# Cornell team will compete to build 100-mpg car

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Cornell faculty, engineering students and MBA candidates are planning to compete for the Automotive X Prize, which offers a multimillion-dollar award for the team that builds a practical, marketable 100-mpg car.

Imagine a car that gets 100 miles to a gallon of gas. A real car, seating four people, with 10 cubic feet of cargo space that could accelerate from 0 to 60 mph in 12 seconds, top speed 100 mph -- fully equipped with a heater, air conditioner and audio system.

Let's not just imagine it. Let's build it. And sell it.

A team of Cornell faculty, engineering students and MBA candidates in the Johnson School is planning to compete for the Automotive X Prize, which offers a multimillion-dollar award for the team that builds such a car, wins a race against other, similar vehicles and creates a realistic business plan to sell at least 10,000 cars.

"The best anyone has done with a mainstream car so far is 80 miles per gallon, with marginal performance, but it's doable," said John Callister, the Harvey Kinzelberg Director of Enterprise Engineering in the Sibley School of Mechanical and Aerospace Engineering. "What makes it possible is recent advances in batteries and in controls and electronics to make the engine more efficient."

"We have a lot of experience building cars here because of the Formula

SAE racing teams," added Al George, the J.F. Carr Professor of Mechanical Engineering, who has advised the Formula SAE team for many years and has joined the new project. "We're taking a systems engineering approach and carefully studying all the possibilities for energy storage, regeneration, engines and motors," he said, "but we have purposely not settled on any details until we have decided what is the best way to meet the constraints of the competition."

Still in the study phase, the car will be some sort of hybrid, said Callister. It will likely be low slung to reduce air resistance and require its passengers to sit "cheek to cheek," he said. Probably the hardest part will be to meet safety standards. "It has to be lightweight but safe," he explains. "It's almost a contradiction in terms."

The Automotive X Prize is offered by the X Prize Foundation, best known for awarding the $10 million Ansari X Prize to Mojave Aerospace Ventures for the flight of SpaceShipOne, the first private spacecraft capable of carrying three people to 100 kilometers above the Earth's surface, twice within two weeks. The goal of X Prizes is to encourage innovation through competition.

A student organization is being formed and will start designing and building the car in the fall. The foundation will hold a qualifying race early in 2009 and the final competition -- possibly a coast- to-coast race -- is scheduled for the following fall. Students involved in early planning include Phillip Bell and Kyle Rasmussen, both Park fellows in the Johnson School, and master of engineering students Terence Davidovits, Joe Sullivan, John Wee and Ke Wang in the Sibley School. Working with the Johnson School students are Clint Sidle, director of the Roy H. Park Leadership Fellows Program; Stuart Hart, the S.C. Johnson Professor of Sustainable Global Enterprise; Wesley Sine, assistant professor of management and organizations; and Johnson School consultant-in-residence Randy Allen.

The project has received preliminary funding from the College of Engineering, the Roy H. Park Foundation, First Manhattan, General Electric and the Triad Foundation. Popular Mechanics magazine has signed on to be a "media sponsor" and will cover the project in its pages. A great deal more funding and support from industry will be needed, George said. The team hopes to partner with a major automotive firm capable of building and marketing a car based on the design.

Source: Cornell University

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