

Center Specs

Name: Smart Vehicle Concepts Center (SVC)

Lead Institution: The Ohio State University (OSU)

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Web site: www.SmartVehicleCenter.org

Center Mission:

- Conduct basic and applied research on the characterization of smart materials, and the development of adaptive sensors, actuators and devices (based on active materials and control methods) for application to vehicle sub-systems and components.
- Build an unmatched base of research, engineering education, and technology transfer with emphasis on improved vehicle performance.
- Develop well-trained engineers and researchers (at the MS and Ph.D. levels) with both experimental and theoretical viewpoints.

Overview of Research Activities

Research Thrusts:

- *Thrust A: Interfacial Mechanisms* – Advanced electro-hydrostatic actuators, adaptive powertrain mounts, interfacial force sensors, torque sensing and actuation, etc.
- *Thrust B: Adaptive Noise, Vibration and Harshness (NVH)* – Active micro and non-composites, gear noise control, acoustic micro-sensors, panels with tunable, stiffness, etc.
- *Thrust C: Safety* – Distributed force sensors, air bag sensor, adaptive seat belt systems, advanced energy absorbing foams, etc.
- *Thrust D: Energy* – Energy harvesting devices, fuel management, powertrain breathing systems, friction control, efficiency enhancement, etc.

Some Current Projects:

- Electro-Hydrostatic Actuation and Sensing (E-HAS)
- Feasibility and Performance of Smart Engine Mounts
- Multifunctional Composites with Embedded Sensing and Stiffness Control
- Development of Interfacial Force Sensing Systems
- Smart Material Database Compilation and Material Selection
- Silent Gearbox Concepts
- Smart Engine Mount Actuation Mechanism and Active Elastomers
- Adaptive Seat Belt System Using Smart Material Technologies
- Critical Assessment of Noise and Vibration Technology for Rotorcraft Gearboxes
- Micro-Sensors for Sound Measurement
- Development of Contactless Torque Sensor
- Joining of Shape Memory Alloys and Structural Materials

