



5. *A Prototype Series Hybrid Drive Train Using New Permanent Magnet Electric Machine Designs*

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This project aims to produce a small plug in electric hybrid vehicle whose performance will approach very closely the optimal possible, in terms of energy efficiency, for passenger road vehicles. This efficiency will be significantly higher than that of currently commercially available hybrid vehicles, whose structure is has been necessarily constrained to what could be considered viable and acceptable in the larger market place. The resultant vehicle will give particularly high visibility to energy research at UNL, and will be significant nationally.

The project will:

1. Demonstrate the efficiency gains to be had (through mileage improvement) by using a full series hybrid topology in a small passenger vehicle,
2. Incorporate advanced battery systems for energy storage, and
3. Develop a battery charger module that will enhance the introduction of plug-in hybrid vehicles.