INTEGRATED FIBER SENSING

Photonic Sensing Solutions

Positive Impact

Effective and efficient and smart sensing

Problem

Sensors have an enormous presence in all sectors. While new technologies are being developed, new sensing capabilities allow companies to produce, monitor, maintain, secure, and provide care more effective and efficient. Photonic sensing is becoming more and more available and new applications and markets are discovered that can benefit from the highly accurate sensing capabilities.

Call to Action !!!

We are looking for enthusiastic co-founders to pick up the opportunity and start their entrepreneurial journey with this technology. Specifically, mechatronics, optics, and application engineers and business developers.

If you are interested, please reach out to entrepreneur@hightechxl.com

Initial Validation

PhotonFirst has been developing photonic chips for sensing for over a decade. In their continuous development, the interrogator system is actively in use in different markets with remarkable results. Based on these interactions, the interrogator is constantly improving.

Solution

Optical fiber systems can measure strain and temperature and derivations from these measurands, such as vibration, shape, acceleration and pressure. The interrogator, that connects and measures the sensors, enables the use of one single fiber carrying hundreds of sensors. This single fiber can then be deployed more efficiently than traditional multi cable sensors. In addition, the advantage of using integrated photonics is that multiple electronic components normally required to build an interrogator can be combined on a photonic chip.

Technology

- → Very accurate measurements
- → Large number of sensors, thousands of
- → sensors per interrogator
- → These sensors can be applied to various
- → measurands, e.g., temperature and strain.
- → Sensors can be read over long distances,
- → e.g., 5 or 10 km.
- → The sensors are chemically inert and nonconductive immune to EMI
- → The interrogator can be developed to be
- → very small and low power

Potential Markets

There are several potential markets where this problem is an issue.

- → Battery monitoring
- → Structural health monitoring of critical
- → infrastructure
- → Interferometric encoding
- → Shape sensing
- → Harsh environment sensing
- → Steel cabling strength monitoring
- → And many more!

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