

Project Note

Embedded software – Automated testing!

Automated Testing of Embedded software is still considered as difficult to impossible. This project at Schindler shows, how at amazingly small expenditure a durable and flexible solution is developed.

Task

Schindler, a leading manufacturer of lift installations, wanted to subject each system component to automated testing prior to installing it. The previous development and testing procedures for hardware and software were to be optimised to allow for this testing. One important requirement was to ensure that system quality could be continuously assessed even during component development. The goal was to bring about a substantial reduction in the failure rate early on. In addition, Schindler wanted a flexible and easily expandable framework put into place so software tests could be created for current and future components. Zühlke was commissioned to test and implement the testing system.

Implementation

Drawing on its broad testing expertise, Zühlke analysed the previous procedure and teamed up with Schindler engineers to work out a forward-looking test system tailored to meet actual needs. Special attention was paid to achieving the required quality level with minimal effort, both in test creation and test execution.

Zühlke specialists conducted a Black Box Test to verify the devised plan on a first complex component. The previously used test system was expanded for this purpose and connected to the components being tested. Common commercial interface hardware was used.

A flexible user interface enabled any test cases to be carried out, either interactively or fully automatically, as desired. The first application of the plan was convincing and the order was given to integrate the new solution systematically into the development process.



Schindler

Technical Data

Microsoft Visual Studio

Infragistics UltraTools

Vector CAN-Hardware

National Instruments
Interface-Hardware

Customer benefits

- With their broad expertise in testing, Zühlke specialist approached the problem holistically. The solution satisfied all requirements.
- Automated tests are now helping the customer to improve system quality significantly while noticeably reducing development and maintenance costs and shortening release cycles.
- Automated testing also reduces repetitive activities and increases the pleasure the engineers take in their work and their overall motivation.

Zühlke Engineering AG
Wiesenstrasse 10a
8952 Schlieren (Zurich)
Switzerland

Phone +41 44 733 6611
Fax +41 44 733 6612
zuerich@zuehlke.com
www.zuehlke.com

© Zühlke