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Modular Robotic Ultrasound Probe Gripper with Autonomous Gel Dispenser

Telerobotic ultrasound gripper with autonomous gel dispensing reduces operator workload and procedure time while improving image consistency.

Researchers at Purdue University have developed a telerobotic ultrasound probe gripper equipped with an autonomous gel dispenser. Conventionally available ultrasound systems demand persistent manual human intervention to effectively conduct diagnostic and therapeutic procedures. Operators must simultaneously probe and adjust the machine with one hand, all while interpreting image quality and applying gel to the patient's body. This method is labor-intensive and substantially increases procedure time.

Several robotic ultrasound systems have been proposed for reducing the cognitive load on the operator. However, this technology is the first to provide automated decision methods to control gel application. This innovation helps sonographers and physicians operating ultrasound machines reduce their manual effort and increase patients' access to care. The technology eliminates all human intervention and comprehensively increases the robustness of the ultrasound system. The machine helps produce high-quality ultrasound images for diagnosis and is a cost- and time-effective tool applicable to a wide range of machine design specifications.

Advantages:

-Reduces manual effort and lowers procedure time

-Compatible to a wide range of machine design specifications

-Permits easy replacement of the machine probes during procedures

Applications:

-Sonographers and physicians operating robotic ultrasound machine

-Diagnostic and therapeutic procedures

Technology ID

2023-ZHAO-70083

Category

Digital Health & Medtech/Remote Patient Monitoring & Telehealth
Robotics & Automation/Automation & Control
Digital Health & Medtech/Assistive Robotics & Accessibility Systems

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TRL: 4

Intellectual Property:

Foreign, Non-PCT, 2023-01-11, India

Provisional-Patent, 2024-01-11, United States

Utility Patent, 2024-12-31, United States

Keywords: Biotechnology, gel dispenser, Medical/Health, probe gripper, telerobotic, ultrasound procedures, ultrasound system