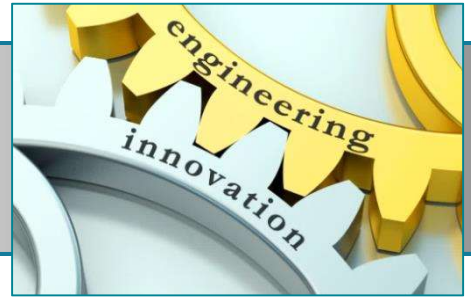


TECHNO OFFER

New parallel gripper with 7 degrees of freedom

Keywords : dextral gripper / manipulator / parallel robot / micro-assembly / nano-assembly / degree of freedom



CONTEXT

Robotic micro-nano-manipulation is currently achieved by installing a tool (gripper, etc.) on a supporting arm with several degrees of freedom.

This solution has drawbacks because it is bulky, severely limits the work rate and struggles to perform precise manipulations at the micrometric scale.

DESCRIPTION

The proposed invention consists of an original parallel robotic structure with 7 degrees of freedom (DDL) which incorporates within it a gripper for handling small objects.

This robot is dextral thanks to these 7 DOFs which provide 3 rotations and 3 translations in space in addition to gripping.

The structure is controlled by actuators placed on a fixed base allowing its miniaturization to scales of the order of one cubic millimeter.

Precision is thus increased and the moving masses reduced to a minimum, which makes it possible to achieve very high work rates.

COMPETITIVE ADVANTAGES

- Gripping and handling functions in space integrated in the same system
- Precision at micrometric or nanometric scale
- Higher speeds compared to current robots
- Handling in confined and congested environments
- Lower manufacturing cost than current systems



Markets & applications

Manufacturing industry

- ❖ Micro- and nano-assembly
- ❖ Parts testing and control

Medical - minimally invasive surgery

- ❖ Laparoscopic surgery
- ❖ Endoluminal surgery



Development stage

2 functional laboratory prototypes (TRL 4):
40 cm³ and 1 cm³



Research team

FEMTO Institute - Sciences & Technologies



Intellectual property

Patent filed on October 6, 2016



Target partnership

Patent licensing

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