User-Friendly Task Creation Using a CAD Integrated Robotic System on a Real Workcell

Authors : Alireza Changizi, Arash Rezaei, Jamal Muhammad, Jyrki Latokartano, Minna Lanz

Abstract : Offline programming (OLP) is a new method in robot programming which is used widely in the industry nowadays which is a simulation base method that can produce the robot codes for motion according to virtual world in the simulation software. In this project Delmia v5 is used as simulation software. First the work cell component was modelled by Catia v5 and all of them was imported to a process file in Delmia and placed roughly to form the virtual work cell. Then robot was added to the work cell from the Delmia library. Work cell was calibrated corresponding to real world work cell to have accurate code. Tool calibration is the first step of calibration scheme and then work cell equipment can be calibrated using 6 point calibration method. Finally generated code needs to be reformed to match related controller code instruction. At the last stage IO were set to accomplish robots cooperation and make their motion synchronized. The pros and cons also will be discussed to clarify the presented results show the feasibility of the method and its effect on production line efficiency. Finally the positive and negative points of the implementation will be discussed.

Keywords : robotic, automated, production, offline programming, CAD
Conference Title : ICIESM 2015 : International Conference on Industrial Engineering and Systems Management
Conference Location : Barcelona, Spain
Conference Dates : February 26-27, 2015