

Comparative Study on the Automated Warehouse with Cartesian Robot Using PLC and Arduino

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ABSTRACT:

Nowadays, automation system is necessary in every warehouse. It can assist operators in easily managing warehouses furthermore reduce unexpected errors from humans and surrounding environments. Nevertheless, a number of control methods have been available for the warehouse system. Each method has advantages and disadvantages considered regarding ease of use, stability as well as cost-effectiveness, etc. Therefore, in order for comparative performances of control algorithms between the PLC and the Arduino, the models of automatic warehouse with PLC and Arduino boards are implemented in this paper. The comparative results show that the average time difference between two methods is 7% with Arduino being faster and lower cost rather than PLC. This ability of using microprocessor as the Arduino board presents some advantages even lesser stability. Thus, alternative methods with current and higher technological devices are possibly selected instead of the old-fashion control algorithm in order to gain more benefits and advantages. Furthermore, integration of the ROS with an automation unit to upgrade an existing system have currently been conducted on the warehouse system to evaluate and compare the system's performances. The results will be presented in a separated paper.

KEYWORDS:

Warehouse robot; Arduino processor robot; PLC processor robot

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