

COMPANY
Halocline

LOCATION
Osanbruk, Germany

SOFTWARE
**Embodied Engineering Suite with
Forestage and Boxplan**

SOFTWARE DEVELOPMENT KITS
HOOPS Exchange

COMPANY WEBSITE
embodied.engineering.com

Tech Soft 3D Case Study: Embodied Engineering Suite

HOOPS Exchange Provides Foundation for Halocline's Cutting-Edge Virtual Reality Applications

"Our core business is designing great VR applications and great user interfaces that help optimize production processes involving people and machines. Importing CAD files is not our core business – and that's why we rely on strong partners like Tech Soft 3D."

— **Fabian Schlarmann,**
Product Manager at
Halocline



The Challenge

Halocline is a German company with nearly 750 employees working across three main business units. The software solutions division focuses on developing innovative software products for industrial applications. In 2016, the division formed an Embodied Engineering department, with the specific goal of developing applications that integrate virtual reality (VR) into the manufacturing process.

"VR opens up completely new possibilities for manufacturing," said Fabian Schlarmann, Product Manager for Halocline. "Our 'Embodied Engineering' approach puts the focus on people, helping them improve planning procedures and reduce communications barriers. We want to get our VR tools in the hands of skilled workers, production planners, product engineers, and everyone in between, so that they can build the factory of the future."

One of Halocline's key offerings is Forestage, which lets users visualize how a product will be assembled on the factory floor. After loading their existing CAD files into Forestage, users can experience the product in VR through headsets like HTC Vive and Oculus Rift. This virtual experience lets users easily identify design flaws and better assess the buildability of that item.

Meanwhile, Boxplan lets users better design the shop floor itself by experiencing true-to-scale assembly stations in VR. In the application mockups of assembly stations can be created from simple boxes and extended with existing 3D data. This allows users to better understand the spatial conditions of the various workstations on the factory floor and reduce the risk of expensive errors.

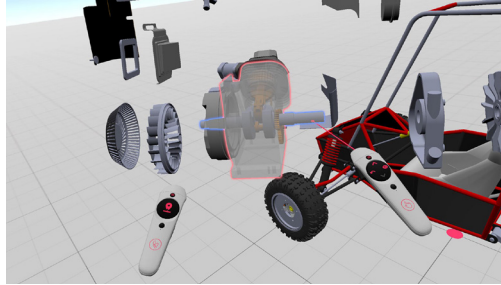
Fast, Reliable 3D CAD Data Access

To support a broad cross-section of the industrial market, Halocline knew that it would need its flagship applications to work with as wide a range of data as possible.

"We have so many different companies that we work with, from small engineering departments at startups, to huge, well established automobile manufacturers," said Schlarmann. "They're all using different CAD systems and working with different file formats. How do we enable a seamless workflow for all of them?"

HOOPS Exchange – the fastest and most accurate CAD data translation toolkit – represented an ideal solution for Halocline. HOOPS Exchange includes all the integration tools a development team requires to easily build robust CAD data translation into an application, delivering a wide range of 3D data types in all major CAD and 3D formats.

Crucially, HOOPS Exchange provides access to a broad range of data including boundary representation (BREP), product manufacturing information (PMI), model tree, views, persistent IDs, styles, construction geometry, visualization and more.



"It's important to us to have access to that high level of detail, but to also be able to reduce the complexity of the model for optimal VR performance," explained Schlarmann. "For planning the shop floor, we can abstract the information by turning complicated objects into boxes –that's one of the ways we're able to maintain great framerates of 90 frames per second. When it comes to assembly of an actual product, though, access to that detailed level of information is important to see how one part is connected to another during the assembly process – and HOOPS Exchange ensures that information is fully available when it's needed."

By relying on the HOOPS Exchange software development kit, Halocline is able to devote the majority of its time towards developing solutions that help manufacturers to efficiently integrate Virtual Reality into their operations.

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Industry:

- Production Planning and Manufacturing

Challenge:

- Support customer base that is using wide range of CAD systems and CAD file formats
- Provide fast and accurate loading of data to visualization hardware
- Deliver access to detailed model information while ensuring high frame rate performance

Solutions:

- HOOPS Exchange
The leading CAD data translation toolkit

Results:

- Ensure support for standard file formats and native CAD data from leading engineering software packages
- Enable optimal VR performance through ability to view a simplified model or access high levels of detail as needed
- Focus on core competencies, allowing resources to be devoted towards competitive differentiators like intuitive user interfaces
- Carve out marketplace position by supporting innovative new VR workflows that give customers new ways to streamline their processes

Contact Tech Soft 3D to learn more about how the HOOPS software development kits can benefit your organization.

+1-541-385-3000 • sales@techsoft3d.com • www.techsoft3d.com