Partnership for Success
Concurrent Technologies Corporation (CTC) provides technology management and systems integration during a time of sweeping technological advancements. CTC has significant experience and demonstrated processes to successfully transition maturing technologies from the lab to actual use—solving problems with innovative technologies. As Research & Development (R&D) resources for Communication and Tracking System for Mining and Underground Operations become harder to capture, it is vital that research programs demonstrate an ability to produce tangible results that solve problems. This translates into the need for successful technology transfer programs, which CTC is a leader in this growing field.

"Continuous development and deployment of mine rescue equipment and technology are crucial to enhancing the effectiveness of mine rescue operations and improving miners' survivability in the event of a mine emergency."

– MSHA Jan 06, RFI applications.

Supporting these joint application and product development partnerships, Time Domain also offers a variety of engineering services. Time Domain’s world-leading team of UWB engineers can help solve radio frequency, antenna, software, and firmware design problems.

Technology Solutions for Mine Safety
Real-time communications and monitoring of both the conditions of the mine and the location of the miners and equipment are needed to provide rapid and effective rescue responses to catastrophic events such as machinery accidents or cave-ins.

UWB is an extremely low-power communication and location technology utilizing pulsed ultra-wide and radio-frequency energy spanning 3.1 – 5.5 GHz. This technology is a self-configuring, self-healing, node-based system operating as a hand-held active radio frequency tracking tag. It can be used in several ways such as providing robust communications, or very precise location by monitoring pulse transmission or Time-Of-Arrival (TOA) delay times.
Innovation Aspects
The true power of this technology stems from its advantages for robust communications, precision tracking, and sensitive motion detection. UWB networks offer the ability to link to more conventional, lower cost communications technology to produce an effective, distributed sensor and communication network, thus producing a scaleable and flexible communication technology.

Foundation for Success
CTC proposes to develop, in conjunction with Time Domain, a communication and tracking system based upon Time Domain P210 UWB radio technology. CTC, a system integrator with experience in real-time mapping software and communications, will design, fabricate, and validate an underground communication and positioning system. Elements of this system will include Time Domain’s P210 radios, Personal Computer (PC) based interface, hand-held communication devices, and integrated mapping and management software. As an initial starting point for this development, CTC has demonstrated with Time Domain, a proof-of-concept UWB communication system at an operational underground mining facility.

For more information on CTC’s Communication and Tracking System for Mining and Underground Operations solution contact:

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