TWR
Through Wall Radar

Looking through a wall, or at least knowing what’s behind it and what one can expect without having to enter a room, is certainly a major advantage for any soldier engaged in urban warfare.

Civil protection, firefighters, police and many others, may find it useful to know where to concentrate efforts when somebody’s life depends on intervention time.

TWR is an innovative solution to see inside buildings in emergency and life-threatening situations. The new hand-held system provides immediate detection and continuous tracking of humans behind concrete walls as well as life signs detection.

Knowing what’s behind...
Based on the new “through-the-wall radar” technology, TWR allows the user to see through obstacles such as walls, doors, fences and other visually opaque structures, and covers a broad range of applications:

- to detect and locate survivors trapped inside a burning building.
- to get an accurate overview of the inside of a building e.g. in a hostage crisis.
- to identify the location of targets in an assault situation.

In all these scenarios which can require entering unsafe buildings, intervention can represent a danger for firefighters, emergency relief workers and public security operators. Through-the-wall technology can improve situational awareness and reduce risks before undertaking an intervention inside a structure. To this aim IDS Ingegneria Dei Sistemi S.p.A. has developed an advanced solution able to meet these requirements.

**THE SOLUTION**

Based on a consolidated expertise with radar technology, the prototype is able to dramatically increase situational awareness by:

- detecting vital signs
- tracking people’s movement inside buildings

**Life Signs Detection**

This function allows the detection of life signs and/or breathing in a through-the-wall context, in particular revealing motionless people in real-time. The detection of still people is performed by illuminating the investigated area with an electromagnetic signal and exploiting the phase-modulation induced from the breastbone movement.

**Advanced Tracking**

The system allows the user to locate and track humans inside the area of interest, both in free space and in a through-the-wall condition.

**TECHNICAL CHARACTERISTICS**

- Up to 15 m detection range (depending on wall type)
- 2D color display
- Bandwidth 1.950 – 2.450 GHz
- Resolution 30 cm
- Carbon & glass fiber materials
- Size 60x32x12cm
- Weight 5kg
- Output power 14 dBm
- Wireless connection