Freeing the Hands and Minds of Scientists

The Startup Lab at GS1 Connect

GS1 Connect® is the annual user conference and exhibition hosted by GS1 US® that highlights the use of GS1 Standards to help drive innovation and business opportunities. Since 2019, The Startup Lab at GS1 Connect has been showcasing emerging technologies that provide GS1 US members with new ideas and solutions.

The Challenge

According to Reach Industries, scientists spend about 20% of their time on administrative tasks—including manually monitoring experiments and documenting, sharing, and validating operational data. That's valuable time each scientist *isn't* spending on discovery.

Later in the scientific process, quality assurance teams can spend days reviewing information generated manually (e.g., protocol adherence verification and methodology validation). Beyond that, inspection and regulatory procedures consume months in the research and development (R&D) pipeline, which slows time to market.

Current manual approaches reduce experiment reproducibility, create process bottlenecks, hamper productivity, and delay time to market. These challenges are especially vexing for large companies with science labs and/or manufacturing environments where people do experiments.

The Innovation

Reach Industries has developed Lumi™—an intelligent cloud platform that uses vision, voice, and machine learning to augment scientists. Think of Lumi as not only an extra pair of eyes and ears in scientific settings, but also an extra brain.

By combining computer vision with artificial intelligence and machine learning, the Lumi platform helps enable hands-free capture of data and recording of observations. The Lumi LabEye™ module helps digitally track and log activities, observations, material usage production, and machine data from the earliest stages of R&D to Current Good Manufacturing Production (cGMP) environments. In doing so, it enhances human understanding of reactions and processes. It also enables remote monitoring of experiments and automation systems.

Indeed, a key differentiator is Lumi's ability to enhance process sharing and validation by showing exactly what, when, and how things are functioning. For example, scientists can configure Lumi to provide alerts about liquid

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First-Place Winner

Reach Industries was selected as the first-place winner of the 2022 Startup Lab Pitch Competition, based on product originality, usability, societal impact, and other criteria. It emerged as the top winner among a field of eight startups.

Technology Focus
Computer Vision, Emerging Data Carriers, Artificial Intelligence and Machine Learning, Robotic Process Automation, The Internet of Everything, Sensors

Industry Application
Consumer Packaged Goods, Foodservice, Retail Grocery, Healthcare, BioPharma

color changes, level changes, spills, and other changes in the lab.

In short, Lumi captures and analyzes what historically has been a missing piece: contextual operational data. Lumi provides real-time virtual assistance to capture and analyze operational data and automate vision-based tasks. As such, Lumi will help free the hands and minds of scientists—enabling significantly more collaboration, reproducibility, and auditability in scientific environments.

> "Lumi is an innovative and practical solution to some of the most long-standing challenges in scientific environments. We're designing this technology to accelerate scientific excellence—from digital assistance on the workbench to better collaboration and data management at every stage of the scientific process."
>
> **Silas Adekunle,**
> *Co-Founder and CEO, Reach Industries*

The Power of Collaboration

Companies like Reach Industries can help GS1 US members, solution providers, and partners maximize adoption and use of GS1 Standards, enabling scale, efficiency, and innovation.

Reach Industries enables businesses to capture lab data associated with experiments, observations, and material usage. It saves valuable time so that scientists can focus on the science. And it leverages innovations—including computer vision, voice, and machine learning—to increase collaboration and streamline data management.

Using Lumi, companies can develop and share reproducible methods while improving auditability, issue discovery, protocol adherence, and quality control.

GS1 US's Role

GS1 US helps industry standardize the identity of parties, places, and things by issuing unique, persistent, globally interoperable identifiers. Those standards, developed in collaboration with industry, make it possible to provide a consistent, structured way to identify and describe products. GS1 Standards also prepare businesses for the next generation of technology.

Advancements like Reach Industries' solution, computer vision, and machine learning, among others, require large, accurate, and structured data sets to deliver maximum value. To that end, GS1 US reviews and evaluates emerging technologies to put hybrid physical-digital identity concepts into practice that foster the adoption of converged identity across a spectrum of real-world use cases.

"With Lumi, Reach Industries has integrated numerous technological innovations," says Melanie Nuce, Senior Vice President, GS1 US. "Combining these innovations with the power of GS1 Standards for experimental materials and scientific equipment will create opportunities to accelerate scientific progress across multiple industries."

> **Perfect Your Pitch**
> Interested in applying for a future Startup Lab Pitch Competition or learning about additional innovation opportunities? The Innovation & Partnerships Team at GS1 US wants to hear from you!
>
> **View the details** and email us at **innovation@gs1us.org** to get started.

About Reach Industries

Reach Industries is made up of talented engineers and developers with a deep love and respect for science. They believe technology should augment humans, so people can focus less on the mundane and more on what humans are good at. The team has created Lumi to empower humans, make labs more efficient, and accelerate development of solutions to the world's most complex challenges.
To learn more, visit www.reach.industries

About GS1 US

GS1 US® is a neutral, not-for-profit information standards organization that drives industry collaboration through the use of GS1 Standards—the most widely used supply chain standards in the world. The UPC* barcode, the most recognizable example of a GS1 Standard used to power commerce, is scanned more than six billion times per day globally. More than 25 industries rely on GS1 US to uniquely identify products, places, and other assets, and GS1 Standards to create a foundation for emerging technologies that can improve security, visibility, interoperability, and trust in the supply chain. Unique identification makes it possible to take advantage of the technologies of the future—connecting consumers, patients, businesses, and products.
For more information, contact innovation@gs1us.org or visit www.gs1us.org

GS1 US Corporate Headquarters
Princeton South Corporate Center, 300 Charles Ewing Boulevard
Ewing, NJ 08628 USA
T +1 937.435.3870 | **E** info@gs1us.org
www.gs1us.org

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