Haptics, the science of interfacing with users via touch, is being used to provide sensory input to users in various applications, including robotic surgery, touch screen displays, and navigational systems. While robotic or automated instruments allow users to manipulate physical objects in a remote or virtual environment, they insufficiently communicate tactile information to users. Users have to rely instead entirely on visual information decreasing efficacy. Robot-assisted minimally invasive surgery (MIS), in particular, allows for greater precision and control but relies on high-quality visual systems to guide procedures. Surgeons simply cannot feel tactile changes and the impacts of surgical tools within a body cavity. The Compact Compliance Tactile Feedback Device provides a rendering of surfaces based on the stiffness of the surface in question. The device calibrates based on the user’s force and displacement and communicates tactile feedback to the user through pressure or directional motion.

- Increases accuracy and efficacy of robot-assisted MIS.
- Reduces likelihood of complications due to inadvertent placement of surgical tools or unidentified surface changes.
- Facilitates almost instantaneous detection of stiffness changes.
- Provides accurate tactile feedback data.
- Small size provides low power consumption and easy integration.

TECHNOLOGY SUMMARY
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FEATURES AND BENEFITS
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