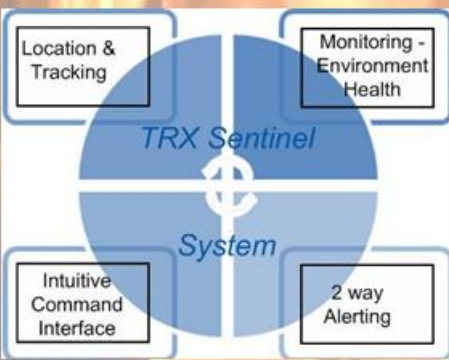




Center for Fire Safety Research and Development

An average of 95 firefighters have been lost every year over the past decade. Some of these deaths could have been prevented if only the firefighter's condition and exact position were known. The seconds saved in locating and rescuing a downed firefighter could mean the difference between life and death.

The TRX Sentinel System™ is a portable solution for Incident Commanders, Fire Chiefs, and Fire Fighters. It provides real-time data on deployed firefighter location, health and equipment status, and the environmental conditions inside the burning structure. The TRX Sentinel is rugged and scalable



Benefits

- Complete tracking and monitoring information with minimal setup time
- Increased situational awareness
- Information on injured firefighters immediately available via 2 way alarming feature
- Accurate positioning information decreases rescue time and increases firefighter safety

Sentinel™ Tracking Beacon



- Small ruggedized unit measures 3-D location, movement and health status
- Relays information to incident command
- Each unit is a repeater and extends systems coverage.

Sentinel™ Command Station



Alarms	Indicators
Freefall	Standing
Impact	Crawling
No motion	Stopped
On back	

- Information organized by team
- Outdoor and indoor views – floor level automatically tracked
- Automatic and manual 2 way alarming
- No antenna setup – deploys rapidly during emergencies
- Allows incident replay for training and lessons learned.



Tracking Unit testing to NFPA 1800 in progress

Location Technology

Our objective is to create a small, low cost, low power system for tracking with the following attributes:

- **Usability** – the system should require minimal training, i.e., the system design will have a one-button (power-on) initialization which will provide automatic configuration.
- **Transparency** – the system should be small and light weight; it will transition seamlessly to inertial tracking when GPS data is not available.
- **Compatibility** – the system should be easily integrated into with other communications and location systems.
- **Affordability** – the system should be affordable.

*The Sentinel can track users inside and outside buildings
correctly indicating floor*

System Test Results

In the figures to the right we show the track of an firefighter moving in a small office building along hallways, up and down stairs (blue arrow on left), and inside rooms (upper center left). Note that the Sentinel System is able to locate the firefighter moving within a room, and monitor the movements as the firefighter “zig-zags” along a corridor, checking each door. The corridor is about 6 feet wide, and so the system locates the user to within about 2 feet in the corridor. The firefighter’s orientation is shown by the direction of the arrow. The system automatically recognizes the floor change and switches to the first floor map.



Beta Test

Beta testing will be completed 3rd and 4th quarter 2008. Expected commercial availability 2009.

Sentinel development supported in part by DHS/TSWG, Center for Firefighter Safety Research and Development, Maryland Technology Transfer Fund and the National Science Foundation. TRX is a Maryland Technology Enterprise (MTECH) TAP company.