

# Design and Fabrication of Eight-Legged Spider Using KLANN Mechanism

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**Abstract:** *In the present paper, an attempt has been made to carry out Design and fabrication of eight-legged spider using klann mechanism. A four-revolute (4R) kinematic chain has been chosen for each leg mechanism in order to mimic the leg structure of an insect. Denavit–Hartenberg (D-H) conventions are used to perform kinematic analysis of the eight-legged spider. The direct and inverse kinematic analysis for each leg has been considered in order to develop an overall kinematic model of an eight-legged spider, when it follows a straight path. The problems related to trajectory generation of legs have been solved for both the swing and support phases of the robot. It is important to mention that trajectory generation problem during the support phase has been formulated as an optimization problem and solved using the least squared method. Lagrange-Euler formulation has been utilized to determine the joint torques. The developed kinematic and dynamic models have been examined for tripod gait generation of the eight-legged spider using klann mechanism.*

**Keywords:** Joe Klann’s Mechanism, Material handling, steep jagged rock piles

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