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STMicroelectronics and Mobile Physics join forces to create EnviroMeter for accurate air-quality monitoring on smartphones

Time-of-flight optical sensing enables world's first accurate personal air quality monitor and smoke detector for smartphone

Geneva, Switzerland, Kfar Saba, Israel -- February 12, 2024 -- STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, and Mobile Physics, a software-development startup specialized in environmental physics, have revealed an exclusive collaboration that enables smartphones and other devices to measure household and ambient air quality with a built-in optical sensor.

Developed exclusively for ST's multizone ranging sensors, which are widely used for features like camera autofocus and presence detection, this solution measures particulates in the surrounding air. With accuracy comparable to purpose-designed air-quality monitors, Mobile Physics' EnviroMeter app acts as a personal, portable environment monitor and smoke detector to safeguard health - and enhance fire safety. Manufactured using ST's low-power technology, it can operate 'always on' to provide constant awareness with minimal impact on battery life.

Each year, 3.2 million people die prematurely from illnesses attributable to household air pollution. The combined effects of ambient air pollution and household air pollution are associated with 6.7 million premature deaths annually ⁽¹⁾. Monitoring air quality has become a real necessity and a public health issue. Leveraging ST's market positioning to accelerate integration, the two companies have integrated Mobile Physics' software and ST's VL53L8 direct time-of-flight (dToF) sensor on Qualcomm's Snapdragon 8 Gen 3 smartphone platform. As showcased at the Qualcomm Snapdragon Summit 2023, this project creates the world's first smartphone with always-on air-quality sensing and smoke detection.

"Personal environment monitoring can give everyone greater control over their own health and safety, using their smartphones. The customer will also have the option to opt in to access wider environmental data covering their local area," said Erez Weinroth, CEO, Mobile Physics. *"ST's direct ToF sensors enabled us to deliver a solution with accuracy close to that of high-end dedicated environment monitors but at lower cost and in a smaller package."*

"The team at Mobile Physics has made ingenious use of the data from our dToF sensor to produce this groundbreaking yet economical and elegant environment monitor," said Alex Balmefrezol, General Manager, Imaging Sub-Group at STMicroelectronics. *"We are delighted to enable this new, wellness-enhancing feature that complements the established ToF use cases providing even more value to our customers."*

The air-quality sensing solution developed with ST is included in Mobile Physics' EnviroMeter Software Development Kit (SDK), which also provides data on temperature, wind, precipitation, humidity, light-intensity, UV, and noise-level monitoring. Sensing can detect particles smaller than 2.5 micron and thus empower users to protect their health. The solution does not require any additional equipment; a standard dToF sensor and the Mobile Physics software is all that is needed. To learn more about this solution, come to the ST booth (7A61) at Mobile World Congress 2024 where we will showcase the air-quality monitoring demonstration.

Technical Notes to Editors:

The VL53L8 is used in diverse electronic products including smart speakers, projectors, laptops, robots and home appliances, and door-entry systems, as well as IoT devices such as occupancy sensors. Any of these products can now deliver extra value by providing air-quality indication and fire protection with no extra hardware components required. The sensor's small size, measuring just 6.4mm x 3.0mm x 1.75mm, eases integration anywhere a small form factor is required.

Engineers can accelerate projects including proximity and presence detectors using the development ecosystem available from ST. This includes the X-Nucleo-53L8A1 development board, the P-Nucleo-53L8A1 evaluation pack that also contains a microcontroller development board, and SATEL-VL53L8 breakout boards. The VL53L8 is in production now. Pricing information and sample requests are available at local ST sales offices.

About STMicroelectronics

At ST, we are over 50,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. As an integrated device manufacturer, we work with more than 200,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of cloud-connected autonomous things. We are committed to achieving our goal to become carbon neutral on scope 1 and 2 and partially scope 3 by 2027. Further information can be found at www.st.com.

About Mobile Physics

Founded in 2019, Mobile Physics is led by a team of 25 engineers and scientists. Its EnviroMeter provides hyper-localized environmental information and real-time environment monitoring to enable users to fully understand their exposure to various conditions and influences so they can make informed health decisions. Mobile Physics' patented proprietary technology can be accessed through any smart devices with no extra hardware and can work offline, both indoors and outdoors.

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