UVOJI
COMMERCIALIZING UV-C LED DISINFECTION TECHNOLOGY WITH 3DEXPERIENCE WORKS SOLUTIONS

Case Study

Uvoji added the **3D**EXPERIENCE platform to its SOLIDWORKS implementation when the COVID-19 pandemic struck to work remotely, leverage transparent data management in the cloud, and accelerate development of its breakthrough UV-C technology for disinfecting handheld items.

Challenge:
Develop and commercialize UV-C LED technology for disinfection of water and handheld items despite the challenges posed by lockdowns related to the COVID-19 pandemic.

Solution:
Add cloud-based **3D**EXPERIENCE Works solutions to their existing SOLIDWORKS for Entrepreneurs installation.

Results:
- Slashed product development costs
- Supported remote work and collaboration during COVID-19 lockdowns
- Developed collaborative workflows around **3D**EXPERIENCE platform
- Launched UV-C LED disinfection unit for hand-held items that sold 1,000 units in first year

Uvoji®, formerly T.zic, was founded in 2016 as a water treatment company, conducting R&D into the application of shortwave ultraviolet light (UV-C) radiation generated by light-emitting diodes (LEDs) as an innovative disinfection method. UV-C has long been a useful disinfection technology because it is fast, does not require the use of chemicals, and has a very high bactericidal and virucidal efficacy. However, until Uvoji introduced its first patented purification solutions in 2018, most UV-C-based water disinfection systems utilized mercury fluorescent light bulbs to generate UV-C radiation. These light bulbs have relatively short lifespans before the generated UV-C becomes insufficient for disinfection. UV-C LED systems have the special advantages of lasting many years and using less electricity than UV-C bulbs. Moreover, UV-C LEDs support much more compact, robust, and autonomous disinfection systems.

The company innovated the use of UV-C LED technology for water disinfection when it released its Oji Safe unit for water disinfection at point of use, followed by the Oji Camp unit for disinfecting drinking water in cars and RVs, and the Oji Nautic unit for disinfecting drinking water in boats. According to CEO and Technical Director Thomas Zunino, the company was contemplating following up on the success of these two products by developing a UV-C LED unit for surface disinfection of small, handheld items when the COVID-19 pandemic hit in early 2020.

"Before we founded Uvoji, I worked for a company that produced UV-C disinfection lamps for a long time, which is how I got involved in UV-C LED research," Zunino explains. "UV-C LED technology was just emerging five years ago. The main advantages of UV-C LEDs are that they last longer, require less maintenance, draw less electricity, and are better suited for applications other than water—such as handheld items and surface disinfection—than traditional UV-C lamps. When the

COVID-19 pandemic struck in early 2020 and we were forced to physically lock down, the company faced a crisis over how we could continue developing products remotely."

Uvoji had been using SOLIDWORKS® design, structural simulation, and flow simulation solutions for product development under the SOLIDWORKS for Entrepreneurs program and had been a beta tester of the cloud-based **3D**EXPERIENCE® Works solutions prior to the COVID-19 lockdowns. "When we were forced to work remotely, we were fortunate to have had experience using the **3D**EXPERIENCE platform because we couldn't afford to take three to six months to implement a new cloud-based product development platform," Zunino notes. "What we really needed to continue working in SOLIDWORKS was a product data management [PDM] system, which we didn't have and couldn't wait or afford to implement. We didn't have to search far. Collaborative Industry Innovator on the cloud-based **3D**EXPERIENCE platform provided the data management capabilities we needed. We complemented these capabilities with the project management capabilities of Project Planner and collaboration capabilities of Collaborative Business Innovator, also on the platform. To access these cloud-based capabilities, we connected our SOLIDWORKS solution to the platform using Collaborative Designer for SOLIDWORKS.

"As a CEO and technical director, what the **3D**EXPERIENCE platform gave me in the short term was a solution to an emergency situation; in the long term, the combination of SOLIDWORKS tools and the **3D**EXPERIENCE platform is helping us work toward the day when everything related to product development will be managed securely in the cloud."

— Thomas Zunino, CEO/Technical Director

"We chose to add **3D**EXPERIENCE Works applications to our SOLIDWORKS installation because they provided the most cost-effective solutions to continue working remotely and collaborating effectively on new products in the cloud during pandemic-imposed lockdowns," Zunino stresses. "**3D**EXPERIENCE Works solutions matched our needs and enabled us to organize and proceed with product development without having to have everyone in the same building."

LAUNCHING BREAKTHROUGH PRODUCT DESPITE COVID-19 PANDEMIC

Using cloud-based **3D**EXPERIENCE Works solutions in conjunction with existing SOLIDWORKS desktop design and simulation tools, Uvoji was able to complete development of its breakthrough UV-C LED surface disinfection unit during COVID-19 lockdowns and launch the product in June 2020 amid the pandemic, when it was most useful. "The pandemic had so much impact on everything that it represented an existential threat to the company," Zunino says. "As a CEO, the **3D**EXPERIENCE platform met our short-term emergency needs while setting us up to implement additional roles and solutions in the long term.

"Eventually, we can do so much more on the **3D**EXPERIENCE platform than we did in developing our surface disinfection product," Zunino adds. "The COVID-19 pandemic challenged us and compelled us to accelerate development of this product, requiring extensive remote collaboration. We implemented **3D**EXPERIENCE Works solutions in March 2020, and released our surface disinfection product three months later."

SECURE, AUTOMATED DATA MANAGEMENT IN THE CLOUD

Despite working remotely, Uvoji was able to develop its surface disinfection product so quickly—resulting in sales of 1,000 units in just one year—because of the secure, automated data management capabilities within the **3D**EXPERIENCE Works portfolio. "We were still in the process of creating the organization and quality processes within the company when we were forced to work remotely, so we didn't have any servers or PDM system in place," Zunino recalls. "Because the **3D**EXPERIENCE Works portfolio includes robust data management capabilities, it presented the easiest and most affordable way to develop products while maintaining revision controls and secure data management.

"Using **3D**EXPERIENCE Works solutions is the most cost-effective method for developing products in terms of human, software, and hardware costs," Zunino points out. "Collaborative Industry Innovator helped us automate data management so that it takes place in the background, which means that we never have to worry about it. This experience has led us to build all of our processes and workflows on the **3D**EXPERIENCE platform and its tools so that we're prepared to take greater advantage of it in the future."

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FLOW AND STRUCTURAL SIMULATIONS SAVE TIME AND MONEY

In addition to leveraging the **3D**EXPERIENCE platform to transform potential chaos into collaborative workflows during pandemic lockdowns, Uvoji tapped its SOLIDWORKS desktop flow and structural simulation solutions to save additional time and money by reducing prototyping during product development. "SOLIDWORKS flow and structural simulation tools were critically important to meeting our aggressive three-month development cycle," Zunino points out.

"We used both capabilities, but mostly flow, for thermal management within the unit," Zunino continues. "As a CEO and technical director, what the **3D**EXPERIENCE platform gave me in the short term was a solution to an emergency situation; in the long term, the combination of SOLIDWORKS tools and the **3D**EXPERIENCE platform is helping us work toward the day when everything related to product development will be managed securely in the cloud."
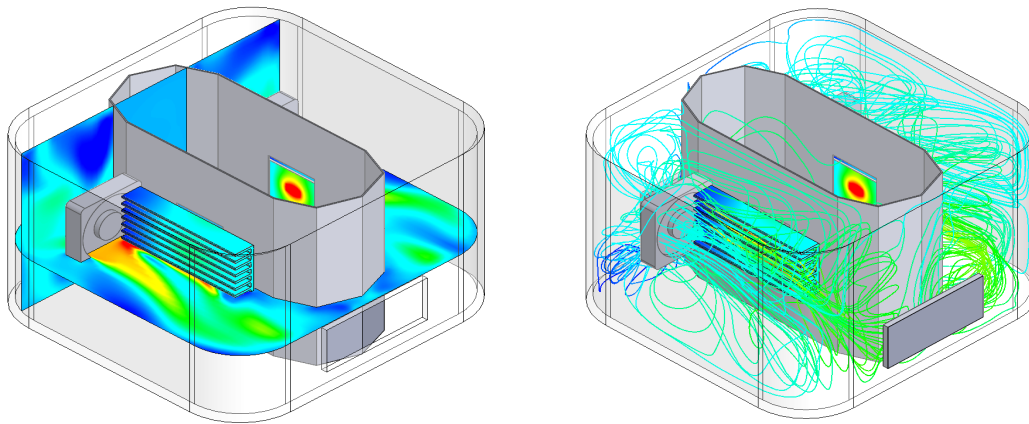
Virtual prototyping with SOLIDWORKS flow and structural simulation tools was critically important for helping Uvoji meet its ambitious three-month development cycle.

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