Final Abstract
IPRO 326 – Spring 2005
Hybrid Electric Vehicles: Simulation, Design, and Implementation

***Sponsor*:** N/A

Goals:

- Perform ADVISOR simulations to determine the optimum hybridization factor for the HUMMER H3, HMMWV, and TATA 1512 Transit Bus.
- Perform ADVISOR simulations to determine the optimum hybrid configuration for the HUMMER H3 and HMMWV.
- Perform ADVISOR simulations to test various components to determine the optimum components to be used in hybridization.

Basic Organization/Tasks:

- ADVISOR Simulations for HUMMER H3
- ADVISOR Simulations for HMMWV
- ADVISOR Simulations for TATA 1512 Transit Bus

Critical Issues:

- Lack of data on conventional vehicles
- Inability to perfectly model conventional vehicles in ADVISOR

Findings/Conclusions:

- HUMMER H3
  - Optimal Hybridization Factor 0.20
  - Optimal Configuration: Parallel Constant Power
  - Overall 27.2% fuel economy improvement
- HMMWV
  - Optimal Hybridization Factor 0.15
  - Optimal Configuration: Series Constant Power
  - Up to 12.6% fuel economy improvement
- TATA 1512
  - Optimal Hybridization Factor 0.30
  - Optimal Configuration: Parallel Constant Engine Retrofit
  - Overall 27% fuel economy improvement

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