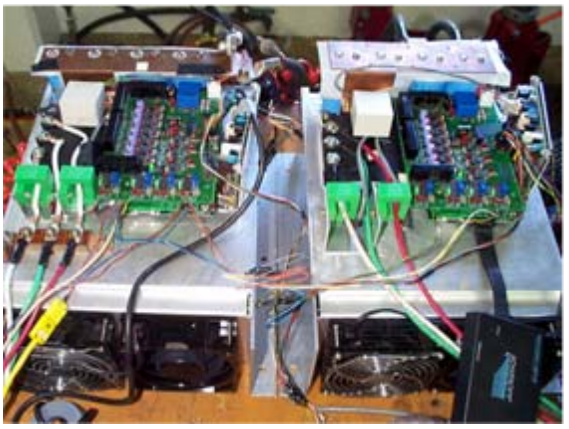
ESTD Engineering Science & Technology Division

A Hybrid Electric Vehicle Drive for a Dual Stator Brushless DC Motor

Objective

Develop a modual design for an axial gap permanent magnet machine so that multiple modules can power a common HEV drive shaft.



ORNL researchers developed the dual brushless motor drive pictured above for use in the University of Tennessee's FutureTruck pictured below.

Modular Advantages

- Power rating scalability - increase or decrease the number of modules to meet different power requirements.
- Increased fault tolerance - failure of one module or drive does not immobilize vehicle.
- Easy repair or replacement.

Project Description

Visual Computing Systems developed a PM motor with two separate sets of three-phase stator coils. ORNL developed two modular inverters and the control and PWM strategies necessary to control the motor. The University of Tennessee installed this drive system in a converted Chevy Suburban (shown right).

Points of Contact:
Power Electronics and Electric Machinery Research Center
Oak Ridge National Laboratory
2360 Cherahala Boulevard
Knoxville, TN 37932

Don Adams
Director
Phone: 865-946-1321
FAX: 865-946-1262
E-mail: adamsdj@ornl.gov

Laura Marlino
Technical Project Manager
Phone: 865-946-1245
FAX: 865-946-1262
E-mail: marlinold@ornl.gov

Website: peemrc.ornl.gov