



OOmented Introduces Industry's First One-Chip MEMS Mirror-Based Laser Beam Scanning Solution to Enable AR/VR Smart Glasses

ITZELHOE, Germany, Sep. 8, 2021—With a mission to make lightweight AR/VR smart glasses a practical reality, venture-backed innovator [OOmented](#) today introduced the industry's first one-chip MEMS mirror-based laser beam scanning (LBS) solution. The breakthrough gives product developers a new ultra-compact projection display option to enable glasses that are light and stylish yet empowered with advanced visualization capabilities. In a tiny package optimized for smooth integration and easy optomechanical alignment, OOmented's high-speed LBS solution enables highest resolution, longest operating time, and lowest power consumption—with industry-leading cost advantages.

The announcement was made at [MEMS World Summit Europe](#) where Thomas von Wantoch, Co-CEO and CFO at the Germany-based deep-tech startup will present details in a talk this afternoon.

The introduction coincides with the increasing application of AR, VR and MR (mixed reality) technologies across myriad industries. [Mordor Intelligence and a BCG analysis](#) estimate that the global AR/VR/MR market could grow from US\$30 billion today to nearly US\$297 billion by 2024. Lightweight smart glasses will enable the growth.

Yet formidable technical obstacles are delaying the transition from bulky AR/VR glasses to products that are suitable for extended wear. Progress depends, in part, on a high-performance LBS solution that enables superb visualization yet is sufficiently compact to be embedded in the temples of the glasses.

These imperatives guided the development of OOmented's solution. The innovation began at the Fraunhofer Institute two decades before OOmented's spinout in 2018. The compact module leverages proprietary Lissajous scanning techniques optimized exclusively for this purpose and developed over more than a decade by the company's technology experts. Building on its early Lissajous lead, the team completed the solution, adding a wafer-level vacuum protective capsule, specialized MEMS designs, and other patented innovations to maximize power efficiency, performance, and lifetime, especially for consumer electronics products.

The One-Chip MEMS Mirror Advantage

The module features the industry's first one-chip two-axes MEMS mirror, making it the most compact solution on the market. Although smaller than standard two-chip mirrors, it enables large scan amplitudes, a field of view (FoV) of up to 180 degrees, and high resolution. In addition, instead of one

News Release

fast/one slow scan axis, the mirror operates with two ultra-fast scanning axes—a configuration that further suppresses flicker artifacts while projecting thousands of interlace images per second.

Unique wafer-level vacuum package

The mirror sits in a protective vacuum environment made possible by OQmented's Bubble MEMS® technology. The innovation increases power efficiency by orders of magnitude, drives performance and enhances product durability. It also contributes to the compact size. Because, unlike a flat glass lid that must be bigger to facilitate a large FoV, thereby increasing chip size and cost, the "bubble" lid offers the FoV advantage with no footprint expansion. Also, by facilitating smooth integration into modules, the hemisphere-shaped feature helps improve manufacturing yields, which helps reduce costs.

"We set out to eliminate the barriers that forced developers of smart glasses to sacrifice lightweight and stylish for powerful visualization capabilities. Now, building on decades of research, we are proud to deliver with a one-of-a-kind LBS projection display," said Ulrich Hofmann, Co-CEO and CTO at OQmented. "With its technical and cost advantages, our solution gives new stretch to product design imagination for Big Tech companies. We are excited to support these innovators with a technology that will help them create bold new product categories."

Bubble MEMS is a registered trademark of OQmented

About OQmented

OQmented is a deep-tech company developing and selling high-performance MEMS mirror-based ultra-compact LBS displays and best-in-class 3D sensing solutions for mobile and stationary applications. The proprietary Lissajous scan pattern in combination with the patented vacuum packaging Bubble MEMS® technology and proprietary electronics and software enable new product categories in consumer and various other industries. Further information can be found at www.oqmented.com.

Media Contact: media@oqmented.com.