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WirelessBlast

PATENTS 4 PATENTS

A radio communication protocol as reliable as a wired line for the mining industry

What is WirelessBlast?

The mining industry uses wired technology for blasting operations, which means deploying cables over several kilometers to connect thousands of detonators.

To replace these cables, CEA developed a patented radio communication protocol in collaboration with Davey Bickford. It guarantees the same level of reliability and precision for the synchronization of detonator firing.
Its characteristics include:

- Long-range bidirectional communication at UHF (868/915 MHz)
- Optimized reliability on a specific test bench
- Compliant with American (FCC) and European (ETSI) radio regulations

Within the framework of this partnership, specific radio modules with standard components were also developed to meet constraints in terms of cost, consumption and radio performance.

Applications

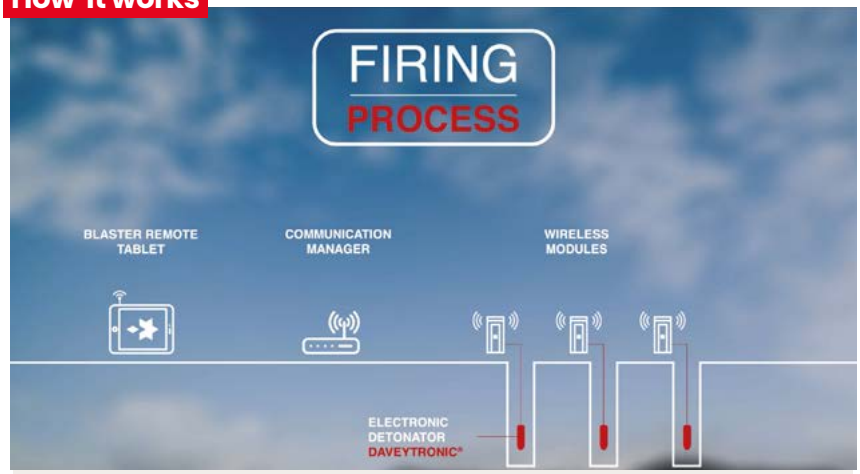
All types of harsh environments requiring very high performance in terms of communication (reliability, synchronization) and/or frequent reconfigurations:

- Mines and quarries
- Industrial sites with critical processes requiring real-time monitoring
- Industrial sites with a strong metallic environment or already equipped with several radio systems
- Interconnection of audio or video equipment with very low latency

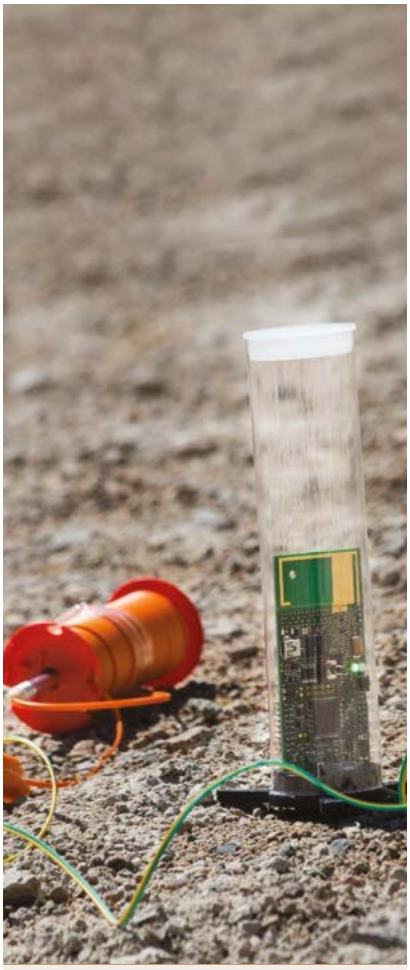
What's new?

- Two-way wireless connectivity, as robust as wired solutions when operating in harsh environments
- Micro-second response time for perfect detonation synchronization
- A protocol that allows for self-configuration and network supervision
- A highly reliable protocol, approved for mining environments with several thousand connected and synchronized detonators
- Radio modules based on off-the-shelf components

How it works



▲ *Reliable and secure process for detonator activation thanks to wireless modules that can be controlled from a distance using a tablet interface*



What's next?

The technology has reached industrial maturity and was transferred to Davey Bickford for commercialization.

A similar protocol can be deployed within 24 months for any type of critical industrial application as a replacement for wired technology or another existing communication solution to provide advanced quality of service.

The radio modules and circuit board are based on standard components and can be replaced by a dedicated ASIC to optimize power consumption and reduce costs for high volume needs.

Interested in this technology?

Contact:
Philippe Despesse
philippe.despesse@cea.fr
+33 438 785 842

CEA-Leti, technology research institute
17 avenue des Martyrs, 38054 Grenoble Cedex 9, France
cea-leti.com

@CEA-Leti

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