National Institute of Technology Rourkela

Defence Seminar

Seminar Title	: Investigation on Robotic Grasping and Manipulation: An Analytical and Experimental Approach
Speaker	: Golak Bihari Mahanta (Rollno : 516id1001)
Supervisor	: Prof. B.B.V.L. Deepak
Venue	: Video confefrnce mode through online (https://meet.google.com/uia-vgsd-gzn)
Date and Time	: 14 Dec 2021 (04.30pm)
Abstract	: In this research work, an investigation is carried out to study robotic grasping and manipulation using both analytical and experimental approaches. The analytical approach that used the grasp planning and synthesis methods to find the appropriate strategy for grasping the objects. Grasp planning and synthesis are used in grasping and manipulation to find the stable grasp configuration by locating the position of the fingertip of the robotic hand to be placed on the objects. The stability of the robotic grasp is measured in terms of grasp quality measures, which is a mathematical quantification to measure the grasp quality. An evolutionary approach is proposed to enhance the grasp quality measures, so that the obtained robotic grasp achieves stability without any failure. The proposed evolutionary algorithm evaluates the automated robotic grasp planning and manipulation problem as a maximizing problem to enhance the grasp quality. The grasp planning problem is addressed by incorporating the uncertainty in the coefficient of friction while modelling the contact model between fingertips and objects. The proposed model that includes the uncertainty associated with the friction coefficient is handled by an interval arithmetic approach.