy add great talent and skill to the MSU team, he does it with a grin on his own face.

For newsletter suggestions or corrections, please contact Amanda McAlpin at amcalpin@cavs.msstate.edu.