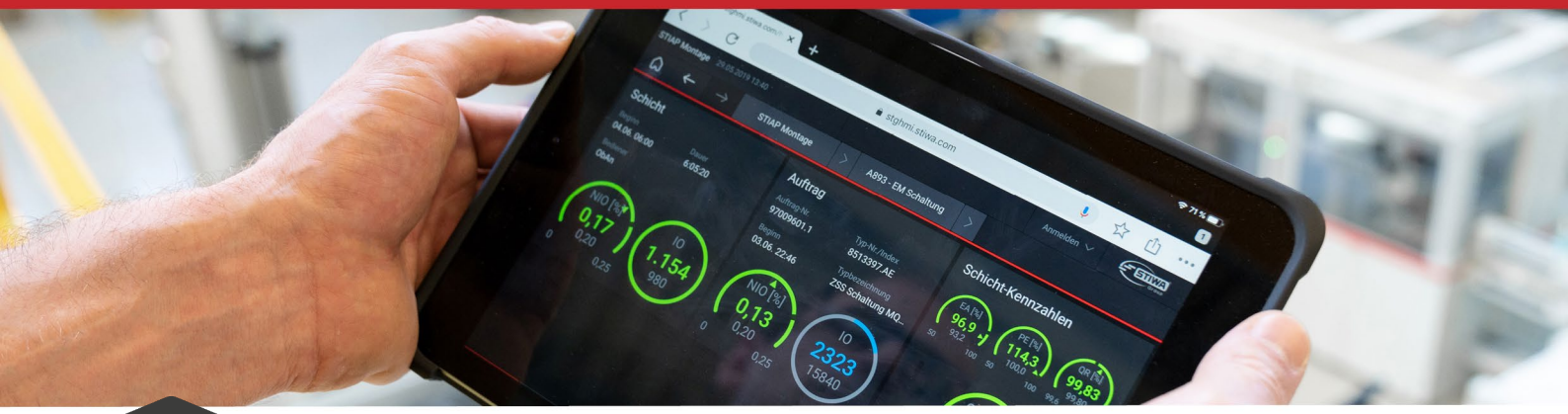
Automated Unit Testing for PLC controls



Master's thesis

Our goal is the profound mastery of the system and the processes in the networked product- and high performance automation, the intelligent building automation and in preanalytical processes in the laboratory. With over 150 software employees and 30 years of experience, we inspire customers from a wide range of industries – worldwide.

Motivation

Programmable controls are essential for the industrial automation. However, despite large investments and the growing need of the industry for reliable software, there is a lack of modern methods to ensure quality. This master's thesis has the mission, to bring innovative methods for software quality in the world of PLC programming. By transferring proven approaches from software development, such as Unit Tests and CI/CD Pipelines, in the PLC-world, the aim is to standardize and improve code reuse. In particular, innovative new solutions are being developed to replace long-established concepts. Compatibility with systems such as Beckhoff, Siemens and CtrlX is to be ensured in order to develop practical solutions that meet the current and future requirements of the industry.

Goal / tasks

- Transfer of approved techniques from high-level languages to PLC programs
- Development of automated Unit Tests for programs in Structured Text
- Creation of a CI/CD pipeline to integrate these tests into the development process
- Evaluation and conception of a platform-autonomy with Beckhoff, Siemens and CtrlX, including prototype implementation

PLEASE CONTACT US

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