

Smith Displays introduces wavemixing physics to unlock the smart glasses market

Big tech firms increasingly agree that smart glasses will be the go-to device for consumers to interact with AI. Yet, putting these devices on millions of users relies on fixing a massive engineering riddle: How do you turn a transparent glass lens into a digital display screen without ruining its clarity?

Right now, trying to force eyewear to pull double duty introduces three major visual flaws: the screen sickness users feel when trying to focus; an awkward “eye-glow” that leaks the screen’s image to onlookers, posing security risks; and lenses that look dim instead of perfectly clear. Current market alternatives rely entirely on older diffractive or reflective optics. These traditional methods force developers to accept severe hardware constraints, sacrificing battery life and brightness while creating manufacturing bottlenecks that prevent mass production.

A NEW BRANCH OF DISPLAY PHYSICS

Fortunately, an emerging deep-tech spin-out from the University of Southampton has developed an industry-first innovation with the capability to turn everyday lenses into bright, fully transparent digital windows.



Smith Displays
CEO, Dr. Peter
GR Smith

Led by University of Oxford graduate Dr. Peter GR Smith, Smith Displays’ patented wavemixing technology introduces an entirely new branch of display physics specifically for augmented reality (AR) developers. Instead of bouncing images across the surface of the glass, wavemixing changes how light behaves inside the eyepiece. By replacing the need to use complex, bulky optics to deliver display capabilities, both the engineering riddle—and the three eyewear flaws—can be solved. This enables AR developers to design displays inside smart glasses that



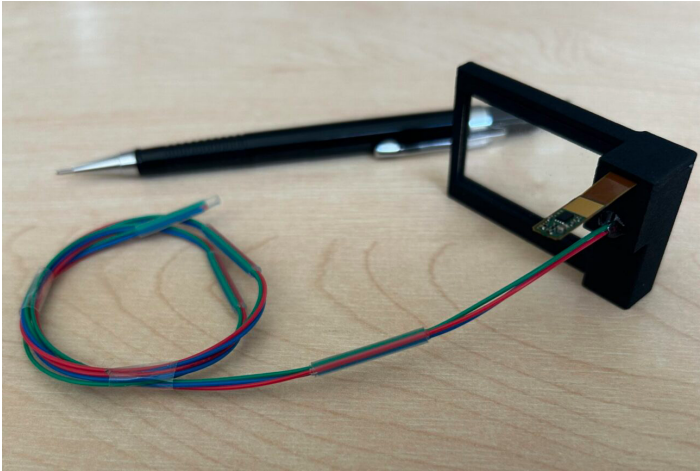
Smith Displays team (from left to right): Rex Bannerman, Peter Smith, Corin Gawith, Goronwy Tawy. (Photo provided by Smith Displays)

look just like regular spectacles, with fully transparent lenses, daylight brightness, zero eye-glow, and day-long battery life.

To prove that this display technology could fit into lightweight, fashionable eyewear, Smith Displays recently collaborated with Sony and its spin-out, Scale Photonics, on the miniaturization of laser architectures, validating that its system meets strict consumer requirements.

ANCHORING IN ROCHESTER’S OPTICS ECOSYSTEM

To speed the transition of these advanced optical designs into physical products, Smith Displays applied to cohort 9 of the Luminate accelerator in Rochester, New York. While the company originated within the United Kingdom’s optics cluster, it chose to establish a U.S. commercialization path by tapping into the unparalleled scale of Rochester’s optics manufacturing, design, and supply chain infrastructure. A primary driver for joining the program was the opportunity to align with vital regional deep-tech initiatives. This includes the newly developing center for



Smith Displays' fiber delivered display demonstrator. (Photo provided by Smith Displays)

Extended Reality at the University of Rochester, led by former CTO of Meta's Reality Labs and current Luminate advisory board member Dr. Barry Silverstein.

Luminate's structured mentorship and training are preparing Smith Displays to engage directly with those in its primary target market: consumer smart glasses. Major brands, including Meta, Snap, Google, and Samsung, are actively expanding their AI eyewear portfolios, creating an addressable market projected to reach hundreds of millions of units. Luminate's commercialization experts are helping the startup refine its investor narrative and supply chain strategy to meet these mass-production demands.

"Luminate has provided incredible mentorship, training, and flexible funding. It's also connected us to key industry players," says Smith, CEO of Smith Displays. "In getting a deeper understanding of the resources that exist here, we're seeing opportunities to set up a supply chain in the U.S. for supporting eyewear opportunities across multiple markets."

BROAD MARKET OPPORTUNITIES

While consumer smart glasses represent the fastest pathway to widespread deployment, the technology's hands-free interface offers utility across several adjacent markets. In industrial settings, factory workers can utilize AI-guided displays for real-world training and assem-

bly lines. In public healthcare, the system can provide real-time subtitles for hearing-impaired individuals. Furthermore, the lack of eye-glow and total transparency make the technology highly applicable for defense and security sectors requiring strict operational privacy.

Dr. Sujatha Ramanujan, managing director and chief investment officer of Luminate, emphasizes how transforming legacy engineering can open up these expansive application landscapes.

"True breakthroughs in deep tech require more than incremental updates; they demand a willingness to displace traditional science and rewrite established processes," says Ramanujan. "By inventing a completely new way to bypass legacy optical limitations, Smith Displays is doing exactly that. Their wavemixing technology doesn't just improve smart glasses — it unseats decades of restrictive display physics to unlock new avenues for innovation across the entire AR ecosystem."

FUTURE SCALING AND FOLLOW-ON FUNDING

To commercialize its novel branch of display physics beyond market valuation, the Smith Displays team is creating a roadmap for scaling its engineering operation. On September 30 at Luminate Finals, the startup will compete against its cohort peers for a portion of \$2 million in follow-on capital, including the premier \$1 million investment in Company of the Year. The accelerator, and the funding it provides, is supported by Empire State Development's Finger Lakes Forward Upstate Revitalization Initiative.

If they receive funding, Smith Displays plans to establish a permanent design and prototyping facility within New York State. This dedicated infrastructure will leverage the region's elite optical design talent to produce active prototype units for direct validation by supply chain partners and big-tech developers.

Beyond immediate commercial testing, the company also hopes to establish a physical New York base. This will allow it to apply for federal SBIR and STTR grants to help move its technology into defense and security hardware alongside academic research initiatives that are currently underway in Rochester.



Demonstration of fully transparent display, creating bright green University of Southampton stag logo. (Photo provided by Smith Displays)