# New Scale News

***Your update on ingeniously small motion systems*** **December 2010**

Greetings!

Welcome to this issue of New Scale News, your update on miniature motion technology and applications.

In this issue we've focused on **vision applications**, along with a behind-the-scenes look at the M3 platform.

Watch for a special issue in January detailing our M3-L linear module for **optical and RF tuning**. As always, please contact us with questions or comments.

In this issue



## ~ New Scale brings focus to Vision 2010


From Vision 2010 in Stuttgart, Dan Viggiano explains how the SQUIGGLE motor and M3 micro mechatronics modules improve imaging in machine vision, biometrics and medical diagnostics.

Dan demonstrates the M3-F focus module in a machine vision camera from Imaging Diagnostics.

View the video from Vision 2010 on the *Vision Systems Design* website.

## ~ Behind the scenes: Designing a micro mechatronics module

Engineers and scientists at New Scale, austriamicrosystems and TDK-EPC engaged in a multi-year collaboration to develop a micro mechtronic system: simultaneously developing the piezo micro motor, mechanics, electronics and control systems. The resulting M3 motion module is a perfect illustration of the benefits of a mechatronic design process.

This article describes why designing with piezoelectric motors requires a different mindset than that used with traditional servo or stepper motors, and how this multi-national design team tuned the piezoelectric ceramics, the silicon, and the system to work together for optimal performance.

Download the article PDF (330 Kb) or read it online at *Design World*.


View the PDF (330Kb)

## ~ New patent for tiny piezoelectric UTAF motor

New Scale Technologies has received its fifth U.S. patent for miniature piezoelectric motor technology. Trade-named the **UTAF** motor (for **Ultra-Thin Auto Focus**, its target application), the tiny new device integrates all ultrasonic motor functions into a single piezoelectric ceramic beam measuring only 4.5 X 0.82 X 0.7 mm.

UTAF motor and driver

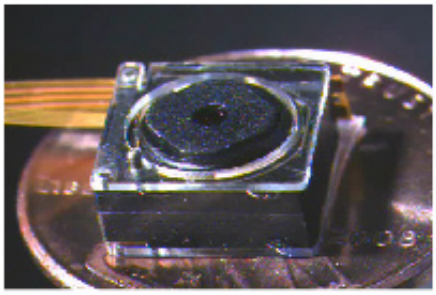
This new ultrasonic motor enables smaller, faster cameras that offer better image and video quality while using less power.

**Technology**
Piezoelectric ceramics vibrate in response to electrical signals; ultrasonic motors translate those micrometer-scale vibrations into larger motion through friction contact. The UTAF motor uses an innovative co-fired multi-layer ceramic process to create a single beam composed of many thin layers of piezo ceramic. Sub-segments of the monolithic beam are energized independently, causing the beam to vibrate simultaneously in two orthogonal directions as its motion mechanism. Frequency, phase and amplitude of the ultrasonic vibrations are controlled by a two-phase drive circuit.

Because the layers are very thin, they respond to signals of only 3 volts or less. This is a significant advantage in smart phone camera applications, as it allows the UTAF motor to operate directly from the phone battery.

**Modules**
The UTAF motor is combined with several other patent-pending innovations to deliver a complete ultra-thin auto focus actuator module for next-generation ultra-thin mobile phones with image sensors better than 8 MP.

>> Learn more about the UTAF motor, technology and modules



UTAF module for thin phone cameras

## ~ Webcast: Micro mechatronics for medical applications

New Scale's founder and chief technology officer Dave Henderson recently joined *Design News* editor Al Presher and Bruno Adam from Adept Technology in a webcast "Mechatronic Solutions for Medical Applications: Impact of Robotics and Miniaturized Motion Solutions."

**View New Scale's presentations**

- Part I: Micro Mechatronic Systems. Learn how New Scale creates fully-integrated micro mechatronic modules, and where you can use them in consumer, commercial, industrial, medical, and defense and security applications.
- Part II: Medical Applications. Learn more about medical device applications of mechatronic systems, including fluid control, endoscopic surgery, implantable device applications and a wide range of medical imaging systems such as augmented vision systems.

**View the entire webcast**

To view the one-hour webcast in its entirety visit *Design News* (registration required).

**Questions?**

Contact us if you have questions about the webcast presentations - email us or call +1 (585) 924-4450 x2.

## ~ Meet us at Photonics West


New Scale will demonstrate the M3-F focus module and introduce our latest M3-L linear actuator at Photonics West in San Francisco January 25-27, 2011.

Stop by **Booth 610** to see our newest products.

- For conference information and registration visit the Photonics West website.
- If you can't attend the conference but would like to arrange a personal meeting with New Scale, please send us an email.

## ~ Contact us

Email us
Visit our website
Call us at +1 (585) 924-4450