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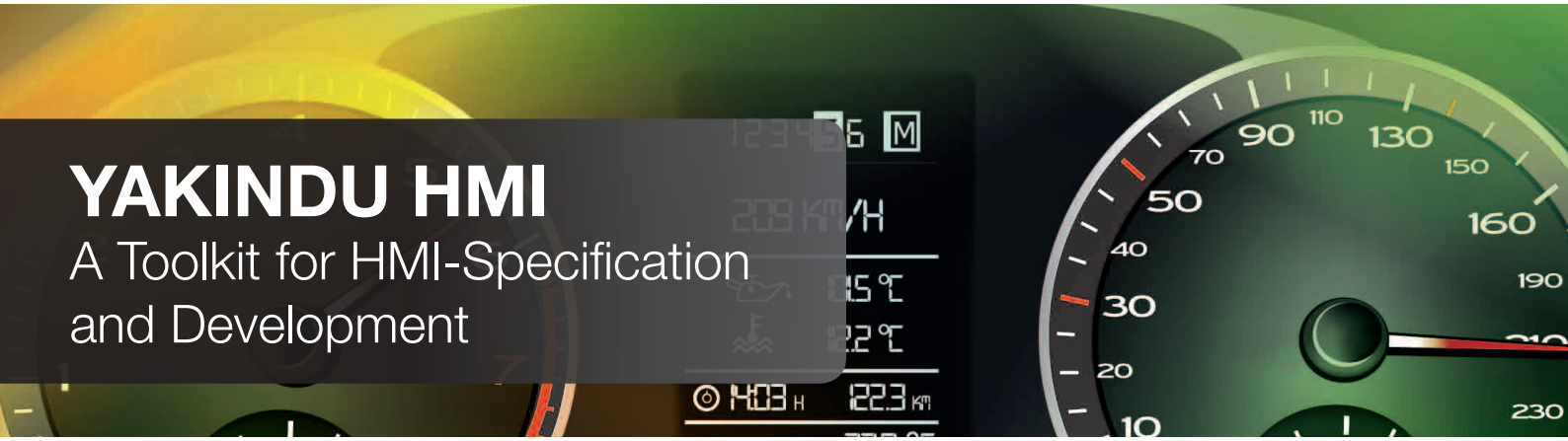
YAKINDU HMI



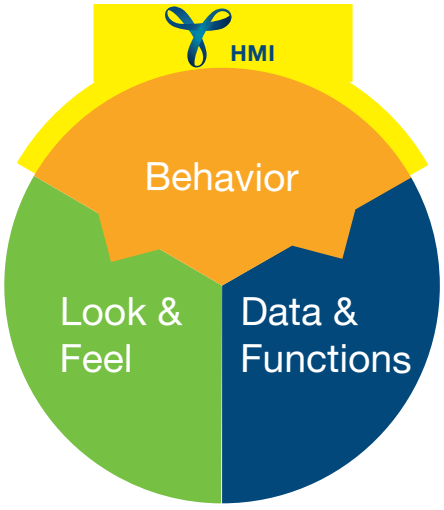
YAKINDU HMI

A Toolkit for HMI-Specification and Development

Product description

YAKINDU HMI is a tool for model-based development of sophisticated Human Machine Interfaces (HMIs). It supports the complete development process from prototype to specification to implementation. Its unique adaptability to processes, tool chains and target platforms significantly enhances productivity.

»Tools are 'only' aids and ideally follow the process requirements – not vice versa. Unfortunately the current reality is usually different.«



In the development of HMIs, the behavior, the look & feel, and the specific of the target device must be aligned.

Modular tool architecture

YAKINDU HMI supports the specification and development of HMI behavior as well as the necessary interfaces (figure 1). This includes the definition of the possible processes in the interaction between the human user and the machine. The separation of the specification from its implementation in a specific UI technology is crucial for keeping the models relevant as the implementation technology changes, for example, during the transition from prototype to production. The most appropriate visualization technology can be used in each context. This modular design significantly differs from the current state-of-the-art tools and approaches; it follows a best-of-breed approach.

Process & Architecture

YAKINDU HMI does not prescribe any specific development process or target architecture. Users can decide according to context, using prefabricated modules to speed up development. Methodology modules define the specification and development processes. Technology modules support the binding to UI technologies or the connection to different target platforms.

BUILT ON eclipse

YAKINDU HMI Contract

HMI contracts support the technology-independent specification of the structural content of the HMI. This approach ensures that all processes and tool components integrate seamlessly. It also supports HMI modeling from the perspective of the application domain while remaining independent from the technical and organizational constraints.

This is especially relevant at the interface between an OEM and his suppliers. As a formal part of the specification, YAKINDU HMI Contracts lead to increased consistency and reduced friction loss.

YAKINDU HMI Statecharts & Components

State charts are used to concisely and precisely describe HMI behavior. They can be introduced at an early stage in the development process to create executable specifications and prototypes. These can be validated in the simulation environment. State charts can be executed stand-alone, or integrated with an animated simulation of the rendered UI.
Simulation plus static model validation leads to higher quality as a consequence of continuous testing and validation.

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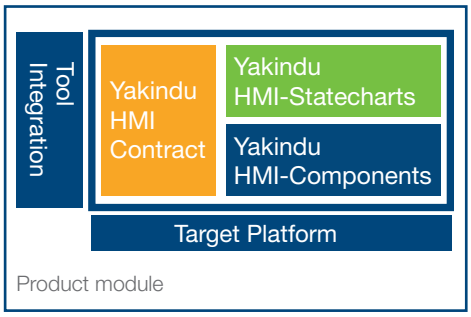
YAKINDU HMI Code Generators

The YAKINDU HMI code generators generate implementation code from the models. The code implements the full behavior as specified in the models, and can be integrated with the target system directly. Regenerating changed specification models propagates the changes to the implementation. The YAKINDU generators are not black boxes. They are designed to be customized to specific target architectures and platforms.



Additional process support

An integration with YAKINDU Traceability supports tracing from requirements over the specification to the implementation code.
In addition, YAKINDU HMI comes with a report generator in order to meet documentation obligations. The generation of documents is template-driven, enabling customization or adaptation to corporate design requirements.

All YAKINDU HMI artifacts are stored in plain files, simplifying the integration with established configuration management system. The models created with YAKINDU HMI can also serve as the basis for automated HMI tests. These tests can be written against contracts, state charts or components.

BENEFITS

Shorter development times
- Integrated approach for prototyping, specification and implementation
- Rapid prototyping via simulation
- Use of the specification model in the implementation
- Reduction of the implementation effort via repeated code generation
- Optimized for usability

Quality improvements
- Accurate, consistent and executable specification of complex behavior
- Understandable specifications through the use of HMI terminology in the contracts and state charts
- Quality enhancements via continuous validation and simulation

Flexible adaption
- Code generators designed for easy adaptability to specific target platforms and architectures
- Modular tool chain, best-of-breed
- Accurate adaptation to custom processes
- Seamless integration into existing Eclipse-based tool chains

FEATURES

Integrated modeling environment
- Behavior modeling with YAKINDU HMI Statecharts
- Component-based modeling with YAKINDU HMI Components
- Modeling functional interfaces with YAKINDU HMI Components
- Continuous validation

Integrated simulation environment
- Interactive simulation
- Integration of external visualization technologies

Adaptable generators
- Code generators for C, C++ and Java
- Generation of MS Office Word documents
- Flexible interfaces for platform-specific code generation

Tool integration
- Interfaces for integration of visualization tools
- Simulation-API for integration with the YAKINDU simulation engine
- Generator-API for integration of specific code generators
- Simple integration of SCM-systems
- Integration of Eclipse-CDT

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