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Design of adaptive gripper for Articulated Remote Handling (RH) Arm

Abstract

The main objective of this project is to design a robotic gripper for achievement of sufficient level of dexterity in the domain of grasping and manipulation when attached to any Remote Handling (RH) arm. The work includes a thorough study of different adaptive gripper mechanisms along with kinematic assessment of gripper for pick-and-place operation, design & FEA analysis of the gripper frame. The gripper has to be designed within a specified envelope with a maximum opening of 50 mm and payload capacity 1.5 kg. This project includes the structural analysis of multi-fingered adaptive gripper working with a single actuator. Analytical calculations and analyses will be performed to verify the structural integrity of the gripper mechanism in various configurations and to calculate the necessary reaction forces required during component handling.

Scope of Work:

1. Thorough study of different adaptive gripper mechanisms along with kinematic assessment of gripper for pick-and-place operation.
2. Structural design and analysis of multi-fingered adaptive gripper mechanism.

Project duration: 04-06 months

Expected Outcome:

1. Design methodology for multi-fingered adaptive gripper mechanism.

Number of Students: 01 (max)

Eligibility: Only students of B.E./B.Tech (Mechanical/ Mechatronics) branches can submit their application at following email addresses

Preference: Student should have exposure of CAD modeling and Analysis software.

kgotewal@ipr.res.in [Guide e-mail address] and project_me@ipr.res.in [Project coordinator's e-mail address]

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