

MINE, MINE, MINE!

User-defined HMIs

Have you always wanted to look into a crystal ball and take a peek at the future? Somehow we are already in it. Our society is undergoing a profound change, which the German Zukunftsinstitut GmbH calls megatrends¹. What does this have to do with automation and human-machine interfaces (HMIs)? A whole lot ...



Figure 1: Scalable and positionable Widgets show you the right information at the right time.

One example is the megatrend of individualization². Humans want to design their environment more personally and thus identify with it better. This is evident, for example, in the growth of the Do-It-Yourself industry³. In e-commerce, mass customization⁴ is enjoying increased popularity. What this means is the greatest possible individualization of a product, which is at the same time manufactured industrially and cost-effectively. In extreme cases, this means manufacture in a batch size of 1, which requires the highest possible degree of flexibility in production.

A further megatrend is connectivity⁵, the effects of which we can already feel. It is not just the human who is perfectly networked; smart objects also communicate with one another in private settings as well as in an industrial context. Known as the "Internet of Things" (IoT), the basic requirement for Industry 4.0 has been created. As a consequence, it is not just the speed of production that

increases, tasks of a machine operator are also changing ever more frequently and quickly. A further consequence of the networking is the real flood of information which the user needs to handle. What effects do these developments have on HMIs?

THE CONTEXT SETS THE TONE

Ergonomics and the best possible support when performing tasks remain central requirements of the user. However, there is also the fact that requirements, the type of information and the amount of information, change ever more quickly. As a result, the context in which a machine is operated also changes. In addition, different users have different requirements. For example, a manager would like to have an overview of the production figures, or the machine operator needs information from the sensors. Another example is a color-blind person who needs higher screen contrasts. A user-defined HMI thus offers the best



Figure 2: Set different skins with one click thanks to Chameleon Technology.

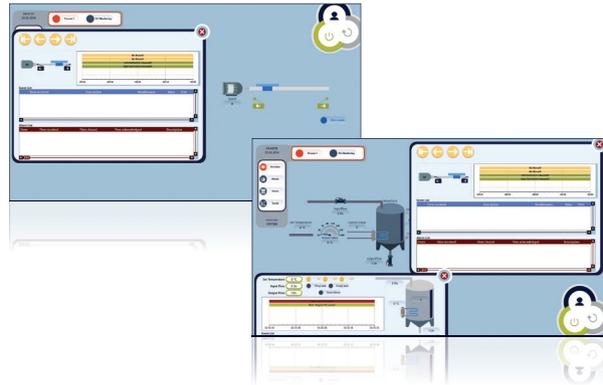


Figure 3: An individually-arranged user interface can be saved as a Runtime profile for each user.

solution to work with the above-mentioned developments. So what would such a user interface on the basis of zenon look like?

Widgets can be created in zenon in order to have a constant overview of currently relevant information. In Runtime, these Widgets can be scaled and positioned with conventional Multi-Touch gestures. Depending on the situation, the user can create their own dashboard this way and easily change this at any time (see Figure 1).

Different user levels allow locking to be set up and control the visibility of elements. This is not just for security, it can also be used for individual user support: a beginner is instructed with more explanations and buttons, while an expert prefers a “short cut” for frequently-used actions, without explanations being shown. Experts also have advanced operating options available, which are not visible for beginners. Different filter profiles such as time filter, AML filter or trend display settings can be created for each user and thus optimally display relevant information according to each task.

ERGONOMICS CALLS THE SHOTS

In addition to context-based user support, general ergonomic requirements should also be kept in mind, which differ from user to user. A user-defined HMI helps here too:

Different color palettes can be created depending on the time of day, lighting conditions or personal preferences. In the current project, zenon Chameleon Technology allows switching between different skins with one click (see Figure 2). This enables, for example, various color sight deficiencies or the corporate identity of a company to be taken into account.

Screens can be configured with the help of free-form templates and freely positioned using Touch. If they are not required at that moment, they hide at the edges of the monitor. Depending on whether the user is right-handed

or left-handed, windows and dialogs can be arranged as desired, according to the course of the process and the task. The user interface settings can be saved individually with the help of Runtime profiles (see Figure 3).

These were a few examples of how you can optimally cater to the requirements of the user with user-defined HMIs. The user interface amends itself to the user depending on the situation and thus makes the handling of information and quick reactions in processes easier. With zenon, you are best equipped for Industry 4.0 and other future effects of the megatrends – and the proverbial crystal ball becomes unnecessary.

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REFERENCES:

[available in German only]

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