Modeling of trobotic arms kinematics by means of block matrixes

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The paper deals with the kinematics problems of the multilink robotic arms with a branched kinematic chain. The block matrixes method to build analytical and algorithmic models of such mechanisms is suggested. The method allows in general to solve forward kinematic problems and in two special cases – inverse kinematic problems for the considered mechanisms. An example illustrating the application of the block matrixes method to a robotic complex consisting of the industrial Kawasaki FS20N manipulator and the three-fingered hand of Schunk SDH-2, is given.

Keywords: robotic grasping systems, branched kinematic chain, block matrixes, forward and inverse kinematic problems.

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