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Research Article

Quimera: The easy way to simulate Foundation Fieldbus applications

Vítor Viegas ✉,Octavian Adrian Postolache,Pedro M. B. Silva Girão,José M. Dias Pereira

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ABSTRACT

The paper presents a simulation tool that emulates the development environment of Foundation Fieldbus (FF) applications. The idea is to use the resources provided by LabVIEW®—in particular its dataflow programming paradigm—to design, execute, and debug FF control applications. Function blocks are implemented as virtual instruments, data links are represented by virtual wires, and bus monitoring tools are replaced by application debugging tools. The simulator can easily be connected to virtual (simulated) processes or to physical (real) processes. Tests were made to evaluate the capabilities of the simulator and to assess its degree of fidelity against commercial FF systems. The goal was to release an easy-to-use, low-cost training tool to disseminate knowledge about process control using the FF technology. © 2016 Wiley Periodicals, Inc. Comput Appl Eng Educ 24:914–925, 2016; View this article online at wileyonlinelibrary.com/journal/cae; DOI 10.1002/cae.21761