RAFAEL
ADVANCED DEFENSE SYSTEMS LTD.

LAND

FOOTPRINT™

Boot-Mounted Navigation for Soldiers in GPS-Denied and Low-Signal Areas

Reliable, Real-Time Self-Location for Dismounted Troops

FOOTPRINT is a navigation system designed for dismounted soldiers that enables highly accurate, fully reliable, and continuous real-time self-positioning information in GPS-denied environments – and in areas with limited or no GPS reception.

Fusing the data from multiple sensors, the system operates indoors or outdoors, and in any terrain, and provides precise Real-Time positioning with accuracy within a 2% margin of error.

Benefits

- Tested and selected by the IDF
- Suitable for any areas without GPS due to jamming, poor reception, or obstructions
- Easily integrates with soldier's existing devices (tablet/smartphone)
- Military-grade, built for extreme weather & rough terrain
- Undetectable by opposing forces
- Low power consumption; 12+ hours of operation
- Small and lightweight
- Enables easy sharing of soldiers' positions
- Customizable; boot-mounted integration

Advanced Technologies Enable Precise, Accurate Positioning

FOOTPRINT is unlike other navigation systems designed for self-positioning, which are based on step-counting and are therefore imprecise and consequently, unsuitable for soldiers. Instead, FOOTPRINT's smart motion algorithms detect exact movements, analyze the soldier's inertial movements and their characteristics – including walking, running, crawling, etc. – estimate sensor errors, and calculate geophysical and other aspects of the surroundings.

FOOTPRINT incorporates multiple sensor types including IMUs, magnetometers, barometers, and others. A sophisticated data fusion algorithm takes the information from all sensors and provides an accurate and reliable location. The solution is based on open architecture and thus can be easily integrated with the customer's C2 and radio systems – enabling the sharing of soldiers' locations with other forces and headquarters.

The FOOTPRINT system is completely passive (non-radiant) and resistant to surrounding influences such as jamming, other devices in the vicinity, etc. Compact and lightweight, it is mounted on the soldier's boot.

FOOTPRINT has been tested by the IDF in a wide variety of combat scenarios in which it delivered the highest accuracy for a product of its type.

Main Capabilities

- Analyzes a variety of movements including walking, running, crawling, crouching, etc.
- Fuses data from multiple sensors to provide accurate positioning
- Unique advanced magnetic disturbance algorithm to find azimuth
- Smart motion algorithms
- Real-time, indoor/outdoor self-location
- High positioning (within 2% margin of error)
- Passive system with no emissions; untraceable
- Integrates with any C2 or radio system

Feature	Footprint	Vision based	Radio based
Immunity to jamming	Yes	Yes	Sensitive
Sensitivity to multipath (indoor/urban)	No	No	Sensitive
Indoor navigation	Yes	Yes	None
Passive/Active	Passive	Passive	Active
Dependence on mapping	No	Partial	No
Dependence on external devices	No	No	Yes

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