'STATE-OF-THE-ART' VIRTUAL REALITY SOFTWARE BOOSTS UNIVERSITY LAB'S APPEAL

Using visualization in production and logistics processes to fix errors and drive efficiency.

Koblenz University of Applied Sciences is a public university in Rhineland-Palatinate, Germany. It is home to the Digital Production Lab, one of few facilities in the country capable of designing, simulating and optimizing production processes in a virtual environment - from a single operation at a workstation, a production process to a value-added line and an entire factory.

The Digital Production Lab serves teaching at the University, along with practice-oriented research in cooperation with industrial companies and other colleges and universities.

OVERVIEW

The Digital Production Laboratory's 2D and 3D software was not capable of producing a full virtual reality immersive environment. They could still simulate production cycles with great detail, but small opportunities to make a big difference would be lost sometimes.

After upgrading their setup with a virtual reality platform from Virtalis accuracy and efficiency has increased. The Digital Production Laboratory is as popular among research students as it ever was but is now considered a 'state-of-the-art' facility.

Virtual reality is being used as an immersive solution and providing overall equipment effectiveness optimization increases between 6% and 28%.

THE CHALLENGE

For students, the Digital Production Laboratory at the Koblenz University of Applied Sciences is a vital resource. It lets them plan and optimize production and logistics processes for businesses. This is a big part of their research projects. The Digital Production Laboratory is run by Prof. Dr. Walter Wincheringer, a professor of engineering. The Digital Production Laboratory was housing a variety of software to produce 2D and 3D models. Students use these to simulate the productions and logistics cycles. But none of these models could recreate processes in virtual reality or an immersive environment. Without virtual reality, minor flaws were hard to identify and opportunities to increase efficiencies were being lost. This leads to post-production issues, unforeseen costs, and inaccurate research data.

If they wanted to detect more, they would need a visualization engine. Something that could capture every crevice of movements, cycle times and storage. They would need to identify the most efficient approach to take during the production and logistics process. The Digital Production Laboratory knew if their technology could produce more detailed results, more students and research assistants would be drawn to their facilities.

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PARTNERING WITH THE UNIVERSITY'S STUDENTS AND RESEARCHERS

We reviewed the Digital Production Laboratory's current software, its capabilities and what they wanted it to do. Using this information, we calculated how their virtual engine needed to be set up. Alongside this, we completed a market analysis of virtual engineering tools and listed all of their hardware, graphics card and virtual reality glasses needs, before purchasing this on the Digital Production Laboratory's behalf.

Next came the test runs. For this part, we had some help from the Digital Production Laboratory's own students and researchers under the supervision of Prof. Wincheringer. Once testing was complete, with the help of Virtalis an expert from the University's Computer Center carried out the installations.

Hardware used:

- HTC VIVE Pro as virtual reality glasses with 2 motion controllers and external tracking system
- PC with Intel Core I7 8700K CPU (6 physical cores)
- Nvidia GTX 2080TI GPU with 11GB graphics memory, 32 GB main memory and 500 GB SSD mass storage

EXCEEDING REQUIREMENTS

The Digital Production Laboratory remains popular among research students. However it is now capable of producing more accurate results. Using our Visionary Render software, the smallest of planning errors can be identified and fixed in an immersive environment. Processes are becoming more efficient.

This happened with two industrial corporations that students are working with. After supplying students with 3D CAD data, they then turned it into a virtual reality environment using Visionary Render.

Companies from the electronics, engineering and fast-moving consumer goods industries are also working with the Digital Production Laboratory. Virtual reality is being used as an immersive solution and providing them with overall equipment effectiveness optimization increases between 6% and 28%.

The Digital Production Laboratory tell us they are convinced of the added value of virtual reality and expect use of this technology will only become more popular.

"Visionary Render has met or partially exceeded our requirements. It has helped us process tasks, solution ideas and optimizations better and much quicker than any other VR software's. This is done in the course of research projects and industry corporations. We consider Visionary Render to be state-of-the-art."

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Prof. Dr. Walter Wincheringer
Professor of Engineering, The Digital Production Laboratory

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Contact us to learn more about Visionary Render

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