



SMARTFLYER, LTD. PREPARING ELECTRIC HYBRID AIRCRAFT FOR TAKEOFF WITH 3DEXPERIENCE WORKS SOLUTIONS

Case Study

Smartflyer relies on the combination of SOLIDWORKS design software and data management and collaboration solutions from the **3DEXPERIENCE** Works portfolio to accelerate development of its innovative four-person electric/gas hybrid aircraft.

Challenge:

Efficiently and cost-effectively develop the world's first pure electric, electric/gas hybrid, and electric fuel cell aircraft.

Solution:

Leverage SOLIDWORKS design software and 3DEXPERIENCE Works solutions—including Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and Collaborative Business Innovator—on the cloud-based 3DEXPERIENCE platform.

Results:

- Realized secure, real-time collaborative design environment
- Developed innovative product without need for server infrastructure or IT staff
- Collaborated effectively across distances with Czech design team and Swiss manufacturer
- Accelerated cost-effective development of innovative product

Smartflyer, Ltd. is on the threshold of a new era in aviation, moving from traditional combustion and jet engines for propulsion to aircraft that utilize pure electric, electric/gas hybrid, and electric fuel cell-based motors for propulsion. Founded by CEO and Design Head Rolf Stuber, who has flown Airbus A330s and A340s for Swiss International Air Lines as a captain and pilot for many years, Smartflyer is anticipating the increased use of electric motors in certain areas of aviation because they are not only emission-free, light, and powerful, but also extremely reliable due to their simple design.

Because of the limitations of the current state of electrical battery storage technology, Smartflyer's initial focus is to develop an electric/gas hybrid power train, with electricity used solely to power an electric motor during takeoff and landing, and a second combustion engine to power a generator to produce electrical cruising power and recharge the batteries during flight, as a proof of concept aircraft. With a projected range of more than 400 nautical miles (750 km) and able to carry four passengers, the Smartflyer, which is set for its first test flight in 2023, will be very comfortable to fly with an extremely low noise level in the cabin.

When Stuber founded Smartflyer in 2016, he realized that the team of young, highly trained specialists from diverse disciplines—including aerodynamics engineers, electrical engineers, software developers, and structural engineers—would need to be able to collaborate effectively and securely in order to develop its innovative products and succeed commercially. "The Smartflyer development team is small, so we have to concentrate on the essentials and don't really have the time to run an IT [information technology] operation," Stuber explains.

"We also work with an engineering team in the Czech Republic and a manufacturing partner in central Switzerland, so we were immediately drawn to a cloud-based, collaborative development environment that does not require massive investment in server hardware infrastructure or an IT department."

Smartflyer chose to combine its existing SOLIDWORKS® design software with other solutions from the 3DEXPERIENCE® Works portfolio—including Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and Collaborative Business Innovator—to develop its groundbreaking electric/gas hybrid aircraft. Leveraging the collaboration tools within the 3DEXPERIENCE Works portfolio allows any member of the team to securely share and manage development data from any location, at any time, and on any digital device. "With the 3DEXPERIENCE Works solutions, we create a basis to unleash our innovative strength," Stuber explains. "We don't have to worry about software updates, data mirroring, or data backups, but can fully focus on the development of the Smartflyer."



"Turning our vision into a physical product brings with it great challenges. The solution for this is modern tools that are made for addressing these challenges. With 3DEXPERIENCE Works solutions—as well as SOLIDWORKS CAD for construction, SOLIDWORKS Simulation for analysis, and SOLIDWORKS CAM for production—we have very powerful tools that simplify our working life and enable us to put our ideas into practice."

— Rolf Stuber, Founder, CEO, and Design Head

ACCESS TO POWERFUL TOOLS

Connecting SOLIDWORKS to the 3DEXPERIENCE platform provides Smartflyer with access to a full range of product development tools within Smartflyer with access to a full range of powerful design, engineering, collaboration, communication, data management, and manufacturing tools within a secure, product development environment in the cloud. "Turning our vision into a physical product brings with it great challenges," Stuber stresses.

"The solution for this is modern tools that are made for addressing these challenges," Stuber continues. "With 3DEXPERIENCE Works solutions—as well as SOLIDWORKS CAD for construction, SOLIDWORKS Simulation for analysis, and SOLIDWORKS CAM for production—we have very powerful tools that simplify our working life and enable us to put our ideas into practice."

LIKE BEING IN THE SAME ROOM

With a highly complex, interdisciplinary project like the development of an electric hybrid aircraft, all Smartflyer employees must be able to access the information they need to complete their work at any time, from anywhere, and with any device, which is possible when you connect SOLIDWORKS to the cloud with **3DEXPERIENCE** Works. Moreover, when the geographically dispersed team needs to get together to collaborate or conduct design reviews, **3DEXPERIENCE** Works communication and visualization tools make these meetings seem like everyone is in the same room.

"**3DEXPERIENCE** Works solutions enable us to securely store all project-relevant information in a central location to which everyone involved has access," notes CAD Administrator Gildas Höllmüller. "In addition to the design data, this also includes manufacturing data and team communication. External partners can also be involved. This is a great advantage for us and it simplifies cooperation enormously."

FAST, COST-EFFECTIVE DEVELOPMENT OF INNOVATIVE PRODUCT

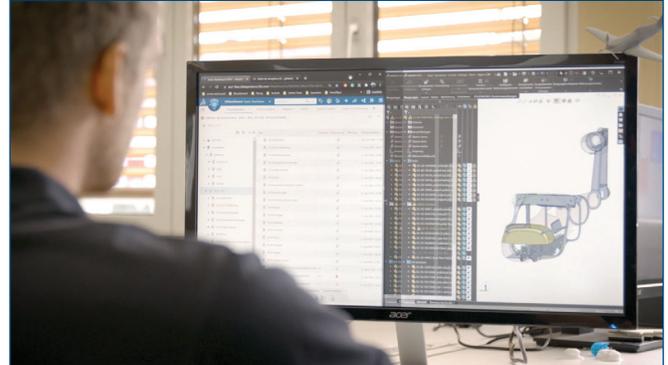
Using the combination of SOLIDWORKS design software and **3DEXPERIENCE** Works solutions, Smartflyer is accelerating development of its electric hybrid plane while simultaneously realizing substantial cost savings. "**3DEXPERIENCE** Works solutions on the cloud-based **3DEXPERIENCE** platform are scalable, meaning we can add and scale up solutions to support the growth and progress of our dynamic team," Stuber points out.

"Overall, with **3DEXPERIENCE** Works solutions, we save valuable time and IT costs and at the same time optimize product quality and efficiency," Stuber adds. "This is very valuable to us. And, if there are any questions, SOLIDWORKS and **3DEXPERIENCE** reseller Solid Solutions is extremely helpful, available immediately, and can even help on-site if necessary."

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Using SOLIDWORKS software and other **3DEXPERIENCE** Works solutions, the diverse Smartflyer team of aerodynamics engineers, electrical engineers, software developers, and structural engineers collaborate more quickly and effectively, contributing to faster development, as well as tap SOLIDWORKS manufacturing solutions.

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