

Soft pneumatic robotic gripper for the manipulation of fragile objects

CSIC and the Polytechnic University of Madrid have developed a robotic gripper especially designed for the accurate and safe manipulation of fragile or delicate objects. The gripper is composed of soft materials and each actuator can be easily reconfigured in order to perform complex grip movements while removing the risk of damaging the items.

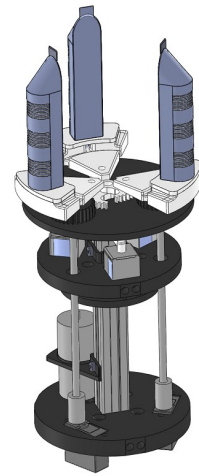
Industrial partners are being sought to collaborate through a patent licence agreement for the manufacture and commercialization of the gripper, and/or to incorporate it in their industrial processes.

An offer for Patent Licensing

Accurate and automatic manipulation of fragile items

The design of this grip covers some existing needs that have been detected in existing grippers, such as the capacity of rearrange the position and distribution of the actuators, its excessive rigidity, or the need of external hydraulic or electric systems for its functioning.

This gripper has been designed to allow for an adaptable reconfiguration of the actuators thanks to a mobile baseplate and a modular design, that enables the possibility to perform complex gripping maneuvers. The pneumatic system is embedded into the gripper and can be easily controlled through a computer (via Wi-Fi or wire), and by adding a battery the need of electric connection is avoided, making the gripper completely independent from external inputs.



Structural view of the robotic gripper and its components

Main innovations and advantages

- The soft actuators guarantee the automation of processes avoiding the risk of damaging the items.
- The actuators can be reconfigured independently and be adapted to each specific needs.
- Its versatile and adaptable design facilitates its installation in any existing arm.
- It can work independently from external inputs (electric, hydraulic).
- Its main application is related with the automation of industrial processes, especially those related with the manipulation of fragile or delicate items (*pick and place* processes).
- It can be of special interest in agro and food industries.

Patent Status

Priority patent application filed suitable for international extension

For more information, please contact:

Marc Escamilla

Deputy Vice-Presidency for Knowledge Transfer

Spanish National Research Council (CSIC)

Tel.: (+34) 96 161 29 95

E-mail: transferencia@dicv.csic.es
comercializacion@csic.es