



Konstanz (visitable at short notice)

VIRTUAL AND MIXED REALITY

Application for the manufacturing industry - mixed reality and gamification in training, production, product development and occupational safety



SUMMARY

With the aid of a graphical programming environment, procedures are quickly "brought to life" with 3D objects, for example from the production or development environment. In this virtual world, the user is able to move around freely and can even combine the virtual and real worlds.

PROJECT DESCRIPTION

Training procedures for teaching employees about production or new product variants can be put together quickly with gamification procedures. There is no interruption to production and no need to set up test production for training purposes. The lessons learned on training courses can be put to direct use in production and for the supply chain. Assembly and picking activities can be facilitated and supported, for example. The training courses can also be used to communicate a better understanding of occupational safety and health and to raise awareness of such issues in the workplace.

Mixed reality technologies visualize processes and workflows that are difficult for outsiders to view at first hand (e.g. clean rooms) so that participants can first experience them in the virtual world. A further option is that customers can "grasp" their individual product before it is manufactured.

New products and production workflows can be intuitively tested and simulated at an early stage of development without any great economic risk. Stakeholders can be better integrated into an agile development process.

INDUSTRIE 4.0 – FEATURES

One aim of Industrie 4.0 is to map consistent digitalization of product development, production, and the supply chain through to sales. Mixed reality enriches digitalization with visualization and an intuitive way of handling ideas and know-how. These approaches therefore enable new levels of agility and connect customers directly to the sales department, developers, production and management.

PARTNERS



SOLUTION

1. Connection of digitalization chain from customer order, development, production and logistics through to sales to create end-to-end digital mapping and visualization.
2. Simulation and testing of products and processes – in particular with regard to less intuitive, complex workflows – for the purpose of visualization and boosting transparency.
3. Incorporating gamification elements into the training of employees.
4. Low economic risk and high level of effectiveness in an agile development environment.

CONTACT

Prof. Dr. Marcus Kurth
University of Applied Sciences in Konstanz (HTWG)
Lake Constance model factory
Marcus.Kurth@htwg-konstanz.de

STANDARDIZATION APPROACHES

Easy ways of handling data and virtual objects for a controlled workflow. Ideally, information is available in semantic form. With this in mind, the administration shell can improve interoperability between technologies. The resulting mixed reality environments can be adapted to suit the real environment and (local) language (localization).