

Preliminary Design and Prototyping of a Multi-DOF Parallel Manipulator

Abstract

This project work deals with the preliminary design and prototyping of a multi-DOF parallel manipulator to achieve greater end-effector trajectory tracking accuracy while handling a task remotely. A parallel manipulator is capable of moving in three linear directions and three angular directions singly or in any combination. It comprises of a triangular plane called the platform, of which each of the three corners is connected through a three-axis joint to one of the three legs. Each leg is connected to the abutment by a two-axis joint. The aim of this project is to work on a supplied concept of the manipulator and conceptualize it further.

Scope of Work:

Preliminary design and modeling of the parallel manipulator, actuator system, and fabrication of manipulator structure. The conceptual model of a parallel manipulator has been developed by the RHRTD Division and will be supplied as an input for this work.

Project duration: 06 months

Scope for the Extension: (As per the performance, and availability of the student, and approval by the Academic Project Committee)

Expected Outcome:

A more matured prototype of a parallel manipulator taking into account the inertial, actuation, friction, gravitational effects and external loadings

Eligibility:

1. Only students of B.E. or B.Tech (Mechanical) branch can submit their application at following email addresses.

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