Utilization of Advanced Simulation Methods for Solving of Assembly Processes Automation Partial Tasks

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Projecting and designing of automated assembly cells/lines is very complicated process. The rising demand on an assembly high quality, precision, effectiveness and shorter time to market. Puts the high requirements on the all active devices which act at the automated workplace. Assembly robot with its effector influences the effectiveness of the proposed assembly automation very significantly. Design or choice of the assembly robot and its robotic gripper namely is very important step of the automated assembly cells/lines projecting. Secure and stable holding of an assembly object by robotic gripper is one of significant conditions for trouble-less execution of the object automatic implementation into assembly joint. This article presents our experiences with utilization of advanced simulation methods for the specialized robotic gripper grasping ability exploration for purposes to evaluate a safe and stable grasping of different objects. Virtual reality tools - eon reality and haptic device with glove and finger actuators (CyberForce) were applied for simulation experiments realization too.

Keywords: automated assembly, object grasping, simulation model, CAD/CAE systems, virtual reality

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