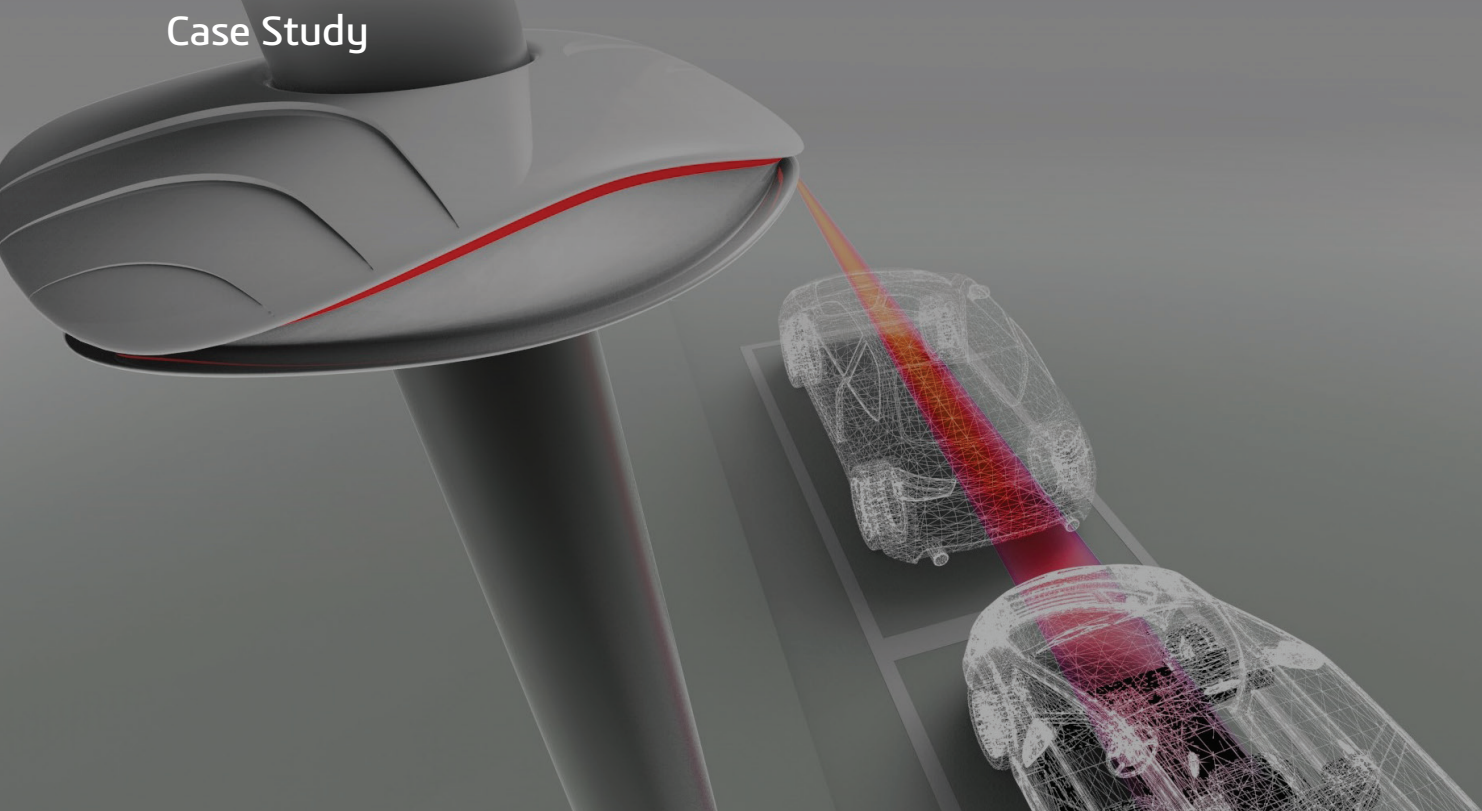


# VORTEX IoT ADVANCING AIR QUALITY MONITORING SYSTEM DEVELOPMENT WITH 3DEXPERIENCE WORKS SOLUTIONS

Case Study



Despite lockdowns associated with the COVID-19 pandemic, VORTEX designers were able to keep working on cutting-edge clean technologies and data-driven smart products—such as the OptiPark Integrated Parking System shown here, which transforms existing light poles into smart IoT nodes delivering new urban datasets that identify open parking spaces and automate payment—by implementing the cloud-based 3DEXPERIENCE Works platform to collaborate remotely using SOLIDWORKS design data in the cloud.

### Challenge:

Quickly and cost-effectively develop advanced air-quality monitoring systems—across a distributed design team—for use in harsh industrial environments and crowded venues.

### Solution:

Implement cloud-based **3DEXPERIENCE** Works solutions, including Collaborative Designer for SOLIDWORKS, Collaborative Business Innovator, and Collaborative Industry Innovator.

### Results:

- Accelerated innovative air-quality sensor development
- Avoided substantial IT hardware costs for data management
- Streamlined development workflows
- Realized automated data management and revision control

Vortex IoT is a leading clean technologies company that develops products that support the development of smart cities and transportation infrastructure. Using a combination of intelligent sensors, Internet of Things (IoT) learning, artificial intelligence (AI) technology, and unique low-power mesh networks, Vortex products provide rich, real-time data to be used to support policy decisions, monitor air quality in hazardous environments and large venues like football stadiums, detect intrusions or obstructions to critical transportation infrastructure, and enable the development of new urban revenue models. Headquartered in Wales (U.K.), Vortex is staffed by a highly skilled team of engineers with expertise in emerging technologies, AI, and machine learning.

When the company was founded in 2017, Vortex implemented the SOLIDWORKS® 3D design system to design and engineer its products. However, with the emergence of the COVID-19 pandemic in early 2020, the innovative startup needed to find a way to continue advancing sensor and product development across its design team during the subsequent pandemic-induced lockdowns, according to Senior Product Design Engineer Bryce Davey.

“We were already looking at doing product development on a cloud-based platform to remain on the cutting edge of innovation when COVID hit,” Davey recalls. “When that happened, a cloud-based system suddenly became vital to keeping product design on track and on schedule. In short, we needed to quickly implement a cloud-based development system that enabled us to work remotely and exchange CAD data while also integrating our existing CAD designs. We found that solution in the **3DEXPERIENCE**® Works platform.”

Vortex implemented cloud-based **3DEXPERIENCE** Works solutions—including Collaborative Designer for SOLIDWORKS,

Collaborative Business Innovator, and ENOVIA Collaborative Industry Innovator—in early 2020. “For us, the main reason to use the **3DEXPERIENCE** platform was to quickly get up and running with a cloud solution for remote working for use with SOLIDWORKS data,” Davey explains.

“SOLIDWORKS 3D CAD seamlessly connects with the **3DEXPERIENCE** platform, making SOLIDWORKS CAD data accessible to team members working and collaborating from home during the pandemic, and the platform provides automated revision control and the ability to work in the cloud without the need for server infrastructure,” Davey continues. “Once we made the decision to implement the **3DEXPERIENCE** platform, we were up and running within a matter of days and have been able to maintain our development efficiency and accelerate product development despite the limitations imposed by the pandemic.”



**“With **3DEXPERIENCE** Works, everything from a data management/revision control standpoint is done for us. Data management was the biggest issue that we faced in the cloud, and the **3DEXPERIENCE** platform takes care of that without having to spend thousands of pounds on server infrastructure and administration.”**

**— Bryce Davey, Senior Product Design Engineer**

### STREAMLINING WORKFLOWS DURING COVID LOCKDOWN

An added benefit of adopting the cloud-based **3DEXPERIENCE** Works solutions was the ability to streamline the product development group’s unique workflows by creating dashboards for personalized views into relevant, up-to-date information. “Initially, we were primarily focused on obtaining a cloud-based solution for exchanging CAD data and collaborating across the team,” Davey notes.

“However, once we adopted the **3DEXPERIENCE** platform, we discovered that we could configure dashboards to meet our

specific workflow needs,” Davey adds. “This level of flexibility allowed us to effectively customize our dashboards to improve our workflows and add links to other important resources via bookmarks. The platform essentially enabled us to quickly and easily replicate and streamline our workflow processes by creating our own distinct dashboard that helps us work more efficiently while working remotely.”

## MANAGING PRODUCT DESIGN IN THE CLOUD

With **3DEXPERIENCE** Works solutions, Vortex has also improved its data management and revision control capabilities due to the automated data management capabilities inherent in the cloud-based platform. Davey says that the platform’s automated data management/revision control system is a key requirement for using a cloud-based product design system efficiently. “We initially tried to work using other cloud-based tools, such as Microsoft SharePoint and OneDrive, but we quickly learned that our CAD files became corrupted using that approach,” Davey recalls.

“With **3DEXPERIENCE** Works, everything from a data management/revision control standpoint is done for us,” Davey stresses. “The system is safe and secure, and all that we need to worry about is who can access the system by managing user access rights, which creates opportunities for working more productively with vendors and partners by giving them access only to the data that they need. Data management was the biggest issue that we faced in the cloud, and the **3DEXPERIENCE** platform takes care of that without having to spend thousands of pounds on server infrastructure and administration.”

## EFFICIENTLY PRODUCING AND ASSEMBLING INNOVATIVE PRODUCTS

Since implementing **3DEXPERIENCE** Works cloud-based solutions, Vortex has been able to continue development of the next-generation sensor for its Air Quality Monitoring (AQM) system, which the firm was transitioning into mass production in early 2021. “**3DEXPERIENCE** Works solutions not only enabled us to keep working remotely during pandemic lockdowns, the cloud-based platform also provides the product development foundation that we need to support growth and expansion,” Davey points out.

“The platform immediately provided a means for collaborating and exchanging CAD data in a fluid process, including data

## Focus on Vortex IoT

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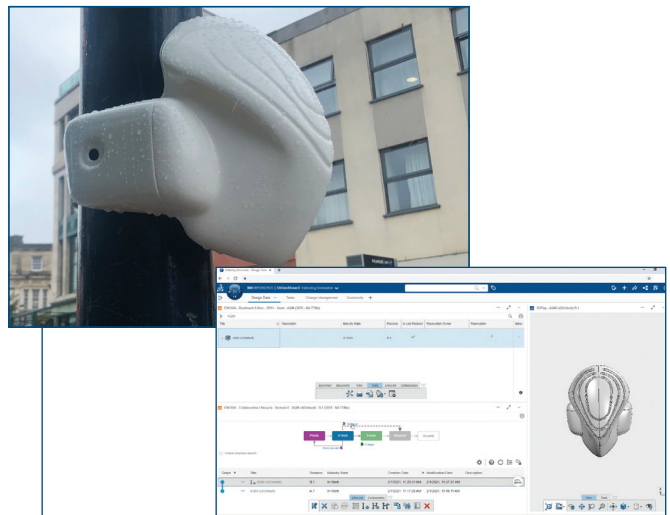
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## For more information

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management and revision controls,” Davey says. “In the future, we are planning on leveraging the **3DEXPERIENCE** platform for efficiently managing engineering change orders and effectively communicating with manufacturing and assembly partners. As our product development efforts expand, we are confident that our use of the **3DEXPERIENCE** platform will also increase to support and maintain business growth.”



Vortex IoT leveraged the **3DEXPERIENCE** Works platform, which enables product development within a browser in the cloud with automated data management, to complete the development of its next-generation sensor for the company’s Air Quality Monitoring (AQM) system during the peak of the COVID-19 pandemic.

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