Abstract: A New Interactive PCL Training System Using Virtual Sensors and Actuators

Yoon Sang Kim[1], Hak-Man Kim[2]
[1]*School of Computer Science and Engineering, Korea Univ. of Technology and Education, 330-708 Byungchun, Cheonan, Chungnam, Korea.*
[2]*Dept. of Electrical Engineering, Univ. of Incheon, 12-1, Sondo-dong, Yeonsu-gu, Incheon, 406-840, Korea.*
E-mail: yoonsang@kut.ac.kr

Abstract

With rapid developments in the manufacturing industry, there has been increasing attention on PLC (programmable logic controller) training for implementing FA (factory automation). This paper proposes a new-type interactive PLC training system using virtual components. Based on the virtual components, the proposed system provides PLC trainees with a virtual training environment that is identical to actually handling various types of equipment, including sensing of both user and device input (the inputs using virtual sensor) as well as actuating of device (the outputs using virtual actuator). In order to allow PLC trainees to handle virtual equipment that models actual high-price equipment such as elevators and conveyors, providing the effects of engaging in hands-on training, the proposed system is composed of three virtual components including virtual sensor (for sensing both user and device input), virtual actuator (for actuating/controlling device or equipment), and virtual PLC (for generating command). The proposed system is applied to a real training program of our university's training center to examine the applicability and feasibility, and the results are analyzed and discussed.

Acknowledgements

This paper was supported by the New IT Project for growth foothold of green-semiconductor industry based on IT of the Chungcheong Leading Industry Office of the Korean Ministry of Knowledge Economy. Also, this paper was partially supported by the Education and Research Promotion Program of KUT.