Piezo motion systems find use in high-moisture environments, medical scanning and more.
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NEW SCALE TECHNOLOGIES

New Scale News

April 2013

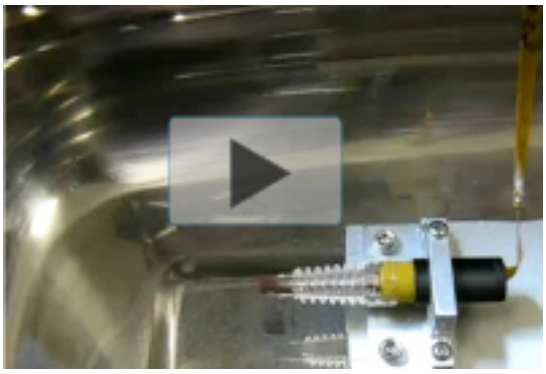
Greetings!

This month we demonstrate a SQUIGGLE motor adapted for high-moisture environments and a technical paper about the novel use of a SQUIGGLE motor for medical scanning using optical coherence tomography (OCT).

In this issue

~ Video: piezo motor demo under water

We modified a SQUIGGLE piezo motor for operation in high-moisture environments and demonstrated its moisture-resistance by running it under water. See the video.



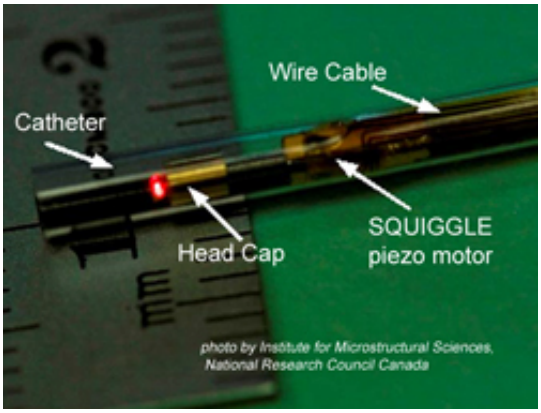
This video demonstrates a customized SQUIGGLE micro motor operating under water.

For this application we fitted an ultrasonic SQUIGGLE motor with a water-resistant housing including a silicon molded bellows and a non-rotating tip. Sealed SQUIGGLE motors can be used in high-moisture environments, implantable medical devices, and clean room settings.

The motor in the video measures 7 mm diameter, has a force of 2 Newtons and moves with a position resolution of 0.5 micrometers. It has an external driver. Contact us about creating custom motion systems for OEMs, based on our SQUIGGLE motor and other piezoelectric motor technology.

~ Tech Paper: SQUIGGLE motor enables shadow-free scanning in OCT

A side-scanning fiber probe is a critical component for optical coherence tomography (OCT) in medical imaging and diagnosis. In a paper published in *Optics Letters*, researchers from the National Research Council Canada described an on-axis rotating probe they fabricated using a modified SQUIGGLE micro motor.



The probe performs circumferential in situ scanning that, unlike with other probes, is not susceptible to shadow effects caused by the motor's wires. More importantly, this design avoids the insertion losses introduced by optical coupling components and the multitude of optical interfaces. This is very important for sensing weak signals back-scattered from structures deep in the

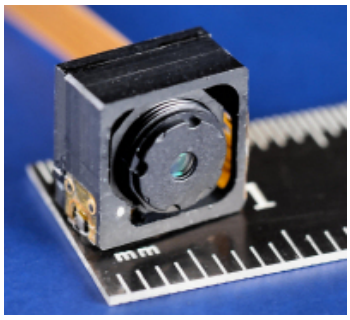
tissue.

Probe fabricated by researchers at the National Research Council Canada incorporates a modified SQUIGGLE motor.

Visit OSA to download the paper, *"Stationary-fiber rotary probe with unobstructed 360° view for optical coherence tomography*".
(free to Optics Letters subscribers, otherwise $15 for OSA members / $35 for non-members).

~ New patent: Low-tilt lens actuator module improves micro cameras

New Scale has received a U.S. patent for its UTAF (ultra-thin auto focus) piezoelectric lens actuator module measuring only 8.5 x 8.5 x 3.8 mm.



The UTAF module integrates a piezo micro motor and innovative micro-mechanical design to minimize lens tilt, enabling extremely high-precision imaging in micro-camera formats

The UTAF actuator module integrates New Scale's UTAF piezoelectric beam motor with a drive IC and position sensor IC for closed-loop motion control.

Patent # 8,279,541 extends coverage to the module's precision pin bushing system that moves the lens in a straight line with dynamic tilt of less than 0.1 degree. This low tilt is a critical requirement for high-megapixel cameras and imaging systems.

The patent also covers a unique flexure preload or magnetic preload system that produces substantially zero additional friction in the bearing guide, irrespective of the location along the optical centerline. This allows the module to lift a mass at least three times greater than the typical lens mass of 0.25 grams, insuring a low sensitivity to gravity orientation for the camera system.

This precision lens actuator module enables development of high-performance vision systems that fit into smaller and smaller form factors - from thin smart phones, to ultra-compact devices for medical imaging and diagnostics. At the same time, the high level of electronic and mechatronic integration makes it easier for system designers to use this powerful new technology: they simply provide high-level digital commands for step and velocity over a standard SPI or I2C interface.

New Scale licenses its UTAF module technology to manufacturers worldwide. It is currently licensed by several Tier 1 integrators supplying camera systems to OEM manufacturers.

Learn more about UTAF technology or contact us for licensing information.

~ Contact us

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