

Forward and Inverse Kinematics of a Robotic Arm on Arduino Platform

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Abstract

Forward and inverse kinematic studies are essential in the design of robotic arms. The paper investigates kinematics of a robotic arm with 5 degrees of freedom developed on Arduino Mega platform. The forward kinematics allows the establishment of the spatial coordinates and orientation of the end-effector for a given joints set of variables using the Denavit-Hartenberg Representation. The simulation of the 3D CAD model is performed in RVC Matlab Toolbox. The inverse kinematics allows the determination of all joints variables of the robot for a given end-effector position and orientation and is performed analytically.