

100⁺
MPG
Cornell University

Cornell 100+ M.P.G. Team

OUR MISSION

The increase in global demand for energy has irreversibly impacted our lives financially and environmentally. We have the ability to improve our futures and that of our planet by investing in research to better optimize usage of the world's resources.

The Cornell University 100+ M.P.G. Team believes that by being major contenders in the Progressive Insurance Automotive X-Prize Competition, we can make great strides towards achieving our ultimate goals of sustainability and decreased reliance on non-renewable energy. Through innovative design, implementation, and marketability we can achieve these objectives as well as inspire others.



THE PROGRESSIVE INSURANCE AUTOMOTIVE X-PRIZE COMPETITION

Spearheaded by the X-Prize Foundation which hosted such competitions such as the Google Lunar X-Prize and Ansari X-Prize, the Progressive Insurance Automotive X-Prize Competition aims to inspire the development of a new generation of viable, super fuel-efficient vehicles that can offer increased consumer choice. A total of ten million dollars will be awarded to the teams that win a stage race with clean, production-capable vehicles that are capable of exceeding 100 MPGe.

The Progressive Automotive X-Prize Competition emphasizes the importance of efficiency, safety, affordability, and sustainability. The Competition is about developing practical, production-capable cars that consumers will want to buy as opposed to concept cars. The progress instigated by the Competition is crucial as the rate of fossil fuel consumption continues to grow and automotive emissions increasingly contribute to global warming and climate change.

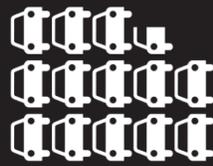


Competition Timeline

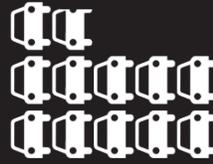
Data Submissions & Judging

Qualifying

Finals



111 Teams
(136 Vehicles)



97 Teams
(119 Vehicles)



43 Teams
(53 Vehicles)



20-35 Teams
(25-40 Vehicles)



15-20 Teams
(20 Vehicles)



3
Winning
Vehicles

FEB
2009

Registration
Closed

JUN
2009

Data
Submitted

OCT
2009

Qualified
Teams
Announced

NOV
2009

Team
Summit
-Las Vegas

JAN
2010

NAIAS
-Detroit, MI

MAY
2010

Shakedown
Stage

JUN
2010

Knock-out
Qualifier

JUL
2010

Final
Stage

AUG
2010

Validation
Stage

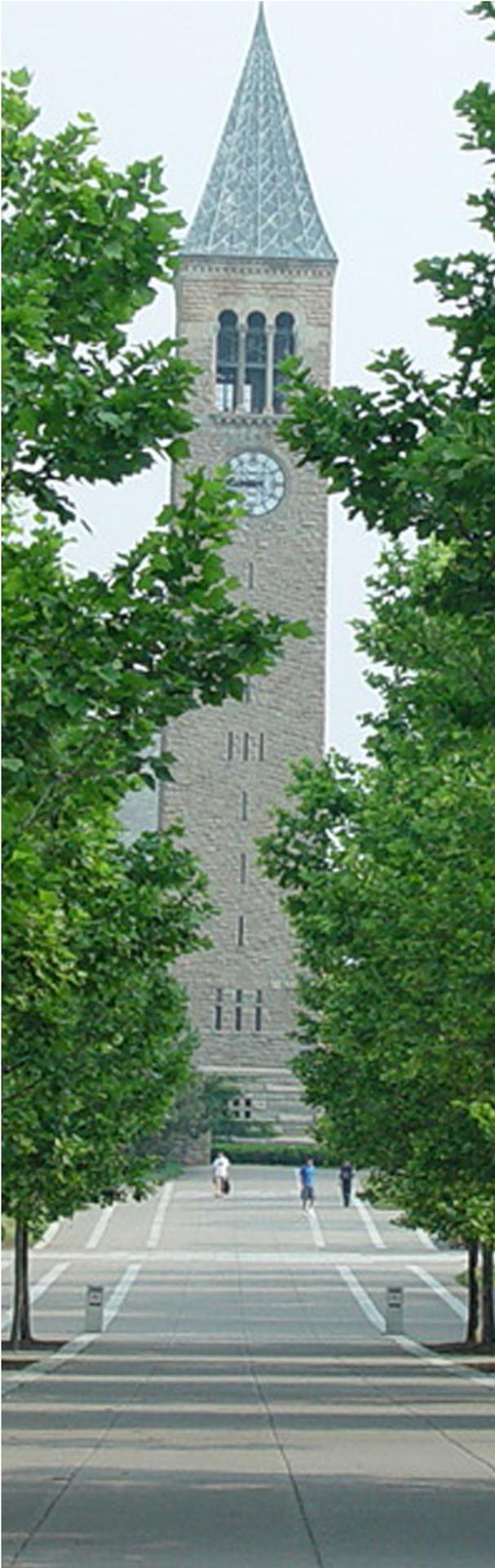
Finalist
Festival

SEP
2010

Awards
Ceremony
-Washington,
D.C.



=10 Vehicles



THE UNIVERSITY

Cornell University is one of the world's premier research universities, with top-rated programs, cutting edge research facilities, and a commitment to sustainability. In 2006, over \$600 million was spent on research, \$70 million of which was spent in the engineering department. These funds support over 230 engineering faculty members performing revolutionary research. Cornell has also set an example for other universities as it works to become increasingly sustainable via its environmental initiatives, signing of the Kyoto Protocol, and commitment to becoming a carbon-neutral campus by 2050.

Cornell has a strong track record in grooming high-performance teams, building advanced vehicle systems, and using business principles to promote sustainable technological innovation.

- Cornell Racing (9-time World Champions) DARPA Grand Challenge and Urban Challenge
- Hybrid Electric Vehicle
- Center for Sustainable Global Enterprise
- Cornell University Solar Decathlon Project



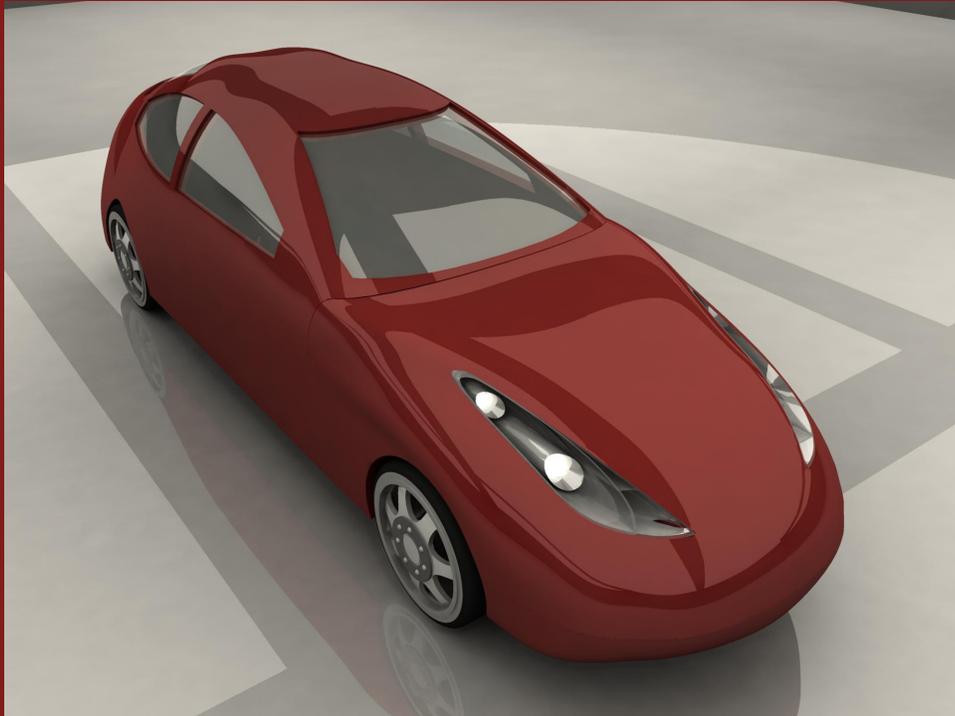
THE TEAM

As part of Cornell's tradition of using a systems engineering approach, the Cornell 100+ M.P.G. Team is broken down into several sub-teams under three main technical groups, Electrical, Mechanical, and Structural. The cross-functional nature of this project necessitates fluid inter-team communication and collaboration. Such cohesive teamwork is made more efficient by our online wiki interface, which enables team members to post and edit documents from any location.

The Cornell 100+ M.P.G. Team maintains a distinct advantage over its competitors due to its collegiate affiliation and nature as a student run team. Students have access to experienced professors who are leaders in their respective fields of automotive engineering. The close relationship between professorial advisors and student team members encourages constant feedback and experiential exchange, allowing Cornell 100+ MPG to tackle problems from various perspectives. The university also provides industry quality facilities for the construction, testing, and modeling of the Team's vehicles. The majority of competitors are businesses with limited human resources, yet with nearly 60 members from both undergraduate and graduate bodies, Cornell 100+ M.P.G. has the ability and resources to investigate and succeed at every aspect of the competition.



OUR PROGRESS



The Cornell 100+ M.P.G. Team has been consistently testing and evaluating different component technologies that may be used for the team's final submission to the Progressive Automotive X-Prize Competition. The Team has been using a 1991 Geo Metro as a test bed to evaluate the efficiency of several components including drive trains, battery packs, electrical generators, and regenerative braking schemes. The concepts tested and the knowledge gained via this test bed vehicle proved invaluable as the previous design architecture has helped immensely in developing our competition vehicle, dubbed the Redshift.

The Redshift is a series plug-in hybrid built on a modified Subaru Sambar chassis and the body compartment of a Honda Civic. Powered by an electric generator and a 1.4L turbodiesel engine that recharges the 15.5 kWh lithium-iron battery packs, the car is projected to achieve over a 200 mile range and sub six second 0-60 mph acceleration.

OUR FUTURE



The Cornell 100+ M.P.G. team has a busy road ahead. We plan to complete the all-electric drive and have it fully functional by the end of October. Connection to the diesel engine is on track to be completed by mid- to late November and we will achieve complete drivability by December.

The Team will participate in numerous press and media events sponsored by the competition throughout the fall of 2009. In May 2010 we will be participating in the qualification round of the competition, which requires the vehicle to hit a minimum of 75MPGe. New York City has offered to host the first leg of the nationwide race, which will include urban, highway, and racetrack elements.

Alongside the engineering effort, business team members have completed the business plan, which contains a technical manufacturing plan and details costs and processes involved in selling 10,000 units of our vehicle per year beginning in 2014.



TEAM PRESS COVERAGE



“Based on their technology, name recognition (and thus access to funds), and the details of their plan, sound the most promising to me...

Cornell University plans a simpler approach: taking an old Geo Metro and converting it to plug-in hybrid power. I include them because this team has been in the top tier of most competitions it has entered, including being only one of five finishers in this year’s DARPA Urban Challenge for self-driving vehicles...”

– January 24th 2008



Interview of our team leader– (<http://engineeringtv.com/blogs/etv/archive/2008/09/11/cornell-s-automotive-x-prize-team.aspx>)

– September 12th, 2008

The Post-Standard

“Matt Gleason doesn’t own a car, but the one the Cornell University graduate student is helping to build is aiming to achieve 100 miles per gallon and perhaps land a \$10 million prize.”

– August 27th, 2008



The team was featured on the hit science news show – Daily Planet. The clip is available for viewing on our website.

– October 3rd, 2008

COMPETITION PRESS COVERAGE

DAILY NEWS

“The best antidote to the decades of monopoly and manipulation that got America hooked on cheap gas and big cars is the competitive spirit of the X Prize... None of the major automakers has joined the race. That tells you all you need to know about who will guide America out of the current fuel crisis. “

– June 19th, 2008



“More than 70 teams from 22 countries around the world have already committed to the contest. But Tata is the first full-line auto company getting into the race.”

– May 15th, 2008



“Undoubtedly, all of the major automakers will be paying attention to a new “X-Prize” announced last month that offers a \$10 million purse to whomever can design and bring to market a 100 mile-per-gallon vehicle.”

– April 4th, 2008

BENEFITS OF SPONSORSHIP



The support of sponsors allows Cornell students, both undergraduate and graduate, to get hands on experience building a car that could change the automotive industry, thus enhancing their educational experience at Cornell. Cornell University provides the team with faculty time, laboratory space, and testing facilities. However, our design and production budget comes directly from private and corporate donations. By helping the team, sponsors also receive numerous benefits.

- Any contribution to the Cornell 100+ M.P.G. team is tax deductible. Many personal contributions to the team also qualify for matching funds from employers.
- As a corporate sponsor, our team members recognize your company's commitment to the educational and professional development of our members. Some of the finest engineering students in the world will get direct and practical exposure to your company and its products.
- Cornell Alumni can receive Cornell Gift Credit by choosing to designate part of their total contribution to the Cornell 100+ M.P.G. Project via giving.cornell.edu or by mail.
- Sponsors of the Cornell 100+ M.P.G. Team will gain both local and national exposure. The X-Prize Foundation is committed to creating tremendous national media coverage of the event, and the Cornell 100+ M.P.G. Team is likely to receive a great deal of attention as the first officially registered university team. All sponsors will have their logos placed on the bodywork of the vehicle as well as our annual team poster. In addition, all of our sponsors are included on our website (www.cornell100mpg.com) with links to their homepages.
- Sponsors become part of the Cornell 100+ M.P.G. Team by helping to provide what has been referred to as the most valuable educational experience any student engineer can have. As a sponsor you will be supplied with a progress report of the team's status at key points in the development cycle.
- Your support is essential for our success. If you wish to sponsor the team, please contact us or fill out the enclosed sponsorship form. For more information please do not hesitate to visit our website (www.cornell100mpg.com), call us at (607)255-8424, or email us at business@cornell-laxp.com

ANNUAL CORPORATE SPONSORSHIP TIERS

102 Ultimate



> \$25,000

- o Company Link and Logo on Website
- o Quarterly Newsletter
- o Extra-Large Logo on Race Vehicle
- o Access to Online Team Information System
- o Team T-Shirts

92 Premium



\$7,500 - \$24,999

- o Company Link and Logo on Website
- o Quarterly Newsletter
- o Large Logo on Race Vehicle

89 Plus



\$2,500 - \$7,499

- o Company Link and Logo on Website
- o Quarterly Newsletter
- o Medium Logo on Race Vehicle

E-85



< \$2,500

- o Company Link and Logo on Website
- o Quarterly Newsletter
- o Small Logo on Race Vehicle

Cornell Alums:

Consider designating part of your annual gift to the Cornell 100 M.P.G. Project and receive the same benefits outlined on this page in addition to Cornell Gift Credit.

PRIVATE DONATIONS

Donors will be recognized on our website and race vehicle, and will receive our quarterly newsletter. Private donations greater than \$2,500 will receive the same benefits outlined in the above tiers.

Monetary/In-Kind Gift Donation Form

Donor Name:

Organization Name:

Mailing Address:

Phone Number:

Fax Number:

Organization Website:

What is the amount of your gift (or retail value)?
(Please make checks payable to Cornell 100 M.P.G. Team.)

Is an income tax receipt required?

Donor Signature

Date

Please return the form to:
Jonathan Liu
Cornell 100+ M.P.G. Team
100 Rhodes Hall
Ithaca, New York 14853-4203

Feel free to contact us with any questions:
David Zlotnick
t: (607) 255-8424
e: business@cornellxp.com

