

Towards the Design of Gripper Independent of Substrate Surface Structures

Authors : Annika Schmidt, Ausama Hadi Ahmed, Carlo Menon

Abstract : End effectors for robotic systems are becoming more and more advanced, resulting in a growing variety of gripping tasks. However, most grippers are application specific. This paper presents a gripper that interacts with an object's surface rather than being dependent on a defined shape or size. For this purpose, ingressive and astrictive features are combined to achieve the desired gripping capabilities. The developed prototype is tested on a variety of surfaces with different hardness and roughness properties. The results show that the gripping mechanism works on all of the tested surfaces. The influence of the material properties on the amount of the supported load is also studied and the efficiency is discussed.

Keywords : claw, dry adhesion, insects, material properties

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