Management System for Testing Mechatronic Systems

Administration, Evaluation, and Documentation of Test Cases and Test Runs for System Tests for Mechatronic Systems

Today, mechatronic systems demand an ever stronger integration of the disciplines of mechanical engineering, electrical engineering, and computer science. One key for successful cooperation is clearly phrased requirements and their verification via the system test. Using a test management system, you can automate tests and ensure reproducibility and traceability of the tests.

The Problem
The system test for mechatronic systems is characterized by a complex test environment. It can encompass different technologies such as HMI, PLC, NC, hardware, and others. Depending on the plant’s development stage, you need to execute the tests using real or simulated system parts. In most cases, commercial test management systems do not cover the special requirements posed by complex machines and plants in the mechatronic field.

The Method
Therefore we developed, together with the Trumpf company, a test management system „TRUMPFquest“ which supports automated system tests for mechatronic plants in the following areas:

- Test planning
- Test execution
- Test evaluation
- Test documentation

The Solution
We developed a test architecture which allows the integration of diverse test cases with different technologies in TRUMPFquest. At the moment, test cases are used which have been developed in:

- C#
- Testcomplete (user interface tests)
- Trust (proprietary interface to the Trumpf HMI)

The system developed is based on a SQL database in connection with a version control system. All versions of all test data are managed in hierarchical structures in the system. The first version of this software is already in daily use for release tests at system test level.
The Benefit to You

- High cost saving potential because of reproducibility and traceability of tests
- Tests become schedulable regarding time and costs
- A test management system allows: test planning on the basis of available machine components and the requirements to be tested
- Quick and tailored development of test cases in the technological environment appropriate for each test task
- Execution of automated test runs
- Comprehensive tests of all system components (mechanics, NC, PLC, HMI)
- No fragmented tool landscape, because different test case and test execution technologies are integrated in one management system
- Flexible, customizable evaluation of test results with XML and Excel
- Hierarchical management of test steps and machine-specific test cases
- Version control of tests in a configuration management system

Our Service

- Analysis of commercial tools
- Collection and documentation of requirements for a test management system for mechatronic systems
- Implementation of a requirement management system
- Integration and linking of requirements from an existing requirement management system into the test management system
- Development and implementation of a test management system
- Preparation of a test case architecture
- Support in the development of test cases
- Support in the implementation of test drivers and test cases
- Development of an appropriate rating matrix for assessing the system quality of a mechatronic plant
- Managing of reviews

Are you interested in introducing a management system for administrating, evaluating, and documenting your test cases and test runs? Contact us. We would be happy to advise you about the possibilities of test management systems.