Surgical Tool with Integrated Pressure and Flow Sensors

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a surgical tool with an integrated pressure sensor.

OVERVIEW

Integration of sensors into surgical tools allows monitoring of important surgical variables, such as temperature, liquid pressure and liquid flow, to make surgeries safer.

THE INVENTION

UW-Madison researchers have developed a surgical tool with an integrated pressure sensor that can be used to measure the pressure and flow of liquid being delivered to or removed from the surgical area. The surgical tool includes a needle-like portion that enters the tissue. The integrated sensor is coupled directly to a fluid flow channel in the tool, through which fluid may be injected into or drawn from a patient. The tool could be designed as a micromachined silicon tool with a fully integrated sensor formed from a silicon nitrate membrane and polysilicon resistors. Alternatively, the tool could be an ultrasonically actuated cutting tool.

APPLICATIONS

• Optical surgeries for cataract removal
• Laparoscopic ultrasonic tools

KEY BENEFITS

• Sensor signal can be used to provide feedback control of fluid pumping through the channel.
• Advanced surgical tools incorporating virtual reality techniques will require the use of integrated sensors on all tools.
• May be formed using conventional, low-cost, mass fabrication processing techniques
• Provides instantaneous detection of changes in pressure and flow during surgery

THE WARF ADVANTAGE

Since its founding in 1925 as the patenting and licensing organization for the University of Wisconsin-Madison, WARF has been working with business and industry to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.
ADDITIONAL INFORMATION

Tech Fields
Medical Devices - Surgical devices

CONTACT INFORMATION

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846.