



LOCAL POSITIONING & TRACKING SYSTEM

PERSONNEL TRACKING AND ROBOTIC NAVIGATION

iTrack



The Local Positioning & Tracking System (LPTS) allows the user to rapidly setup an ad-hoc accurate position tracking system in an environment where GPS is unavailable or unreliable. The LPTS provides solutions for personnel tracking and for autonomous robotic localization/navigation.

Features:

- ◆ Complete stand-alone position tracking system without the need for GPS input.
- ◆ Full self-configuration in less than 5 seconds
- ◆ Infinite scalability
- ◆ Positioning off other moving targets
- ◆ 2D and 3D tracking capability
- ◆ Minimum of 2 beacons in range for 2D tracking
- ◆ Easy-to-use graphical user interface
- ◆ Personnel tracking and autonomous robotic navigation with one single system
- ◆ Can augment existing positioning systems. E.g. which use GPS or Laser.

The iTrack Local Positioning Tracking System (LPTS) provides the military and a diverse community of commercial users a complete stand alone position tracking solution in environments where GPS is unavailable or unreliable. Additionally, the LPTS can be utilized to augment and significantly improve the operational capability of numerous currently available positioning technologies.

iTrack's LPTS enables users to rapidly construct an ad-hoc local network capable of concurrently providing positioning information for personnel tracking and for the autonomous operation of many types of robotic vehicles. This network is easy to set-up, scalable to almost any size and capable of penetrating foliage and various building materials. Setup requires minimal time for initial installation and has flexibil-

ity in reconfiguring reference beacons.

Personnel Tracking

Our LPTS will allow soldiers, firefighters, law enforcement personnel and a variety of other commercial first responders to be precisely monitored and tracked on a real time basis in environments where GPS is unavailable or unreliable. The positioning and tracking information of all personnel that the LPTS provides is extremely valuable to the command and control operations center as they make critical and potentially live saving decisions.

Autonomous Navigation

The LPTS can be utilized as a localization and navigation system for a variety of autonomous unmanned military and commercial robotic applications. iTrack's LPTS enables the navigation and

control of a variety of military and commercial robotic vehicles that carry out many types of dangerous or mundane tasks where GPS is unavailable or unreliable. These vehicles will not require the constant attention of the user because they will autonomously operate their tasks while allowing the user to perform this undertaking from a safe and remote location. This capability allows the user to perform other activities or be able to concentrate on other potential dangers in the immediate area. The additional cost to affix the iTrack LPTS to most existing robotic vehicles is relatively small. The majority of the hardware required for the LPTS to autonomously control the vehicle is already available on board most military and commercial vehicles.

The Department of Defense, Homeland Security, firefighters, law enforcement personnel and variety of other commercial first responders benefit from the real time tracking and positioning information provided by the iTrack system.



Specifications:

◆ Robotic Module weight	1.5 lbs
◆ Personnel Tracking Module weight	0.25 lbs (ex. Battery)
◆ Beacon weight	5 lbs
◆ Power consumption	1 W
◆ Robotic Module size	5" x 5" x 2.5"
◆ Personnel Tracking size	2.25" x 3.75" x 0.5"
◆ Beacon size	7.25" x 4.75" x 2.25"
◆ Update rate	20 Hz
◆ Horizontal accuracy	± 4"
◆ Vertical accuracy	± 1'
◆ Directional accuracy	± 5 deg
◆ Frequency of Operation	6.1—6.6 GHz
◆ Temperature range	-40—70 °C
◆ Operator Interface	Windows XP or Vista

Benefits:

- ◆ Ability to track first responders in a hostile environment without the need for existing infra-structure or elaborate system setup.
- ◆ Replacement of personnel by autonomous robotic systems for certain tasks that are mundane and repetitive, or that are hazardous.
- ◆ Semi-autonomous operation for tele-operated robots. For example: 1) autonomously bringing a robot to and from a stand-off vehicle checkpoint; 2) autonomously tracking a manually driven trajectory back to the operator location.
- ◆ Situational awareness within the commanding vehicles. I.e. the crew of a Striker vehicle can track precise relative location of dismounted warriors and autonomous robots to the vehicle.

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