

Social Distancing with Extreme Precision:

Lopos SafeDistance
Uses Ultra-Wideband
to Protect Workers
from COVID-19





A Worldwide Problem with a Unique Technical Solution

In every environment around the world where people work, shop, learn, and congregate, the concern this year is the same: how to help people go where they need to go and do what they need to do without exposing each other to viral transmission of COVID-19. In classrooms, manufacturing floors, shopping centers, and more, there are many strategies that governments and property owners employ to try and minimize viral spread. These strategies are multifaceted, using multiple approaches (face masks, hand sanitizer, limiting building capacity, and more) to help keep people safe in public places.

Almost universally, those strategies include the component of social distancing. The practice of discouraging close proximity between people has

shown a strong impact on reducing community spread of airborne diseases. By encouraging a consistent safe distance, there is a lower likelihood of virus transmission via droplets in the air and better health outcomes overall.

However, this relies on people being consistently mindful and deliberate about keeping that distance. Social distancing as a group behavior is vulnerable to human error, especially in busy environments such as manufacturing or bustling stock floors. In these environments or situations, people often make errors in judgment, coming too close to others and exposing themselves to potential danger.

This human error is hard to avoid on a consistent basis. But solutions to this problem, as is often the case, live in the IoT. [Lopos](#), a technology start-up based in Ghent, Belgium, had ambitions to provide the best possible solution to this problem by leveraging their expertise in ultra-wideband technology.

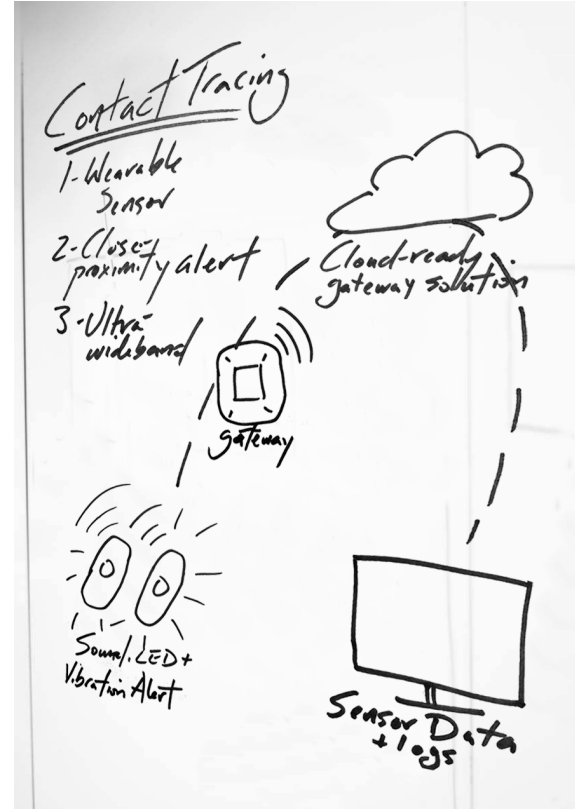
The Problem: A Need for Consistent, Accurate, Cloud- Based Monitoring

Established in the Imec business acceleration program, Lopos collaborated within IDLab, the joint research center of Imec, Ghent University, and the University of Antwerp. Their research centered around the use of ultra-wideband technology which is a safe, accurate, innovative approach to many location-based problems such as asset management, product localization, access control, and collision avoidance. When COVID-19 began spreading across the world, Lopos recognized the potential for ultra-wideband devices to help overcome human error and to provide a reliable social distancing solution.

Their goal was to integrate ultra-wideband technology into a wearable sensor that alerts people when they are in close proximity to another person. Ultra-wideband technology proved to be a uniquely-suited solution due to its high degree of accuracy. Compared to other technologies which may only be accurate to a few meters, ultra-wideband technology provides accuracy to less than 15 centimeters.

Lopos realized this vision in the development of their [SafeDistance wearable](#) device, with severable wearable mounts and configurable parameters. The SafeDistance sensor provides highly accurate proximity tracking and multiple alerts including sound, LED, and vibration. It is also GDPR-compliant in that it tracks no personal data or actual location. This makes it easy to adopt and easy to use.

“Using the IG60-BL654-LTE and Laird Connectivity’s support, we were able to go to a robust solution in a matter of weeks.”



What was missing was how to capture that alert data and route it to the cloud. This missing piece would enable the key component of a next-gen social distance monitoring system: up-to-date cloud logging of non-compliances (events where two users cross the safe distance threshold and trigger an alert). This is critical if a user gets sick – the cloud log of interactions can help compile a list of who else may have been exposed, enabling them to quarantine and reduce spread of the disease.

Lopos needed a cloud-ready gateway solution that was readily available, easy to integrate, high-performing, and ready to design into popular cloud services. They wanted to tie SafeDistance sensors to an analytics-driven web model that would enable site administrators to utilize this information, logging non-compliances and providing actionable intelligence.

However, cloud solutions require their own expertise. With the urgency inherent in the growing pandemic, Lopos needed a capable, experienced partner to help integrate their device into the IoT. A cloud partner with experience would dramatically accelerate their development to help address this already-present threat with a faster time to market.



The Solution: A Proven Gateway and an Industry- Best Support Team

Lopos selected Laird Connectivity and our established line of IG60-BL654-LTE Wireless IoT Gateways as the ideal hub for their complete [cloud-ready contact tracing solution](#). The IG60-BL654-LTE Gateways provide multiple ways to the cloud – via Wi-Fi, Ethernet, or 4G LTE – for a reliable connection to the cloud server. The onboard Nordic nRF52840 Bluetooth 5 connection provides a means for the Lopos SafeDistance sensor to send logged data from sensors to the gateway, so that it can be routed up to the cloud. The gateway's connectivity is housed internally within a ruggedized IP67-rated enclosure, eliminating the need for external connectors or dongles.

The IG60-BL654-LTE is available pre-loaded with AWS IoT Greengrass, Amazon's IoT-focused platform for bringing local computing, messaging, data management, sync, and more to edge devices like the IG60. This means the gateway can locally run AWS Lambda functions that take in data from Lopos SafeDistance sensors and

perform local data processing before sending on necessary data to AWS. The IG60 captures and logs sensor data continuously even in the event of an internet outage. It then syncs it to the cloud when connection is restored, eliminating concerns over lost data. It's a reliable, lower-cost, rugged platform for sensor operations that gave Lopos a truly rapid and responsive development cycle.

They also found in Laird Connectivity a true wireless partner, going beyond the simple role of hardware provider to help develop, test, and deploy this solution in record time. Laird Connectivity's worldwide support and field applications engineering team was able to lend expertise and experience to Lopos' solution and simplify their design efforts. Laird Connectivity's depth of experience in developing for AWS IoT Greengrass led to a rapid and highly functional cloud management solution for monitoring and analytics on Lopos SafeDistance data.

The end result was a reliable gateway, a capable cloud deployment, and simplified device provisioning ready for drop-in applications in all kinds of environments. The urgency of a rapidly spreading disease was met with a field-ready, easy-to-deploy gateway solution that Lopos was readily able to integrate with their SafeDistance sensors,

About Laird Connectivity:

Laird Connectivity simplifies the enablement of wireless technologies with market-leading wireless modules and antennas, integrated sensor and gateway platforms, and customer-specific wireless solutions. Our best-in-class support and comprehensive engineering services help reduce risk and improve time-to-market. When you need unmatched wireless performance to connect electronics with security and confidence, Laird Connectivity delivers — no matter what.

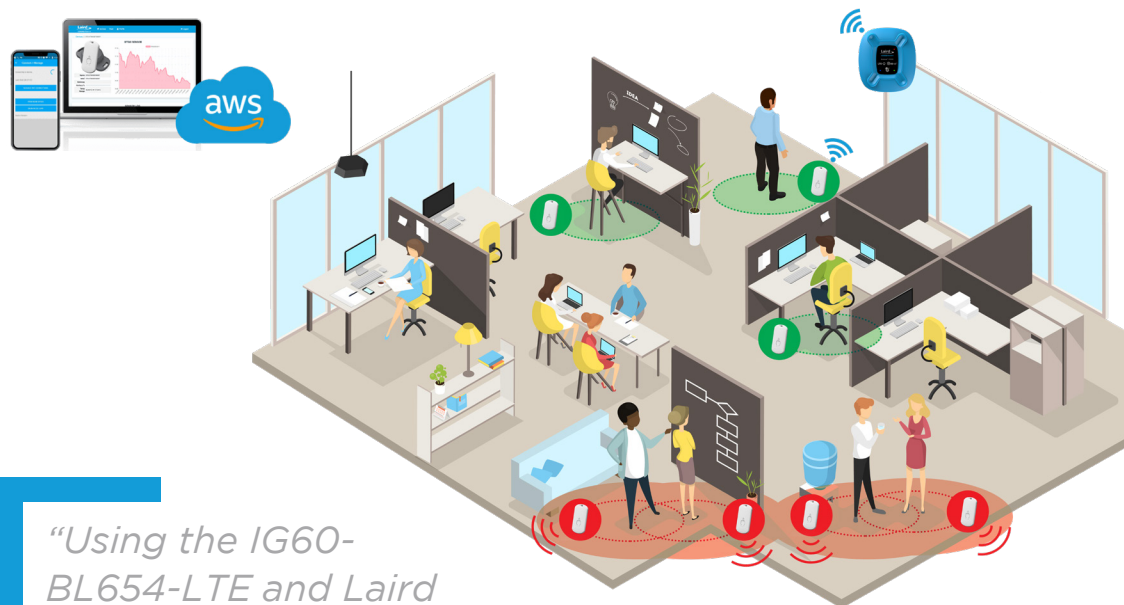
For the latest news or more information, visit:

Lairdconnect.com

twitter.com/lairdconnect

facebook.com/lairdconnectivity

linkedin.com/company/lairdconnectivity



“Using the IG60-BL654-LTE and Laird Connectivity’s support, we were able to go to a robust solution in a matter of weeks.”

saving months of development time. “Communication and support have been fast and helpful,” says Jen Rossey, CEO of Lopos. “Using the IG60-BL654-LTE and Laird Connectivity’s support, we were able to go to a robust solution in a matter of weeks.”

The Results: Reliable Social Distance Monitoring for Every Environment

The Lopos SafeDistance wearable sensor and cloud contact tracing system is easy to install and use anywhere – indoor and outdoor, over Wi-Fi, Ethernet, or 4G LTE. The gateway covers as much as 20 meters in any direction, meaning whole facilities can be covered with just a few strategically placed gateways. The cloud application ties device serial numbers to specific wearers without logging personal information or specific location, tracking exposure information without compromising privacy or GDPR compliance. All of this makes

for responsive environments, safer employees, and a wealth of analytics and statistics data to enable decision-making that improves health outcomes for everyone.

The Lopos SafeDistance system is highly configurable via Lopos’ free smartphone application, allowing site administrators to configure parameters such as distance threshold, alert types, whether the device can be turned on or off by the user (off by default), and more. The SafeDistance sensor lasts up to five days on a single battery charge and takes measurements every 1.5 seconds by default, ensuring up-to-the-moment accuracy and alerts to protect users. And, with its unique ultra-wideband approach, it achieves superior accuracy in the process.

They’re the smart distancing platform of choice for partners like TTM Technologies, Heineken, EDF, Toyota, Maersk, and more. [Their trial kit is available by request](#), which includes 3x SafeDistance wearable sensors, 3x chargers, 3x lanyards and/or belt clips. The optional contact tracing service is available as well, which includes the cloud application and the IoT-Ready gateway.

Visit Lopos’ website to learn more about the [Lopos SafeDistance Sensor](#) and [Contact Tracing Functionality](#), as well as to [request a trial kit](#).

See our website to learn about our [IoT Devices](#).