Transportation, Lightweighting, and Mobility

Below is a matrix of recent projects related to transportation, lightweighting, and mobility which NCMS has executed. Since 2008 NCMS has been involved with 35 projects with 51 original project participants totaling over $41 million in funding. Project executive summaries are available for many; please contact melissas@ncms.org for availability.

<table>
<thead>
<tr>
<th>Project Area</th>
<th>Historic Projects</th>
<th>Partner Organizations</th>
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| Alternative Fuels  | • Alternate Fuel/Energy Conversion of USMC Ground Vehicle – Assessment of Benefits and Maintainability  
• Development of Alternative Fuel Solutions for Gasoline and Diesel Powered Vehicles | • Bi-Phase Technologies  
• Blossman  
• Petroleum Education and Research Counsel (PERC)  
• Schwan Food Company  
• Troika Solutions |
| Autonomous Vehicles| • Autonomous Transport                                                                                                                                                                                             | • Missouri University of Science & Technology  
• Robotics Research, LLC |
| Batteries          | • Advanced Lithium Battery Technology Demonstration for Forklift Trucks  
• Extending Lead-Acid Battery Life via Desulfating Chemicals                                                                                               | • Analytic Strategies  
• Avomeen  
• Navitas Systems |
| Coatings           | • Integrated Corrosion System  
• Multi-Substrate Paint Adhesion Improvement                                                                                                                                                                   | • PPG Industries |
| Condition Based Maintenance | • Reducing Maintenance Costs Through Predictive Analysis                                                                                                                                                    | • General Electric (GE) |
| Lightweighting      | • Advanced Modeling & Simulations  
• Automotive Component Manufacture in Titanium  
• Casting a Digital Manufacturing Solution  
• CCM-Developed Continuous Carbon Fiber Thermoplastic B-Pillar                                                                                       | • Altair Engineering  
• American Titanium Works  
• BMW Automotive Group  
• Case Western Reserve University (CWRU)  
• Centracore  
• Clemson University – International Center for Automotive Research |
Past Performance

- Cost-effective Lightweight Hybrid Composite Material and Processing Technologies
- Damper Assembly Bracket Frequency Optimization
- Lightweight Fiber Composite Structures with Embedded Communications
- Lightweighting and Joining Adhesives
- Low-Cost Resin System for Lightweight Polymer Matrix Composite (PMC) Components
- Reversible Adhesive System to Improve Both Maintenance and Sustainment
- Simplified Computational Fluid Dynamics (CFD) Analysis of Tow Vehicle & Trailer Bodies
- Thermal Processing of Aluminum Alloys
- Ultra-Fine Grained/Nano Aluminum Material for Connecting Rods
- Ultra-Lightweight Sandwich Composite Constructions for Autobody Applications
- Ultra-Lightweight Sandwich Composite Constructions for Autobody Applications – A Predictive Simulation Approach
- Weight Optimization and Radioss Analysis
- Dassault Systemes SIMULLA Corporation
- Decision Incite, Inc.
- Deformation Control Technology, Inc. (DCT)
- Engineered Performance Materials (EPM)
- Ford Motor Co.
- General Electric (GE)
- General Motors Powertrain (GM)
- L&L Products
- MAG-IAS, LLC
- MAHLE
- Michigan State University
- Nimbus Services, Inc.
- Oakland University
- Ohio Super Computer
- OKUMA America Corp
- Plasan Carbon Composites
- PPG Industries
- R Systems NA, Inc.
- SimaFore, LLC
- TotalSim
- University of Delaware, Center for Composite Materials
- University of Massachusetts-Lowell (UML)
- US Farathane
- Wayne State University
### Past Performance

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<th>Development of Operational Transition Procedures &amp; Sustainment Analysis for Global Logistics Integration Systems’ Supply and Maintenance Functions</th>
<th>Anglicotech</th>
<th>The Columbia Group</th>
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<td>Development of Foam Performance Tests</td>
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<td>Preventing Seat Belt Interlock Misuse</td>
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<td>Development of Vehicle Telematics and Condition-Based Maintenance Solutions for Fleet Sustainment</td>
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<td>Multiple Source Fuel Management Information Systems</td>
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