

**MULTI-USER VR | VENJAKOB MASCHINENBAU**

## **FLUX VR** Make construction data a virtual experience

### **THE CHALLENGE**

Recycle work that has been done already and generate a VR tool for distribution purposes.

The creation of 3D machine data and other digital content can be very expensive, but it is part of the daily life of a mechanical engineering company. It is obvious that you want to use this data in the best and most versatile way possible. One approach that many companies are taking is to generate digital images (renderings) so they can be used for marketing purposes afterwards. But even for this process, the data usually must be revised again by external agencies or the company's own graphics department. In the case of the company Venjakob Maschinenbau, the task was to be able to reuse the invested work without having to revise the data a second time.

### **THE SOLUTION**

VR-App + automatic conversion + virtual hall - a partially automated workflow

Neither construction data nor the processed 3D data for renderings can be used in a virtual reality (VR) app without further redo. In order to not start from scratch with every machine, Raumtänzer has developed a system for automatic revision and optimization of 3D data in a backend process. The backend process receives the data in the exchange format FBX and initially reduces the data to a dimension that can be processed by common mobile VR glasses. This can be achieved by removing all the parts that are not visible or relevant for the user. The remaining objects are simplified in a way that does not make a visual difference, but minimizes the required computing power. Furthermore, the lighting of the object is precalculated during this process in order to keep real time calculations of the VR app as low as possible.

At the end, the whole scene is available in a format that can be imported and displayed fluently in VR.

As the centerpiece of the entire project a VR app for the Oculus Go was developed. These wireless VR glasses allow users to look around, navigate and explore virtual spaces. As soon as users have logged into the VR app, they can download the rooms they have been given access to and virtually immerse themselves inside these rooms. All the users that are in a room at the same time are represented by virtual avatars. It is not necessary to be physically together in one place, as the VR glasses are connected via the Internet. With controllers the users can travel short and longer distances in VR space. Via voice chat users can exchange ideas and discuss what they have experienced. The entire system can be migrated to be used with the Oculus Quest.

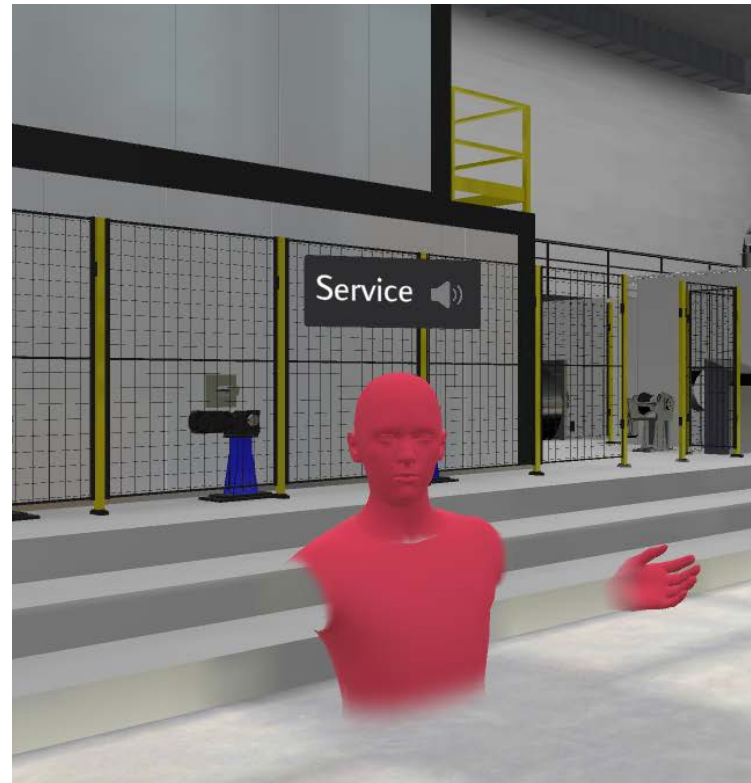
In addition to the automatically processed construction data, a virtual machine hall has also been modeled in the classical way. The machine hall was designed modularly to always have a suitable room for different machine sizes. The design of the hall was based on a real reference. Photos and descriptions supplied by the customer served as a template.

## LOOKING INTO THE FUTURE

is looking at the detail

In order to be able to show even the small details of a machine that are difficult to display via 3D data in real-time rendering, an additional mode is planned that will enable the integration of 360° spherical panoramas.

These can also be rendered from the existing 3D data or even be created by real images from 360° cameras. This allows a focused and detailed insight when necessary.



## ADVANTAGES

FLUX VR for mechanical and plant engineering

... uses existing data and does not require duplicate work

... automatically optimizes 3D data for VR applications

... helps to overcome distances and saves travel time

... enables new perspectives on ideas and constructions

... can be combined with all kinds of digital media to meet further use cases

For more information, do not hesitate to contact us. Visit our demo room in Rheda-Wiedenbrück or leave us a message.

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