Objectives:
• Complete the build of the HIL bench
• Develop the real-time controller model
• Perform test runs
• Evaluate the experimental results
• Document and publish the results

Problem Statement:
Complete the design and setup of a hardware-in-the-loop (HIL) experimental setup and verify simulation results for an optimal on-demand AWD control system.

Research Phases:
• Completed development of open-loop controller for initial hardware testing.
• Integrated closed-loop controller with test system.
• Integrate vehicle model with test system and run tests to verify simulation results.
  (to be completed April ’07)

PID Controller

System Schematic

Experimental Setup

dSpace Control Interface

Step Input Responses

Optimal Control of An On-demand All Wheel Drive System for Traction Enhancement
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