New Scale News

NEW SCALE TECHNOLOGIES

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Greetings!

Welcome to New Scale News, your monthly update on miniature motion systems.

This month we present our two latest patents: a **high-speed rotary motor** based on our SQUIGGLE® motor technology, and a compact wide-angle **optical beam steering** system incorporating our UTAF™ ultra-thin actuator family motors with integrated controllers.

These are our sixteenth and seventeenth U.S. patents since we began developing miniature piezoelectric motor systems fourteen years ago.

High-speed rotary piezo motor

US Patent 9,362,851, *Rotary Motor Systems and Methods Thereof,* issued June 7, 2016 to inventors Qin Xu, Daniele Piazza, Matt Wrona and David Henderson.

This new rotary piezoelectric motor achieves very high rotational speed with significant torque in a very small diameter.

The operating principal is a variation on New Scale's miniature SQUIGGLE® motor.

New Scale has demonstrated the motor design in a diameter less than 4 mm with a rotational speed greater than 12,000 RPM while requiring only 3.3 volts. Targeted applications include systems that require no magnetic fields, very small diameter and volume, and direct battery-powered operation.

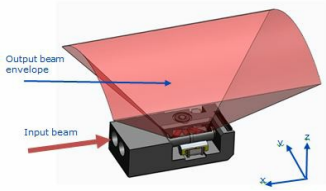
Application examples include eccentric rotating mass motors that generate human detectable vibrations, and endoscopic medical instruments.

Because piezoelectric motors are used, no ferromagnetic materials are required in construction and no magnetic fields are generated during operation. Therefore the device can be integrated into **systems containing radios, antennas and compasses** without interfering with their operation. It can also operate safely in MRI imaging systems.

This patented technology is available for use in our **custom motion system development programs**.

Animation of the high-speed rotary micro motor operation.

Compact optical beam steering assembly



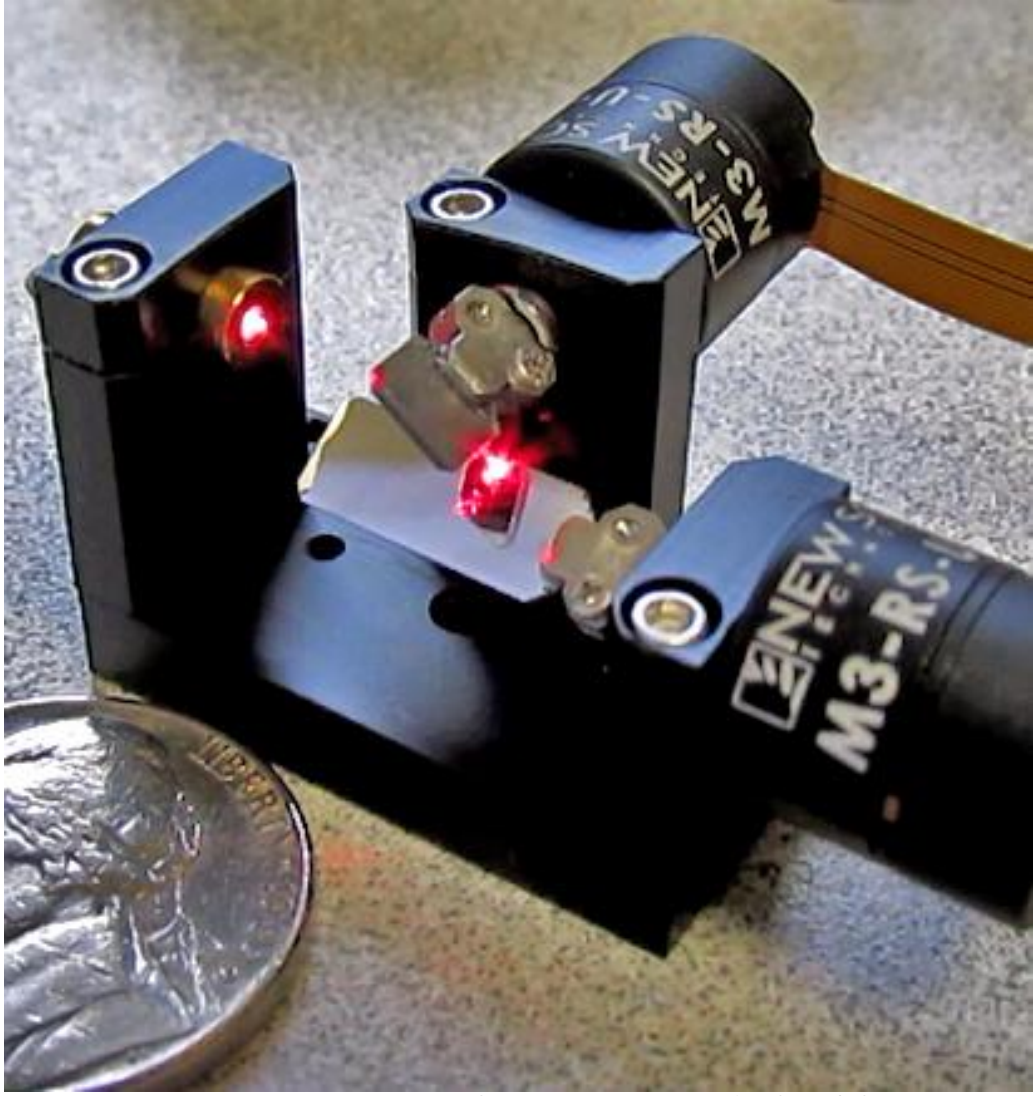
US Patent 9,377,619, *Compact Wide-Angle Optical Beam Steering Assemblies,* issued June 28, 2016 to inventors Matt Wrona and David Henderson.

This tiny "galvo-like" beam steering system can direct a small collimated laser beam through large angles of azimuth and elevation (Θx and Θy).

Targeted applications include systems that require precise point-to-point beam steering in one tenth the volume of a traditional galvo with dynamic scanning up to 100 Hz.

Examples include medical instruments, 3D printing, LIDAR, integration with digital cameras, remote sensing, tremor stabilization, and telecom instruments.

This invention has been commercialized in the **M3-RS-U Rotary Smart Stages and beam steering developer's kits**, available now from New Scale Technologies.



DK-M3-RS-U-2M-20-L two-axis beam steering system developer's kit.

Growing patent portfolio

This are just the latest examples of our continuing innovation in micro motion modules.

Since its founding in 2002, New Scale has secured seventeen US patents and corresponding international patents for piezoelectric motors, drive and control systems and all-in-one motion solutions with unmatched miniaturization, micrometer-scale resolution and fully-integrated electronics. We apply this technology to develop standard and custom smart motion systems for original equipment manufacturers in optical, medical, scientific, aerospace, defense and other markets.

Contact us today to discuss how our unique solutions can make your products more competitive.

Inventors David Henderson_ Daniele Piazza and Qin Xu with their latest patent

About Us

New Scale Technologies develops and manufactures the smallest and most precise closed-loop positioning solutions available. Our "all-in-one" M3 Smart Modules with built-in controllers are easy to integrate with handheld and portable instruments. We enable smaller, smarter imaging systems, scientific instruments, medical devices, aerospace and defense systems and more. Our customers achieve the fastest time to market with the lowest total cost. **Contact us.**

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Send email to: NSTsales@newscaletech.com
Visit our website: www.newscaletech.com
Call us: (585) 924-4450

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