

Development of the World's First Integrated SMART Cable Sensor System for Natural Disaster Monitoring and Critical Infrastructure Resiliency

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Abstract

We have developed a new technology that will revolutionize the utility of new subsea telecommunication cables, which transmit over 95% of all international Internet traffic and \$10+B financial transactions daily.

The goal is to grow a global subsea network capable of monitoring earthquakes, tsunamis, and global climate change, while simultaneously improving critical infrastructure stability and national security.

Integrating environmental sensors, including seismic, pressure, temperature, and eventually other sensors, will enable real-time data collection for environmental and infrastructure threat reduction, natural disaster mitigation, and cable system monitoring. The technology, known as SMART (Science Monitoring And Reliable Telecommunications) Cables, has been discussed academically since 2012, but the first SMART Cable projects are only now under development in Portugal and Oceania with substantial government funding. The growth of SMART as an industry and technology will require significant effort from a range of technology providers.

In this presentation, I will present our latest R&D efforts to produce the world's first universal SMART sensor system. Our low-power, small form factor design can be used in large-scale transoceanic and regional-scale projects that require significant power to amplify all cable data, as well as in smaller-scale (e.g., inter-island) projects that require less power and no amplification. We are hyper-focused on producing systems that enable access to the broadest range of society, particularly for lower GDP regions that are most vulnerable to many natural disasters and have the least access to communications bandwidth.