

SOLIDWORKS AT THE HEART OF THE ARTISTIC PROCESS FOR THE CREATOR OF URBAN DREAMS, COMPAGNIE LA MACHINE

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The Guardian of the Temple show in
Toulouse. - Picture ©Jordi Bover.

The challenge:

To read movement as a language, as a source of emotion, and to create living architecture that transforms the way we view our towns. Through street shows and urban renovation, the city is being reinvented, allowing the La Machine team to let their artistic imagination run wild.

The solution:

Set up a comprehensive and efficient digital chain, from a wooden 1:10 scale model and a 3D scan, all the way to the finishing touches before creation is showcased in the streets. SOLIDWORKS® by Dassault Systèmes is present at every step of a project development cycle.

The results:

Enormous creations are made possible thanks to the functional scope of SOLIDWORKS and the 30 staff members in the design office.

La Machine is a company that was set up in 1999 by François Delarozières. It came about thanks to artists, technicians and theatre designers working together with unusual objects and enormous, living machines. With the city as its showground, it lets us dream of the urban landscape of tomorrow and slightly changes people's view of what's around them. Whether it's custom-designed street performances or urban renovation projects, La Machine uses its expertise to serve towns and cities across the globe. In addition, this non-profit organization under the Law of 1901 takes on and trains students of performance arts and part-time performers, thus making itself part of the traditions of art and sharing knowledge.

Its creations, ranging from large to very large, are designed and built in its workshop in Nantes and at L'Usine in Tournefeuille. They have been performing with movement and set design, a source of emotion for all and a universal language, for 20 years now.

"Our shows tell a story," explains Frédette Lampre, outreach and communications manager. "Once upon a time, with creatures standing meters tall roaming the streets, as was the case recently in Toulouse. Our 'Guardian of the Temple' production, created at the city's request and held over four days, told awestruck residents of Toulouse the ancient Greek legend of the Minotaur."

TECHNOLOGY TO CREATE ART

The design team at La Machine has used SOLIDWORKS since 2012. "But we passed a milestone in 2017 when we got 20 licenses and began to use it on an everyday basis," says research director Marc Lairet.

Let's look in detail at how a project comes to be!

Each part of a design is crafted by François Delarozière, Artistic Director of La Machine, who can visualize even his craziest dreams. Then comes an artistic representation of the street production, which carries a message for the city. Next, a 1:10 scale model is built out of wood. If everyone approves the initial project, it's then scanned into SOLIDWORKS, as with the giant cedar hummingbird created at the start of 2018 that forms part of the Heron Tree in the Galerie des Machines.

"It might seem difficult for a non-profit organization to have the same technological tools as industrial manufacturers do. That would have been the case if not for the initiative of VISIATIV. They listened to what we do and gave us access to SOLIDWORKS' cutting-edge technologies."

Marc Lairet, research director

STEP BY STEP, THE ANIMATED CREATURE TAKES SHAPE

From the basic idea, everything is designed and made digitally. Let's go back to the giant hummingbird, a delicate, colorful bird weighing 10 kg and measuring 1.5 m from the tip of its beak to the ends of its feathers. The design becomes a sculpted wooden model that reflects the concept and the artistic aim of the project. We then have to be certain the idea can be transformed into a reality. This is where SOLIDWORKS comes in. "The shape and general data of the object are scanned into the Dassault Systèmes solution," says Marc Lairet. "All the mechanical systems are designed in SOLIDWORKS. This is a compulsory step for all our creations." Of course, great precision is needed when it comes to enormous creations that will roam the streets among crowds of people. La Machine can't take any risks; everything has to be fully compliant and absolutely safe.

After creating the parts comes assembly. Approval is required, but it isn't enough on its own. "We might need to make more in-depth calculations to get the sizing absolutely spot on." Kinematics play an essential role in the project development cycle. "We have to simulate the movements of the giant hummingbird to be sure it will be effective and look authentic; it has to be as natural as possible to fire the public's imagination." This again could not be done without SOLIDWORKS. Once all these steps are complete and the bird exactly matches the original concept and design, but now in 1:1 scale, the creative team approves the project based on a virtual model. Next comes the manufacturing stage. For this, detailed, overarching plans are essential, such as parts lists. "Our carpenters and boilermakers are experts in large-scale projects. Sometimes we have to outsource, particularly for machining, and in those cases SOLIDWORKS proves its worth again by ensuring simple, quick and effective exchanges of information. »

THE HUMMINGBIRD IN THE HERON TREE

The finishing touch is made by craftspeople in the workshop, before it takes its place in the Machines de l'Île bestiary.

"All this would be far more difficult to achieve without SOLIDWORKS or VISIATIV," confirms Marc Laitet. "They've placed their trust in us and invested in a project that might seem a little bit crazy, because it doesn't have much in common with the industrial challenges taken on every day by others using the Dassault Systèmes solution. Now, our creativity knows no bounds other than the technical reality of our projects. Anything goes!"

Frédette Lampre sums it up: "From, once upon the time, to the show in the street, SOLIDWORKS allows us to make our wildest dreams, our most monumental machines, our most beautiful stories come true and to make them live, in the cities, for the biggest pleasure of everyone."



The giant hummingbird created using SOLIDWORKS from Dassault Systèmes - Picture ©Cie La Machine



The hummingbird in the Heron Tree - Picture ©Jean-Dominique Billaud

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