

PRECISION INJECTOR / EXTRACTOR FOR ROBOT-ASSISTED SURGERY

Tech ID: 25140 / UC Case 2015-202-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,529,205	12/20/2022	2015-202

BRIEF DESCRIPTION

According to Robotics and Automation News (2019 September 2), the surgical robotics market is forecasted to surpass \$24 billion by 2025. Precision robots have been able to make minimally invasive surgeries more efficacious and are being increasingly used in the fields of urology, gynecology, oncology, gastroenterology, thyroid, bariatric, colon and rectal surgeries. During many these medical procedures, the surgeon is required to dispense a material in a precise location. For example, the surgeon could be required to apply a surgical adhesive to close a wound, or to dispense a material in a precise location to act as a fiducial marker for imaging or operating. The surgeon could be required to inject or dispense T-cells, collagen gel, or fluids or fluid media containing stem cells or drug-eluting chemotherapy beads. In these use cases the material dispensed could be a fluid or powder or could comprise smaller solid objects such as radio-active seeds. While the surgeon could benefit from the high-precision positioning capabilities of a robotic surgical-assist system, current systems don't have a digital delivery device or method for injection. Nor do they have a digital device for precision extraction - for example, to perform a biopsy.

To address this potential to improve surgical robotics, researchers at UC Berkeley have developed a precision injector / extractor for robot-assisted surgery. The technology includes integrated hardware and software systems that can be used as an extension of current surgical robots or a standalone tool.

For background on the research underlying this technology, go to:

<http://cal-mr.berkeley.edu/> ,

and

[https://lecture.ucsf.edu/ets/Play/731bb5da85c54a9998e2420cd8fc57791d?catalog=f0586699-eed3-4d01-be7f-](https://lecture.ucsf.edu/ets/Play/731bb5da85c54a9998e2420cd8fc57791d?catalog=f0586699-eed3-4d01-be7f-db6323de9c05&playFrom=252466&autoStart=true)

[db6323de9c05&playFrom=252466&autoStart=true](https://lecture.ucsf.edu/ets/Play/731bb5da85c54a9998e2420cd8fc57791d?catalog=f0586699-eed3-4d01-be7f-db6323de9c05&playFrom=252466&autoStart=true)

SUGGESTED USES

Precision injection or extraction in robot-assisted surgery.

ADVANTAGES

- » Full hardware and software solution.
- » Can be used as a stand-alone tool, or attached to a surgical robot.

RELATED MATERIALS

»

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Robotics Surgery, Robot-assisted
minimally-invasive surgery

CATEGORIZED AS

- » **Medical**
- » Delivery Systems
- » Devices
- » Gene Therapy
- » Stem Cell

RELATED CASES

2015-202-0



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