

Drive-By Wire Vehicle E90 Project Proposal 23 September, 2005

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Based on the General Motors innovative *skateboard* prototype, we wish to explore the idea of eliminating traditional mechanical controls and operations and replacing them with electrical ones (on a smaller scale).

Our primary goal, simply put, is to produce a working vehicle with multiple functions.

The project will draw on our knowledge of electrical circuit applications and statics and dynamics of rigid bodies.

For the control aspect, our goal is to merge the control of steering and braking functions into a centralized electrical system, which will be powered by battery.

Eliminating conventional mechanical configurations, the vehicle body is much less limited in its design, thereby, in theory giving more freedom to ergonomic and aesthetic designs. Time permitting, we'll work on an exterior housing; however, we plan for our initial design to take the form of a single person "go-kart." The body component of the project will begin well in advance as part of Danielle's E59 project, which includes learning ANSYS and SolidWorks.

We hope that our project will have a lasting impact on the local and global level. Our prototype can serve as a project for future E58 laboratory projects. Globally, we see this project as an outgrowth of present demands for alternative fuel sources and an inspiration to minimize dependence on fossil fuels in the future. It is no doubt that the *skateboard* prototype has and will continue to have environmental, social, and political relevance.

Having talked to both Professor Everbach and Professor Cheever, we believe they would both be appropriate advisors for this project.