

REAL-TIME TRACKING WITHOUT THE NEED FOR A FIXED INFRASTRUCTURE

Omnisense's mesh networking devices know each other's position



Miners in high-risk situations are just one of the industries set to benefit from Omnisense's latest technology. Its Series 400 tagging devices could help improve safety below ground by allowing the positioning and tracking of miners and equipment in real time. Their wireless sensor network system provides a unique geolocation capability by using small lightweight tags that determine their position relative to each other. The system is accurate to 3 m and has the major benefit that no permanent or pre-installed infrastructure is required.

Andy Thurman, Omnisense's Chief Operating Officer, sees a broad range of applications and envisages the technology being used to save lives. "Each year hundreds of miners are injured or killed around the world in mine accidents. They can be trapped by a combination of collapse, flood and escaped gases, or injured in accidents with vehicles and equipment. It is often costly and impractical to install fixed infrastructure location systems when the mine is continuously changing, and the performance of these infrastructures varies over time in mine environments. Series 400 doesn't need an expensive infrastructure to cover the whole area.



“Tagging both miners and vehicles allows operators to know where they are relative to each other, preventing accidents and reducing fatalities, and allowing them to be found after an accident. Moreover, the introduction of a system that can provide reliable distance ranging capability will enable mines to safely operate at increased capacity, with direct economic benefits.”

The people or objects to be monitored are provided with small tags, and one or more Link Units (slightly larger tags with a network interface) are used to feed information to a software hub. The network of tags provides information on position, velocity and orientation, and can also carry a useful payload of sensor data.

Above the ground, incorporating GPS into just a small number of the devices allows the network to provide information not just about the relative location of the tags but also their absolute positions. The range of tags available makes the system flexible enough to meet the different needs of varying industries.

Fire-fighting is another situation where traditional tagging devices based on a fixed network are not appropriate; each fire is in a different location and must be dealt with instantly. A key feature of the Series 400 system is seamless communication between tags indoors and outdoors, so the location of tagged fire-fighters in a burning building can be detected by support crews outside. Tags can be attached to helmets to ensure that they are never forgotten.

Efficiency and the quality of care in the healthcare industry can also be improved by this technology, which enables healthcare professionals who use the easily-installed Series 400 system to monitor location and movement of post-operative patients and dementia sufferers in their own homes or in care homes. This is a better experience for patients, and frees up high-cost and scarce resources.

Other uses of Omnisense’s technology include tracking people and assets for defence and security purposes, and locating assets in airports and across transport hubs in the logistics industry. In these situations the benefits of complete flexibility of deployment and low cost are highly attractive.



The Series 400 devices build on the success of the Series 200 system that was developed for TurfTrax, which tracks the location of race horses in real time. Series 200 has been in use for 5 years and demonstrates high levels of accuracy and resilience.

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