

BUILD YOUR OWN CAR

Virtual prototyping helps developing an innovative vehicle that reduces energy consumption by half

Developing green, light vehicles, which can be produced close to the ultimate customer, presents interesting market opportunities as well as an opportunity to reduce the total CO₂ footprint. With cutting-edge technology, that is exactly what Gazelle Tech, supported by ESI Virtual Performance Solution, is working to – yet still offer mobility to all.

Gazelle Tech is developing a new production method for an innovative, low carbon impact vehicle, with the objective of offering sustainable transportation to all. Using ESI Virtual Performance Solution, they are able to:

- reduce time to market by eliminating physical prototypes;
- ensure a safe, lightweight vehicle design;
- realize the necessary design adjustments for an overall optimal design.

French innovation

The industrial version of the peri-urban composite vehicle, that French startup Gazelle Tech is currently at, is under development and expected to be released in 2018. It features a composite chassis and body technology that makes it one third the weight of its competition and reduces energy consumption by half. The model will be offered in both gas and electric versions for a B2B market in France, as well as emerging countries in Africa and Asia.

Gazelle Tech offers disruptive innovations, both in their car concept technology and its production model. The chassis, composed of ten pieces (vs. 300 on a standard vehicle), can be assembled without the need of special tools within an hour in micro-factories supplied in containers.

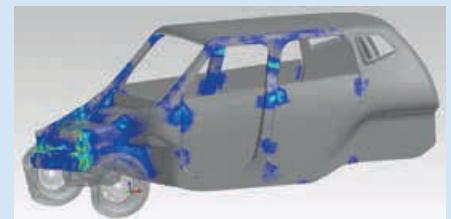
Additionally, modular production units can be installed quickly and closest to where the customer is. For example, if the customer is in South Africa, the vehicle will be produced in South Africa. This reduces energy consumption linked to the transportation of vehicles.



Virtual implementation

Based on their new design and car concept, Gazelle Tech created a virtual prototype of their car in order to test safety and comfort virtually and to anticipate any issue before building the first real prototype. For several months, using ESI Virtual Performance Solution (VPS), they subjected the composite vehicle to rigorous crash and structural rigidity simulations and carried out vibration analysis to refine passenger comfort levels until an optimum design was achieved.

In the next phase, focus is on the optimization of the manufacturing processes of the car's composite parts. All vehicle manufacturers must present a prototype before commercialization so that the competent authorities can carry out tests. Gazelle Tech is finalizing their first prototype. Once they obtain certification, production of the first Gazelles is expected at the end of 2018.



A Gazelle at the end of a frontal crash using ESI Virtual Performance Solution

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March 6-7-8, 2018
JEC WORLD
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