

USING STRUCTURAL CODE TECHNIQUE FOR ENUMERATION OF 6-BAR LINKAGES FROM OPEN 4-BAR CHAIN

Hasan Eleashy , M.Samy Elgayyar, M.N. Shabara

Abstract

This paper presents a systematic methodology to convert planar 3 degree-of-freedom open 4-bar chain into planar 1 degree-of-freedom 6-bar linkages. This objective is achieved by adding 2RR chains to the original mechanism. Hence, these additional chains mechanically constrain the relative movement of the end-effector to reach a required set of task positions. Graphical enumeration technique is applied for structural synthesis of all possible 6-bar linkages. Structural code technique is introduced as a new method for structural isomorphism. The proposed methodology produces 7 different forms of 6-bar linkages.

International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN: 2249 6788 ; 2014 April