Altair HyperWorks enables ICAT achieve robust **structural integrity** of automotive components

The ICAT team uses robust software solutions to work on structural simulations like bus rollover testing, impact and crash simulations, and quasistatic loading applications

The International Centre for Automotive Technology (ICAT) is located at Gurgaon, one of the rapidly flourishing business hubs in North India. ICAT is a division of the National Automotive Testing and Research Infrastructure Project (NATRIP) Implementation Society (NATIS). NATIS is an independently registered society and an apex body for the implementation of NATRIP for the Government of India.

ICAT is an ultra-modern Automotive Testing and R & D centre with a vision to evolve into a state-of- the-art automotive R & D hub and intends to provide high-end automotive design, test, and validation services to the ever-growing automobile industry in the country.

The ICAT team works relentlessly to fulfill its mission of integrating advanced automotive technology to support the industry in component development for new classes of vehicles and develop cutting-edge technical expertise to expand upon an impeccable range of automotive services. The team aims to set international standards in the area of automotive design, test, and validation.

Earlier, the team used to conduct physical testing of automotive products. This method had the inherent risk of losing both time and money if the product failed the test. Also, the team had to perform a lot of complex calculations to solve issues and arrive at accurate designs of products. These issues posed daunting challenges to the team and often turned into time-consuming tasks.

Hence, to realize the vision of developing ICAT into a Centre of Excellence in component development for the automotive industry, the team felt an acute need of efficient and validated CAE software tools that would enable them to find appropriate and quick solutions to real world problem

The ICAT team had the knowledge of Altair HyperWorks being a robust CAE tool that could help them achieve their quality benchmarks and timelines during new product designing and testing phases. ICAT considered and selected HyperWorks during Government of India's NATRIP tender process for their CAE lab.

Initially, the team worked on a few basic in-house projects. As their requirements grew, they started using HyperWorks for certifications to the bus industry. The ICAT team now uses Altair HyperWorks extensively for simulating automotive industry standards and is currently focused on simulating around 30 standards.

The ICAT team has used and experienced Altair HyperWorks for more than a year now. They currently use Altair HyperMesh® and HyperCrash® as pre-processors, and Altair RADIOSS® and OptiStruct® as solvers. They use these robust software solutions to work on structural

DesignTech
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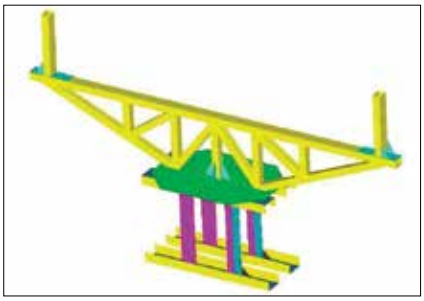
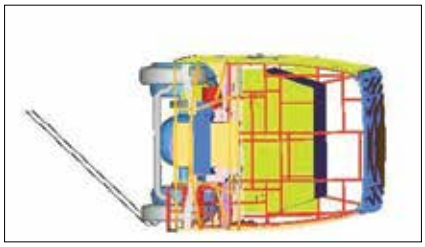
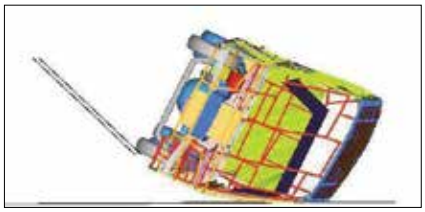


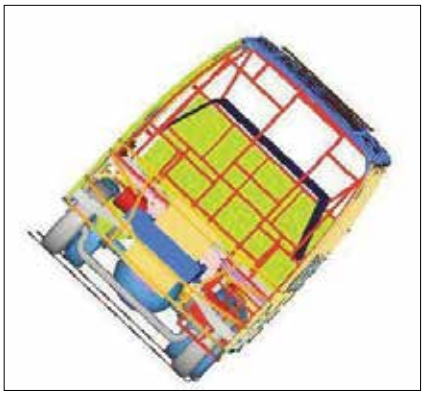
Fixture design for LED board testing on vibration shaker



Bus in free fall state

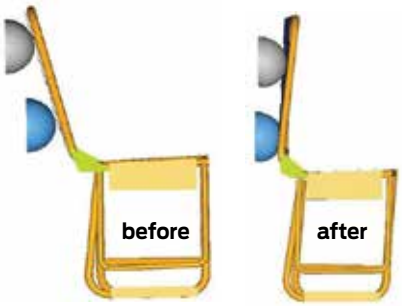


Bus at impact condition



Bus in unstable condition

Seat Strength test as per AIS-023



Seat position

simulations like bus rollover testing, impact and crash simulations, and quasistatic loading applications. The ICAT team also has plans to support OEMs in their product development cycle and is keen to experience the capabilities of Altair NVH Director in the future.

In their pursuit to carve a niche as a one-stop solution for the automotive industry's needs in the areas of product designing, testing, and validation, the ICAT team required a very advanced suite of software solutions that would cater to all their needs. Their aim was to use a software suite that would save them time, money and also help in all phases of product development. The team is happy that they considered and zeroed in on Altair solutions to fulfill their requirements.

Benefits

The Altair software suite has immensely helped the team in providing timely and appropriate solutions to their clients. The team utilized the potential of Altair software solutions and, in a short duration, developed capabilities in solving complex problems related to product failure during the testing phase.

ICAT is well on its way towards establishing itself as a Centre of Excellence in component development for the automotive industry and has derived diverse benefits from their investment in Altair solutions.

The Altair software suite has enabled the ICAT team to respond to their clients with appropriate solutions to their product development problems well within deadlines. This improvement in ICAT's turn-around-time has very positively impacted their clients' time to market and in turn has benefited them too.

The extensive use of HyperWorks is fostering a culture of excellence and innovation at ICAT, which is helping them deliver better solutions to the automotive industry. It is also helping them in their internal research projects on automobiles and is thus proving to be a great platform for achieving greater heights in the field of automotive engineering.

Bus Rollover Testing is one of the major projects that the ICAT team has completed by using HyperWorks. Through the use of HyperWorks, the team rendered the physical testing process obsolete, thus saving a lot of time and money. They did rollover testing in CAE after correctly co-relating material properties and joint modeling. The time that the ICAT team saves by using HyperWorks is constructively utilized in analyzing boundary conditions and results as opposed to doing complex calculations.

For more information
www.altair-india.in
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