AUTOMATION++

Object-oriented platform for fast development of extensible real-time control software

Project Summary

The aim of this project was to develop a modular software platform in C++, to support the fast development of highly configurable real-time control software, extensible through a plugin based approach.

The project was focused on the development of 5 main elements:

- An Automation library in C++, providing a rich set of facility to quickly implement complex and polymorphic object-oriented models, with real-time compatible behavior.
- A flexible and efficient communication protocol to interface control applications with human-machine interface software.
- A configuration utility, used to dynamically define the structure of a control application or a dynamic process.
- Utility software to perform online debugging of real-time control applications, based on the communication protocol.
- Base HMI Components natively interoperable with Control software, to demonstrate the ability of quickly developing the complete application set to control an automated system.

The result is an innovative real-time control software platform, bringing flexible and configurable capabilities to the embedded and real-time world.

This innovation represents a big step compared to the state-of-the-art CNC and PLC based solutions from the market.

Valorisation

This platform has stimulated the acquisition of project with industrial partners in the field of CNC machines, measuring instruments and automation. Several projects have been successfully realized on top of the software platform developed during the Automation++ project.

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This project has been carried out by HEIG-VD