

LAVA DROPS REIMAGINING GUITARS AS ART PIECES WITH 3D CREATOR XDESIGN APP

Case Study



To commemorate the role that the 3D Creator xDesign app filled during the development of the world's first guitar featuring a laser MIDI controller—the Lava Drop X— the company created a special Lava Drop X edition that is painted in Dassault Systèmes blue, with an ebony fingerboard and special aluminum X inlay.

Challenge:

Improve the ability to work, collaborate, and communicate with the design and engineering team when members are geographically dispersed.

Solution:

Expand its existing SOLIDWORKS for Entrepreneurs solution with the browser-based 3D Creator solution on the 3DEXPERIENCE cloud-based platform.

Results:

- Cut design cycles by 30 to 40 percent
- Shortened time to market by 20 percent
- Reduced development costs by 25 percent
- Improved design visualization, collaboration, and communication

Combining elements of industrial design, art, sound, and the natural world, Lava Drops is an innovative Lithuanian product design and musical instrument company whose mission is to inspire creativity and connect humans with the natural world through the creation of artistic electric guitars made from exclusive, natural, and unconventional materials. The company constructs its guitars using rare woods—such as sapele and ebony—as well as unusual materials for a musical instrument, including aircraft-grade aluminum, bell brass, 50-million-year-old black amber cut from the Baltic Sea, and a meteorite from space. Lava Drops creates functional art pieces that are appreciated by the most inspiring world-class guitar players.

The brainchild of visionary designer Rapolas Gražys, the company began with Gražys' final design project at the Vilnius Academy of Arts. "Guitar playing was my hobby and my passion. So, I thought, 'Why not make a guitar?'" Gražys recalls. "I came up with the idea of a fretless guitar made in the naturally occurring drop shape—like a raindrop falling from the sky or a drop of lava falling from an exploding volcano—which also has ergonomic benefits."

Having learned how to use the SOLIDWORKS® 3D design system during his undergraduate studies, Gražys developed his first guitar—the fretless Lava Unibody Drop—using SOLIDWORKS software. He went on to develop additional Lava Drops guitar designs with SOLIDWORKS during graduate school. When he founded Lava Drops in 2015, Gražys naturally used SOLIDWORKS.

"Lava Drops instruments consist of several complex surfaces and are made from materials with widely varying properties, both of which create challenges that require a serious, capable CAD system," Gražys explains. "We looked at some other CAD systems, but we determined that the value of SOLIDWORKS—the ratio of capabilities to price—is the best, and there was no doubt that we would continue using SOLIDWORKS."

Efficient, real-time collaboration among members of the Lava Drops design, engineering, and manufacturing teams remained a key challenge, even with SOLIDWORKS for Entrepreneurs software. When Gražys heard about a new browser-based 3D modeling application on the 3DEXPERIENCE® cloud-based platform, he decided to try it. The visionary was intrigued by the growing number of product development tools on the platform that work with each other seamlessly and are accessible from any place and on any device. Lava Drops expanded their SOLIDWORKS for Entrepreneurs desktop solution with cloud-based 3D Creator®, which includes the xDesign® app.

FROM DESKTOP TO CLOUD

Since adding the 3D Creator xDesign app and adopting the 3DEXPERIENCE platform, Lava Drops has realized a range of productivity gains related to working in a collaborative design environment in real time. "It's easier and faster to develop design concepts with the 3D Creator xDesign app, which is specifically designed for industrial designers and digital artists," Gražys explains.

"Because SOLIDWORKS software and the 3DEXPERIENCE platform work seamlessly together, we can utilize the best solution for the job at hand, enabling engineering, the manufacturing side, and customers to collaborate from anywhere, at any time, and from any device with a web browser," Gražys adds. "Our engineer located in another office can access a design file, run a simulation, and make changes for mathematical and physics purposes. Our manufacturing specialist, sitting in a third office, can then work on the model to make manufacturability adjustments."



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— Rapolas Gražys, Founder

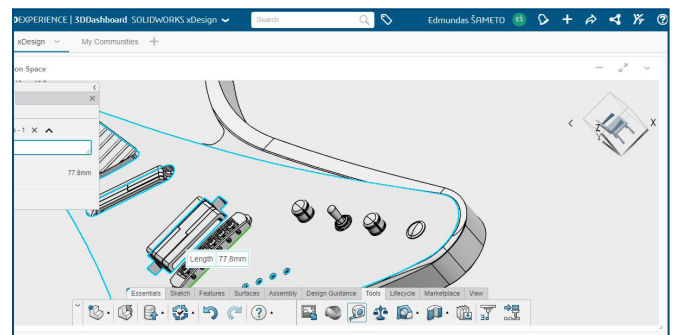


“During this process, we’re all communicating with each other regarding modifications while working from different locations,” Gražys notes. “For us, the **3DEXPERIENCE** platform is the best solution because it allows us to collaborate from different locations without needing expensive hardware. Because we can easily log in through a laptop, tablet, or smartphone, the **3DEXPERIENCE** platform is great for facilitating visualization, collaboration, and communication.”

FASTER DEVELOPMENT, REDUCED COSTS, AND BUSINESS INNOVATION

Using 3D Creator xDesign, Lava Drops continues to design and manufacture distinctive guitars and other musical instruments, as well as introduce industry innovations, all while slashing development time and costs. With 3D Creator xDesign and the **3DEXPERIENCE** platform, the company has cut its design cycles by 30 to 40 percent, reduced development costs by 25 percent, and shortened time to market by 20 percent.

“We had already realized productivity gains with SOLIDWORKS, using simulation to calculate the bending behavior of different materials, wood combinations, and wood/metal/stone constructions, which reduced testing and prototyping time and costs,” Gražys says. “With our improved **3DEXPERIENCE**-platform-supported collaboration, we’re realizing additional advantages as we develop innovative new designs.”



Using 3D Creator xDesign, Lava Drops has introduced distinctive guitars and industry innovations while simultaneously slashing development time and costs, and shortening time to market.

INNOVATING INDUSTRY FIRST

One of the company's recent designs—the Lava Drop X—includes the world's first laser MIDI controller, which allows the musician to control the electronic tone of the instrument with a laser light. Similar to a theremin, the unit generates otherworldly electronic sounds that complement the rich tones of the guitar. The innovative Lava Drop X, which features a handcrafted, futuristic design constructed from Lithuanian maple, sapele wood, and the Lava Drops signature aluminum contour, won a prestigious global Red Dot Concept Design Award. To pay homage to 3D Creator xDesign, the company created a special Lava Drop X edition that is painted in Dassault Systèmes blue, with an ebony fingerboard and special aluminum X inlay.

"For us, [3D Creator] xDesign is a multifunctional tool," Gražys points out. "From idea generation to model simulation, and from the design model to the final product, I can say that organic design inspired by aesthetics of nature meet modern technology and the future. With the sound and form of Lava Drops and with the help of [3D Creator] xDesign, we create emotions."

By adding 3D Creator xDesign and the **3DEXPERIENCE** cloud-based platform, Lava Drops cut its design cycles by 30-40 percent; shortened time-to-market by 20 percent; reduced development costs by 25 percent; and improved design visualization, collaboration, and communication.

Focus on Lava Drops

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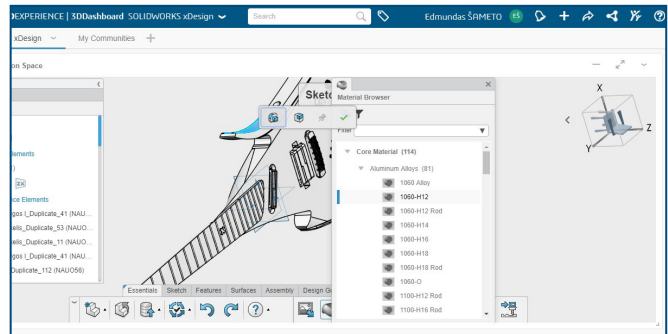
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