

METHOD FOR INSERTING AN OBJECT INTO AN OBJECT-RECEIVING AREA USING A ROBOT MANIPULATOR

ABSTRACT

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The invention relates to a method for joining an object into an object-receiving area using an actuator-driven robot manipulator of a robot, wherein the robot manipulator has an effector at its distal end, designed to receive and/or grip the object, and wherein a joining trajectory T is defined for the object-receiving area and the object to be joined, and a target orientation

10 $O_{sol}(\vec{R}_T)$ of the object to be joined is defined along the joining trajectory T for locations $\vec{R}_T$ of the joining trajectory T , the method comprising the following steps: receiving/gripping (101) the object using the effector, moving (202) the object using the robot manipulator along the joining trajectory $\vec{T}$ into the object-receiving area while continuously performing predetermined rotating/tilting movements of the object relative to the target orientation

15 $O_{sol}(\vec{R}_T)$ in a force-regulated and/or impedance-regulated manner until a specific threshold condition G1 for a torque acting on the effector and/or a force acting on the effector is reached or exceeded, and/or a provided force/torque signature and/or a position/speed signature on the effector is reached or exceeded which indicate(s) that the object has been completely successfully inserted into the object-receiving area within specified tolerances; releasing

20 (103) the object by means of the effector; and moving (104) the effector away from the object-receiving area along the exit trajectory A using the robot manipulator.

[Figure 1]

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