Suite treat

With ever-increasing demands for the almost instant delivery of data, test engineers need the most up-to-date tools and software suites so they can rise to the challenge

■ To remain competitive in the fast-changing automotive world, conception and test engineers are constantly asked to be ever more efficient, and to deliver results even more quickly, while reducing costs. A common joke among test engineers when they are asked for a new test is, "Of course, results are needed for yesterday!"

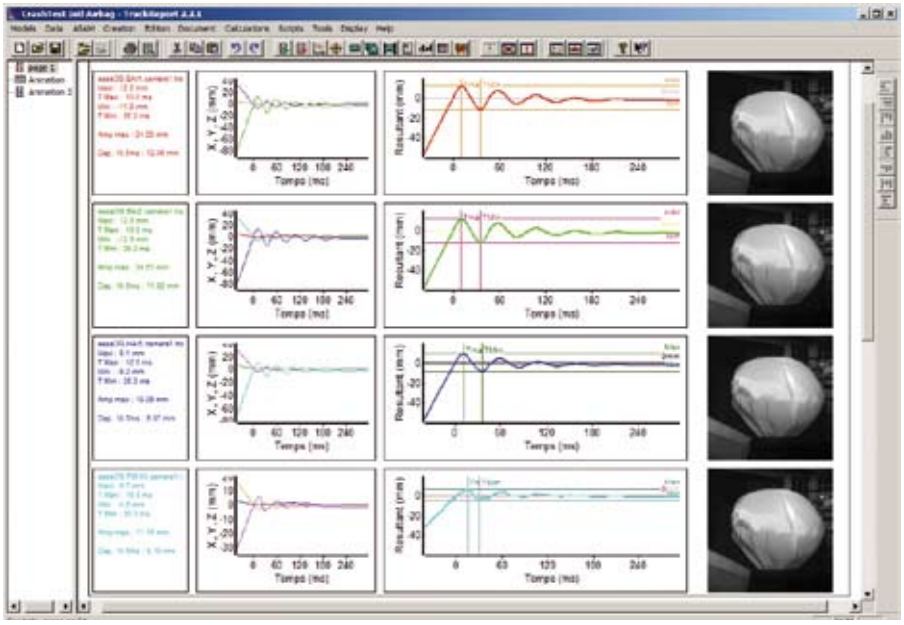
Tests are also becoming more complex, and are often performed in various test plants all over the world, by people who do not share the same language and technical culture. As a result, gathering data in a coherent and efficient manner and being able to perform a quick and pertinent analysis has become the next challenge for the European automotive industry.

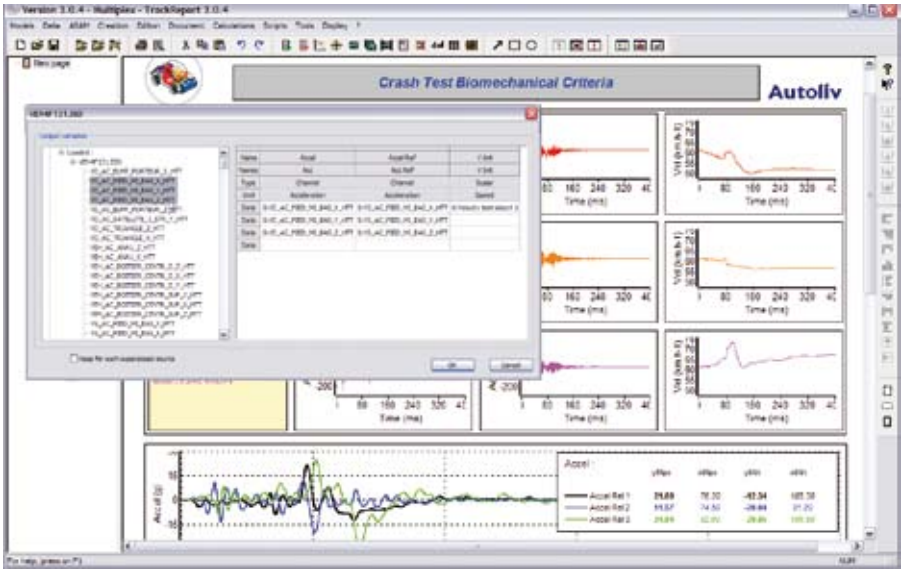
ORME Company has been working closely with customers in the French automotive industry for more than 10 years, including Renault, PSA Peugeot Citroën, Autoliv, and Faurecia. To help its customers face the new challenges, ORME continues to work on new products to enlarge the capacities of its software products. The company relies upon its know-how in test analysis, its expertise in signal and image processing, and on a full and efficient service to customers.

TrackImage was the first software to be developed by ORME (in 1997). It enables automatic analyses of sequences of digital images, and measuring of trajectories, velocities, accelerations, and deformations of any kind of object in the images in various spatial references. It includes several independent modules, each of them dedicated to a special application: 2D and 3D motion tracking, deformation tracking, air-bag deployment, virtual object inlay, and rotating machine analysis. Two of these modules (virtual object inlay and air-bag deployment) were designed in close consultation with customers in the automotive field, and they are still being evolved to fit to new requirements, in particular this year's EuroNCAP.

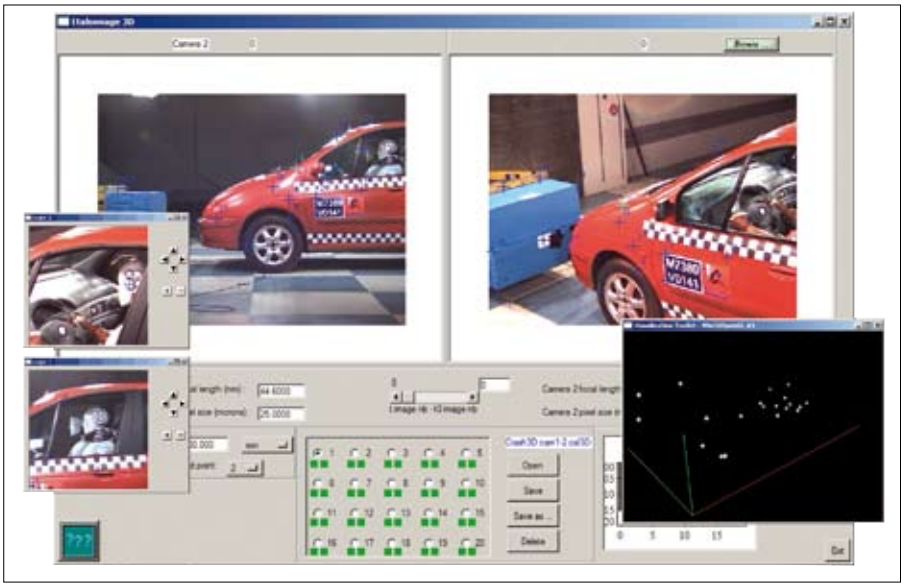
ORME is also working on new methods to calibrate the 3D space in association with french research laboratory LAAS-CNRS. The objective is to enable users to perform a precise calibration of the cameras with an easy-to-use method that wouldn't necessitate any particular set-up, nor cause any extra delay to run the test. In the future, 3D measurements are going to be required more and more in automotive crash tests.

TrackImage is now being used by CAEPE, CNES (Kourou), EADS, ETAS, ETBS, and Snecma Moteurs for aerospace and defense





Above: Airbag deployment with TrackReport
Below: Crash-test analysis with TrackReport



3D motion analysis with TrackImage Workflow application

applications; by Autoliv, Dorel, Faurecia, and PSA Peugeot Citroën for automotive crash test analysis; and by Schneider Electric for electric applications.

To enable engineers to perform a full analysis of the tests and compare the results of various tests and/or simulations, ORME has developed TrackReport. This software tool creates report templates that include various graphical objects and specific calculations to analyze the data coming from all types of sensors and/or videos. The software then enables the user to mix all the data in the report template, compare it, and generate the test report automatically. TrackReport was designed to be the most adequate test analysis software tool in all circumstances, an efficient tool to automatically generate standard test reports, and an easy-to-use powerful tool to implement unusual methods to analyze an unexpected event.

In a multi-page report, TrackReport handles tables, graphs, images and films, and curves and films are all synchronized, even when time bases are different. TrackReport offers a whole set of calculation libraries, with a special one dedicated to automotive biomechanical criteria calculations. Once a report has been designed by a test engineer, it can immediately be updated with data from a new test, and then be exported to a dynamic HTML file and sent to all people interested in viewing the results.

To allow test engineers to make specific analyses in special cases, TrackReport includes Track-L, a programing language that enables them to implement a new analysis method quickly and efficiently.

Various data formats are available either for input (ISO, MME) or output. Any other data format may be added by customers through the Software Development Kit, or developed by ORME on request.

Turnkey applications, through javascripts, can launch TrackReport, open the report, read the data, make the calculations and update texts and graphs, print the report, and close TrackReport, automatically . TrackReport can be easily included in test bench data acquisition software, and offers customers a complete application tool.

TrackReport may be used for standard or specific test analyses. For instance, last year, ORME developed a complete set of TrackReport models dedicated to dummy calibrations that will regularly be updated to follow safety standards and regulations. French auto manufacturer PSA Peugeot Citroën has chosen to use TrackReport and this set of models, automatically integrated with Crash Designer (Kaiser Threde), for its whole dummy calibration process.

Two new calculation libraries for TrackReport are being developed for 2008 – one for acoustics and one for matrix calculations.

To fulfill the need for an efficient and standard exchange of data between test sites all over the world, ORME has spent the past two years working on a way to store and exchange data, based on the ASAM model. An ASAM client has been developed and added to TrackReport, including an efficient and easy-to-use multi-criteria search tool. ORME works with HighQSoft GmbH and its Athos ASAM server, and will implement TrackReport's ASAM client tool on several customers' sites in 2008.

To broaden its software offerings in test and measurements areas, ORME is now working with its customers, including Renault, on a new software module dedicated to workflow. The idea is to track a test request through its whole lifetime, from the very start when the need for a test is expressed by the development engineer, until the day when the test report has been validated and published and can be analyzed. The workflow includes all aspects of the test request, such as the definition of the test instrumentation, test machines, and test plants. The final step of the workflow would be to automatically start TrackReport with a pre-defined test report template dedicated to the test involved, with the corresponding channels and calibration values, and the data acquired during the test. The benefit for the user would be a huge improvement in efficiency and time spent, with almost no risk of errors.

ORME has moved to a new location this year that is twice as big as its previous premises. The additional space will allow ORME to organize in-house training for customers ORME also has a new logo, which will be displayed on its booth at Crash Test Expo in Stuttgart.

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