

HMI CREATION

Create graphical user interfaces - without having to program them

They have become an indispensable part of our everyday life: Brilliant graphical elements on displays with which we communicate daily: On our smart phones, in the car, on the refrigerator, coffee machine or washing machine. The menu of the user interface should be intuitive, effortlessly overcome cultural and linguistic boundaries, get us where we want to go quickly and be fun to interact with. This interface between people and machines makes our day-to-day lives easier. "Human Machine Interfaces" (HMIs) are reactive displays. They transmit our instructions and allow us to communicate directly with computers and machines.

Designers and graphic designers play a crucial role in the development of HMIs. They need to deliver fast results, perform many design iterations and create fully functional HMIs. Candera's CGI Studio makes it easy for users to create HMIs without programming skills. It focuses on advanced features that enhance the user experience, such as ready-to-use HMI controls, automated workflows and integrated state machines.



More information at
www.candera.eu

Candera GmbH is based in Linz, Austria and a leading supplier of HMI tools and development partner for global automotive and industrial customers. Candera supports its customers with the design tool CGI Studio, a software for creating HMIs as well as providing software services mainly in the areas of HMI development and embedded software.

Candera GmbH and Candera Japan Inc. in Tokyo, Japan both belong to CELSYS Inc. based in Shinjuku-ku, Tokyo, Japan.

Before starting the project "Simple HMI design using a household appliance washing machine as an example", Kontron Electronics and Candera discussed the scope of work and the objectives together. Kontron Electronics focused in particular on the selection of cost- and performance-optimized hardware. While Candera focused on the individual software requirements and user-friendliness. The needs of the users were always at the forefront of all considerations. The goal was to reduce the challenges for the user to a minimum.

The Web Panel (WP) and Control Panel (CP) family was chosen for the hardware - durable multi-touch panels with a high-quality design, display diagonals from 7" to 15.6" and scalable performance. The WP series was designed purely as an HMI solution. The CP series offers additional fieldbus interfaces and can be used as a full-fledged controller. The result is a ready-made hardware and software package that makes it quick and easy to get started with HMI creation for embedded devices, even for users without programming skills.

GOALS

- ▶ Easy implementation of graphical user interface visualization
- ▶ Fast and uncomplicated start thanks to "plug and play" hardware and software packages
- ▶ Optimized for performance and cost
- ▶ "No-Coding" HMI design solutions at the highest level - suitable for technicians and designers alike
- ▶ Reduction of hardware development costs thanks to standard components

CHALLENGE

- ▶ Increasing market pressure for sophisticated visualizations
- ▶ Competitors have often already upgraded their products
- ▶ Users are used to moving images and high-quality graphics from smartphones - increasing expectations
- ▶ Companies often have no competence or resources for programming HMI visualizations
- ▶ Costs for visualization with conventional solutions (C++ programming) increase or exceed the costs for the actual process
- ▶ Fear of the effort involved in introducing processes, teaching users and training them, and the cost of tool and run-time licenses for new solutions

SOLUTION

- ▶ Straightforward "plug and play" solution package from Kontron and Candera
- ▶ No HMI programming skills necessary
- ▶ Implementation costs are quickly amortized compared to the expensive hours of scarce or non-existent software developers
- ▶ The "No-Coding" approach from CGI Studio reduces software development costs by
 - ▶ expanding the target users to include graphic artists and designers as well
 - ▶ reducing the need for coordination between graphic designers and programmers
 - ▶ having a quicker time-to-market

GOAL:
CREATING HIGH-QUALITY GRAPHICAL USER INTERFACES – WITHOUT PROGRAMMING SKILLS

From mechanical engineering companies to manufacturers of medical equipment to producers of household appliances - the market pressure for sophisticated user interface visualizations is increasing. Often, competitors have already upgraded the graphical interface of their products or the lead in the market cannot be maintained without a corresponding upgrade. This is because many users are used to information being conveyed through moving or animated images and have expectations for such visualization as the standard.

At the same time, the cost of implementation with traditional solutions such as hardware-dependent visualization or those programmed with C++ or Qt continues to increase. Often the visualization costs exceed that of those for the actual process. And this in the current difficult economic situation in which companies find themselves. In many cases, neither the competence nor the resources for programming HMI visualizations are available at the company, nor can they be found at the labor market.

How can the goal of a high-quality embedded HMI solution be achieved in a short time? Kontron and Candera have risen to the task with a package optimized for performance and cost. Thus, hardware development costs can be reduced thanks to standard components and software development costs with Candera's "No-Coding" approach.



// In household appliances such as washing machines, displays with graphical user interfaces are also being installed increasingly.
An example of an HMI: "Human Machine Interface".

ADVANTAGES FOR CUSTOMERS

- ▶ Easy implementation of graphical user interface visualization
- ▶ Fast and uncomplicated start thanks to "plug and play" hardware and software packages from Kontron and Candera
- ▶ No HMI programming skills necessary – equally suitable for technicians and designers
- ▶ Optimized for performance and cost
- ▶ Implementation costs are lower than the expensive hours of scarce or non-existent software developers
- ▶ The No-Coding approach from CGI Studio reduces software development costs by
 - ▶ expanding the target users to include graphic artists and designers as well
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Kontron and Candera demonstrate the possibilities of using an innovative fully digital washing machine user interface with dynamic 2D and 3D scenes as an example. The user interface has a large number of functions, such as selecting a washing program or setting the temperature and speed. The standard functions allow starting, stopping, pausing and resuming the wash program. The menu lets one choose from a number of languages, including Arabic, Chinese and Japanese.

The washing machine can be conveniently controlled remotely via tablet and smartphone.



// Washing machines demo film

**RESULTS:
SUSTAINABLE SOLUTION FOR HMIS ON EMBEDDED
DEVICES**

The convenient package of Kontron's hardware and Candera's design tool "CGI Studio" makes the change worthwhile. The effort required to introduce the process is manageable and the costs for training, the tool and the license are amortized within a short period of time. The result is fast development processes and the savings from scarce and expensive - and often unavailable - software developers.



// The range of applications for high-quality HMIs, which must function quickly and reliably even on the smallest hardware, is constantly increasing. It ranges from white goods such as coffee machines to medical devices and robotic arms in manufacturing plants.

About Kontron

Kontron is a global leader in IoT/Embedded Computing Technology (ECT) and offers individual solutions in the areas of Internet of Things (IoT) and Industry 4.0 through a combined portfolio of hardware, software and services. With its standard and customized products based on highly reliable state-of-the-art technologies, Kontron provides secure and innovative applications for a wide variety of industries. As a result, customers benefit from accelerated time-to-market, lower total cost of ownership, extended product lifecycles and the best fully integrated applications.

For more information, please visit: www.kontron.com

About Kontron Electronics AG

Kontron Electronics AG based in Rotkreuz, Switzerland, has positioned itself as a provider of automation solutions and embedded ODM services in industrial machinery and equipment manufacturing, medical technology and building automation. Kontron's range of products and services includes proprietary and customized products, development and design services for complex electronic components, modules and systems and production and assembly services for complete assemblies. Kontron Electronics is part of the Kontron Group.

For more information, please visit: www.kontron-electronics.com



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