FIBERSONICS INC.
NOVEL FIBER OPTICS TECHNOLOGY FOR CRITICAL INFRASTRUCTURE SECURITY

Edward Tapanes,
Co-Founder, Co-CEO, and President
Fiber optics technology has become synonymous with robust, high-speed connectivity today, as these glass-cored bundles of wires can transfer humongous volumes of data at lightning speeds across vast distances. Factors such as low post-installation maintenance, near-zero-power consumption for operation, low cost of deployment, and high signal quality retention have enabled the technology to be used in a number of applications where high-speed signal transfer is a necessity. However, a lesser recognized feature of fiber optic cables is their inherent sensitivity to physical impacts and subtle vibrations. This brings in the possibility of these cables being used as one-of-a-kind sensors, which in turn makes it an ideal tool for command and control operations.

Edward Tapanes, the co-founder, co-CEO, and President of Fibersonics, is a veteran who has in-depth knowledge about the practical applications of fiber optics technology in different fields. For over 30 years, Tapanes pioneered the development and installation of fiber optics technologies for critical infrastructure security and monitoring. Drawing on his rich industry experience and relentless R&D efforts toward distributed fiber optics sensing products and solutions, Fibersonics aims to redefine the approach to how companies monitor and secure critical infrastructures such as pipelines, airports, and remote power, oil and gas plants.

A NOVEL FIBER OPTIC DISTRIBUTED VIBRATION SENSOR (DVS)

Monitoring infrastructure spread across vast stretches of land has always been a cumbersome task for companies. Even well-scheduled human inspections that employ drones or helicopters is far from delivering a 24/7 security assurance. “Using conventional technologies to monitor such structures and premises is impractical as most sensors work at a single point. For example, if you need to monitor a very long pipeline or a large perimeter, you would require many hundreds or even thousands of sensors along those structures, and it becomes cost prohibitive and complex to manage,” mentions Tapanes. With its patented Long Ranger™ Distributed Vibration Sensor technology, Fibersonics is capable of repurposing any fiber optic cable into a sound and vibration sensor that can precisely detect movement, vibrations and sound anywhere along its length in real-time.
Because of our unique business model, and the fact that we focus hard on making our local sales partners experts in the technology, ‘technology-enabled’ modes of training are very important. Tapanes. He placed his bet on partnering with regional systems integrators across the globe, and the rest, as they say, is history.

The Long Ranger technology today secures all kinds of infrastructure—such as pipelines, border security, HV power lines, and perimeters of airports, solar farms, and refineries—across the U.S., Canada, Peru, Mexico, Switzerland, Belgium, Denmark, Turkey, Eastern Europe, China, South-East Asia and the Middle East.

While strategic partners are entrusted with the marketing, sales, and customer relationship aspects, Fibersonics’ core team takes care of the comprehensive training and quality assurance. Fibersonics also outsources the manufacturing of Long Ranger components, which enables them to focus deeper on final assembly, testing, and shipping. “We have a dedicated team of people to train our partners, who, at the end of the day, are like our customers. Beyond delivering intensive training, we work closely with them and pay keen attention to support. If any of our partners around the globe raise an issue, we typically respond within an hour. We can access all installed systems remotely and respond and fix problems very quickly,” affirms Tapanes.

In effect, the business model’s sleekness helps Fibersonics stay agile and unlock quick, scalable geographic expansions while being in the best interests of both sales integrators and critical infrastructure entities. It also allows Tapanes to focus on the R&D, production, installation, and support aspects of the business, wherein he gets to adequately exercise and impart his rich experience in the fiber optics market.

BUILT AND DRIVEN BY EXPERIENCE

Fibersonics is working to augment their signal detection algorithms with AI and deep learning capabilities to deliver better inferential detections and alarms. Every inch of the optical fiber cables collects vibration data that is analysis worthy (example: occurrence pattern recognition), which could ultimately help achieve a proactive security and monitoring system. Once the detections, the cables can scale to cover longer, bigger structures. Also, AI-enabled detections can increase the trust that operators have in the monitoring equipment.

In parallel to these developments, Fibersonics is also exploring methodologies to offer training solutions to its partners. “Because of our unique business model, and the fact that we focus hard on making our local sales partners experts in the technology, ‘technology-enabled’ modes of training are very important,” concludes Tapanes.
10 Sensor Technology Solution Providers - 2019

Sensors are gaining traction across countless applications as we move to an increasingly connected world. Today, smart factories, smart cities, smart buildings, and connected individuals are using an array of smart sensors to gather real-time data for real-time insights and decision-making. Many of these applications require multiple sensors in a small footprint without performance degradation – and often with very low power requirements. Besides, with the trend towards digitization, multi-sensor integration is directly related to IoT proliferation and the expectation that everything is connected. In extremely small packages, the need to capture and the expectation that everything is connected.

Enterprise Technology Review has compiled a list of top 10 sensor technology solution providers to guide organizational leaders in harnessing the power of the technology to tackle today’s business challenges, reduce workload, and increase efficiencies. We present to you Enterprise Technology Review’s “Top 10 Sensor Technology Solution Providers - 2019.”

Company: Fibersonics Inc.

Description: Provides a novel Long Ranger™ solution that leverages fiber optics technology for critical infrastructure security and monitoring.

Key Person: Edward Tapanes, Co-Founder, Co-CEO, and President

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Breathing Life into Tech With Sensors

Electronic consumer goods that do not leverage sensor technologies are hard to come by today. Sensor technologies have enhanced home automation devices by simplifying day-to-day tasks, to the extent of amalgamating voice commands and gesture controls into daily appliances. The market for sensors is expanding further as MEMS (Micro-Electro-Mechanical Systems) become more affordable and miniaturized. The quality, reliability, and economic efficiency of industrial products can be embellished by developing new sensors which provide promising technical solutions. The development of new sensors is an interdisciplinary process today, involving an integrated design process from technical aspects to the very design of the device for which the sensor is to be developed.

With the advent of strong nanomaterials, the integration of sensors into Internet of Things (IoT) devices has become a less cumbersome process. These nanomaterials are also very resilient in nature as sensors monitoring temperature, fluids, gases, vibration, light, and sound have been steadfast despite facing harsh conditions. The versatility of IoT sensors is another feature that allows us to make use of this technology across multiple industries, making it ubiquitous. By increasing demand for internet usage, IoT sensors have also pushed network providers to develop high-speed networks at low bandwidths.

Cashing in on the decline in production costs for sensors, new and emerging sensor manufacturers have taken the competition to existing ones. Cheaper sensors facilitate more features to be packed into IoT sensors, thereby improving the quality of big data that comes out of the system for analysis. Increased competition among sensor developers will pave the way for more significant innovation. In this edition of Enterprise Technology Review, we have shortlisted some of the most promising sensor technology solution providers, to help companies navigate through the rapidly growing and varied landscape of sensor technology, and chose the aptest and fitting products.

Do let us know your thoughts.

Rachel Smith
Managing Editor