



ENGINEERING DESIGN & SIMULATION

Concept to Compliance through Simulation...



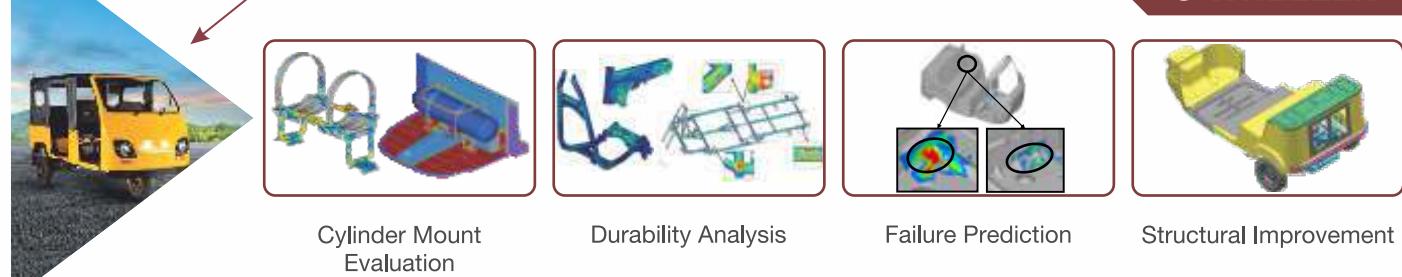
ENGINEERING DESIGN & SIMULATION (EDS)

EDS is one of the major R&D divisions of ARAI having core competence in New Product Development & Simulation. With state-of-the-art computational infrastructure and expertise available as a Simulation Lab, EDS is offering customized solutions from Concept to Compliance through Simulation. Areas of domain expertise include Benchmarking & Inspection, Crashworthiness & Impact, Durability, NVH, CFD, MBD and Manufacturing Process. Beside Transportation & E-mobility, EDS has a strong footprint in simulation driven design programs towards Defence, Nuclear, Medical, Space, Highway Safety & Security Applications.

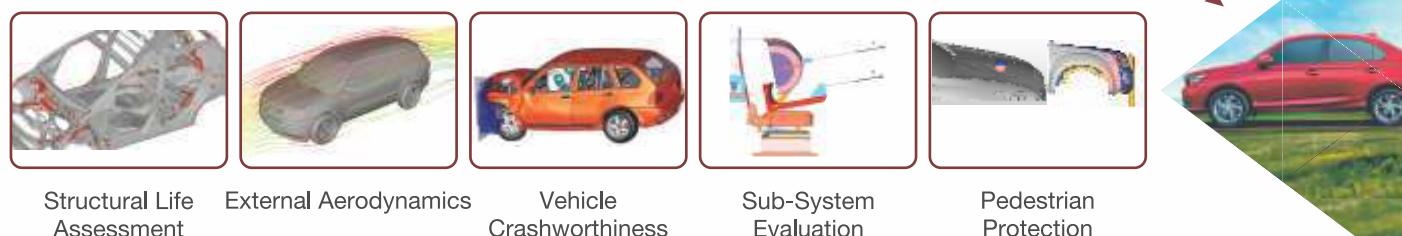
2 WHEELER



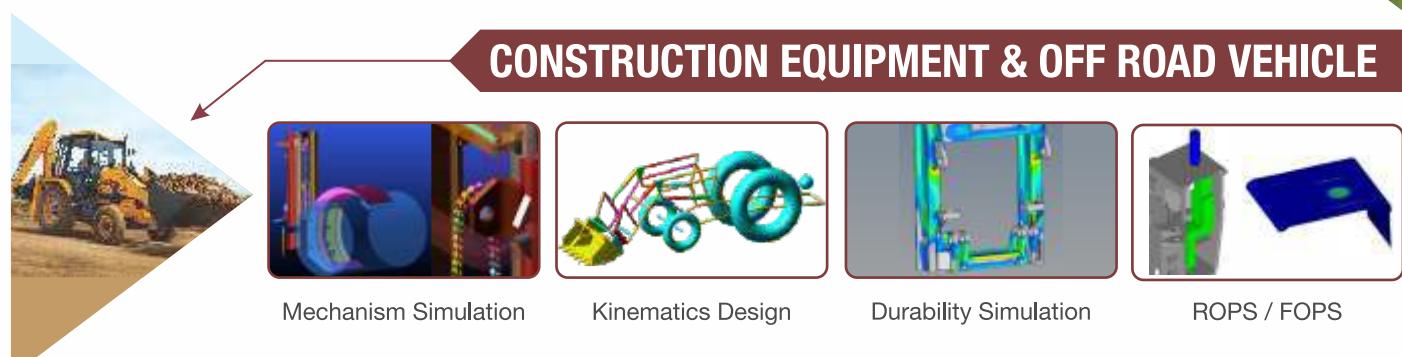
3 WHEELER



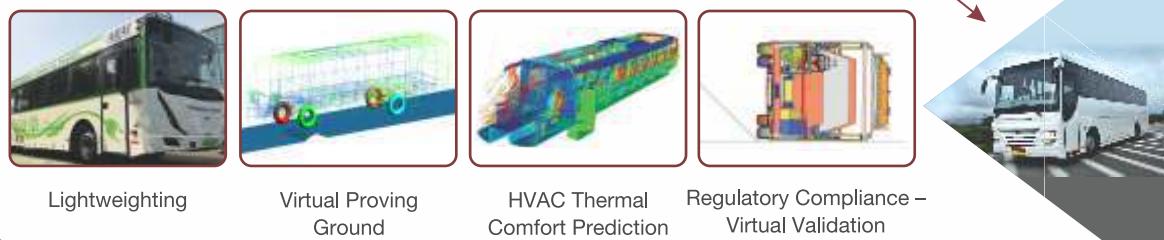
PASSENGER VEHICLE



CONSTRUCTION EQUIPMENT & OFF ROAD VEHICLE



BUS





TRUCK



Windscreen Wiping Simulation



Four Poster Durability



Underhood Thermal Evaluation

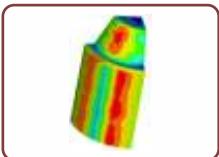


Regulatory Compliance – Virtual Validation

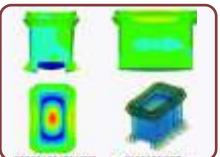
NUCLEAR



Transportation Package Drop



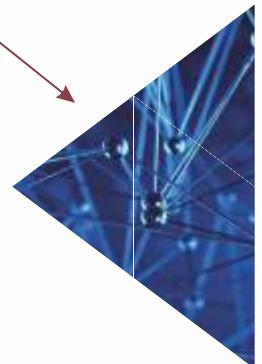
Thermal Simulation



Frequency Prediction



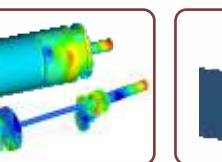
Simulating Accident Condition



MEDICAL EQUIPMENT



Pace-Maker Component Evaluation



Defibrillator Performance Evaluation



Human Body Implant Development

DEFENCE



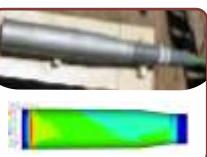
Gun Chassis Strength Prediction



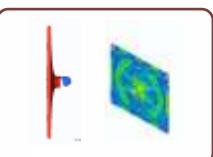
Blast Simulation



Armored Capsule Design



Failure Prediction



Ballistic Performance Evaluation

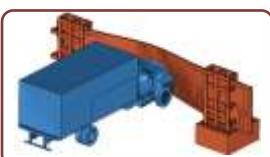


Military Vehicle Performance Evaluation

SECURITY & HIGHWAY SAFETY



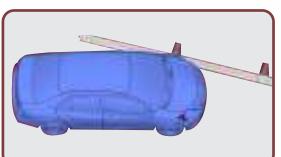
Crash Bollard



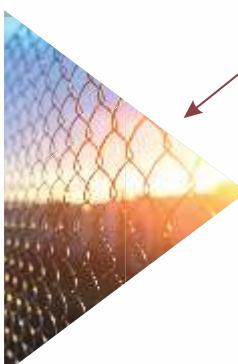
HVM Gate



Street Furniture



Highway Safety Barrier



BENCHMARKING & INSPECTION



Powertrain

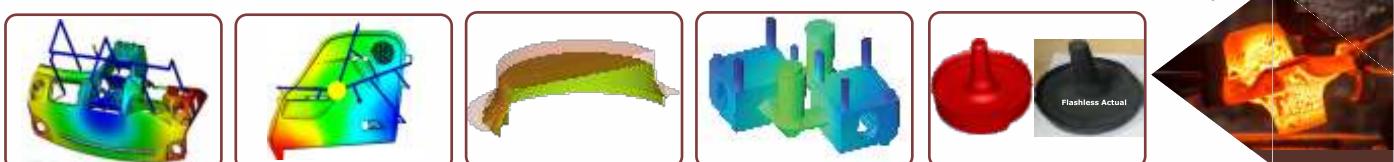
Vehicle BIW

Full Vehicle

Marine Turbocharger

Packaging & Integration

MANUFACTURING PROCESS



Interior Panel Flow Simulation

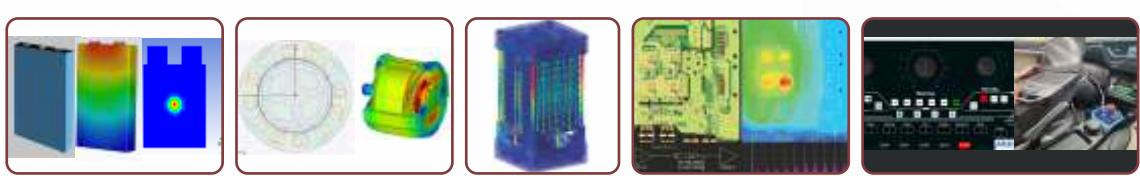
Door Trim Flow Simulation

Wheel Rim Stamping

Defect Removal & Yield Improvement in Casting

Flashless Forging of Crankshaft

E - MOBILITY



Battery Thermal Management

Motor Performance Evaluation

Battery strength Assessment

PCB Thermal Simulation

ADAS Actuation – Using Drive by Wire

STATE-OF-THE-ART INFRASTRUCTURE

HARDWARE

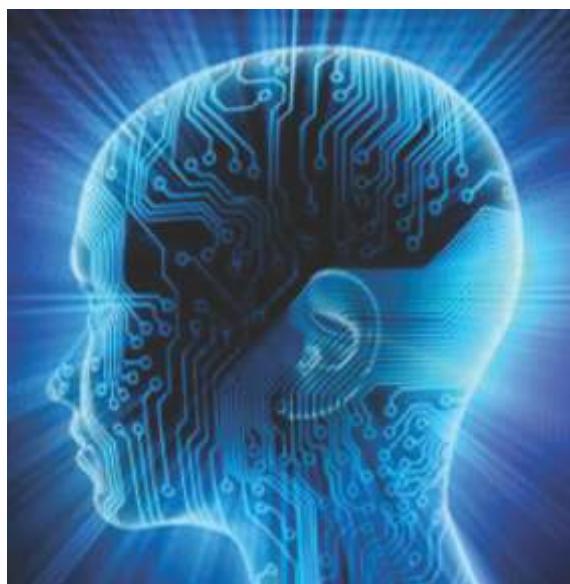
- Portable Blue Light 3D Scanner – 12 MP
- HPC Server – 192 Core, 1500 GB RAM
- High End Workstations for CAD & Simulation

SOFTWARE

- Pre / Post Processor – Hyperworks, Primer, En-Sight
- Solver – LS-Dyna, Radioss, Madymo, Nastran, Adams, Motion Solve, LMS, Abaqus, Ansys Fluent, Design Life, FE-Safe, Tosca, Forge, Moldflow, Truck/Car/Suspension Sim, Pyrosim and Optistruct
- CAD – Unigraphics, Creo, Catia, Geomagic

SALIENT FEATURES

- ISO 27001 Certified
- Flexible Work Model – Offshore Development Centre (ODC), Rate-Contract
- Pioneer in CAE based Certification – NABL (ISO 17025) Accreditation
- Product Lifecycle Management – DFSS, DFMEA
- Robust Simulation Methodology with In-House Validation Facility
- Design & Validation Support to EV Startups



The Automotive Research Association of India
(Affiliated to Ministry of Heavy Industries, Govt. of India)

Regd. Office :
Survey No. 102, Vetal Hill, Off Paud Road,
Kothrud, Pune - 411 038, INDIA
Tel. : +91-20-6762 1491
E-mail : mahajan.eds@araiindia.com | pankhawala.dts@araiindia.com
Website : www.araiindia.com