Apparatus for the intraoperative analysis of biological tissues samples

INVENTORS: Arianna Menciassi,
Gastone Ciuti,
Calogero Oddo,
Luca Massari,
Francesco Frosini,
Lorenzo Capineri,
Marina Mazzoni,
Andrea Bulletti

CO-OWNERS: Università degli Studi di Firenze

PATENT STATUS: Granted

PRIORITY NUMBER: 102018000001108

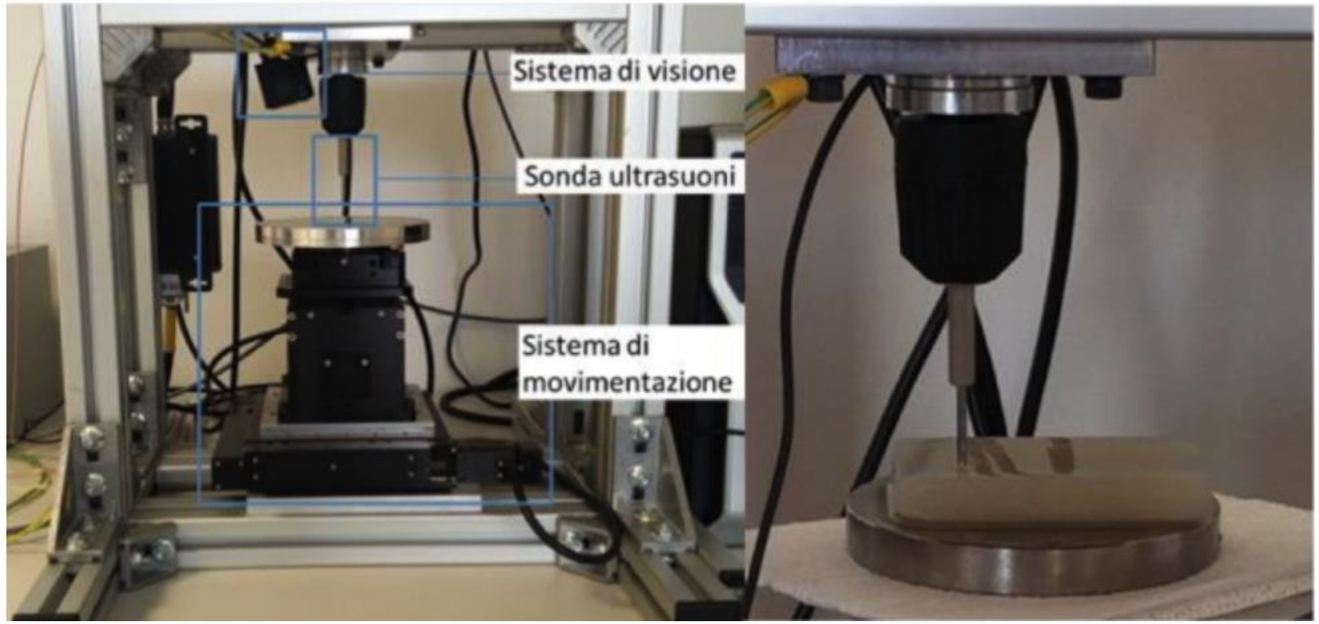
PRIORITY DATE: 16/01/2018

PUBLISHED AS: ITALY

Invention

An ultrasonic probe, mechanically connected to a six-axis load cell, is moved through a multi-axial motorized platform. The probe moves at a programmable inclination with respect to the surface of the tissue sample and is placed in contact with the tissue allowing to obtain the (tactile and ultrasound)information that characterizes it. The tactile information is extrapolated from the force recorded by the load cell and from the position recorded by the motorized platform by touching the fabric created by indenting and / or sliding the probe on certain positions obtained through a camera dedicated to the acquisition of the sample shape . An HD camera system provides visual and optical information to allow the specialist to pre-classify the sample based on color and shape. The signals from the ultrasound sensor, the touch sensor, the high definition cameras and the dedicated cameras for 3D reconstruction are integrated on a screen and made available to the pathological anatomy specialist. The device carries out support operations for the biopsy examination, allowing the identification of the nodules of a histological sample, in order to perform the biopsy of the nodule with a machine used downstream of the apparatus itself.

Drawing & pictures



Industrial applications

- Histological analyzes, including intraoperative, in diagnostics and oncological surgery
- Oncological analysis and diagnosis
- Intraoperative analysis of tissues
- Integrated tactile ultrasound analysis
- Sampling of anatomical pieces

Possible developments

The research group is open for discussions with industrial partners interested in licensing the technology covered by this patent.

For more information:

Scuola Superiore Sant'Anna – Technology Transfer Office

Headquarters: Piazza Martiri della Libertà 33, 56127, Pisa

Web site: www.santannapisa.it

E-mail:uvr@santannapisa.it

For more information:

Ufficio Regionale di Trasferimento Tecnologico

Headquarters: Via Luigi Carlo Farini, 8 50121 Firenze (FI)

E-mail: urtt@regione.toscana.it

SANT'ANNA SCHOOL OF ADVANCED STUDIES PISA

UNIVERSITÀ DEGLI STUDI FIRENZE

REGIONE TOSCANA

urtt Ufficio Regionale di Trasferimento Tecnologico