Save Lives

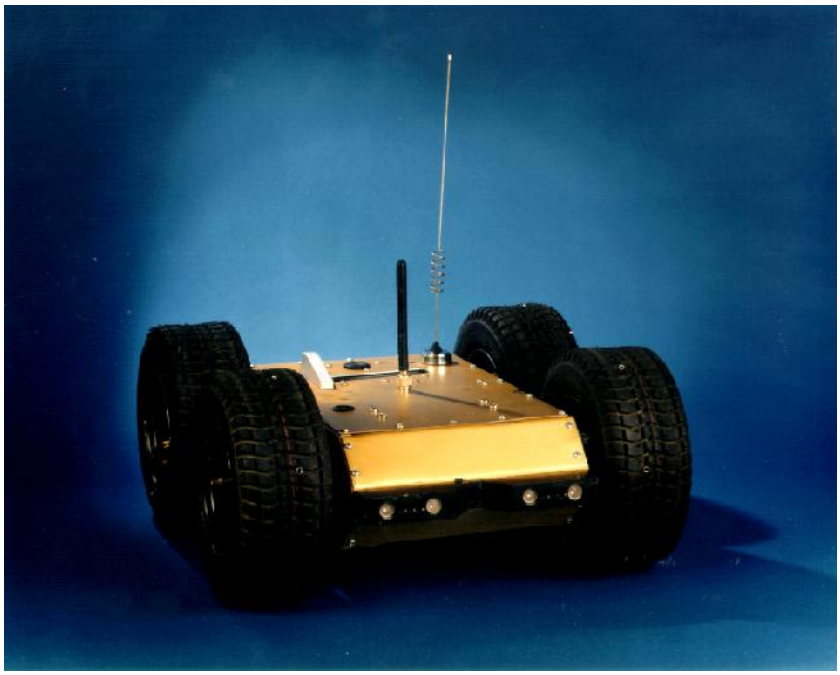
with the

Infiltrator™ Robot

A new tool for the Military and Law Enforcement

For dangerous situations...

- ***Recon***
- ***Delivery***
- ***HazMat***
- ***Bomb***



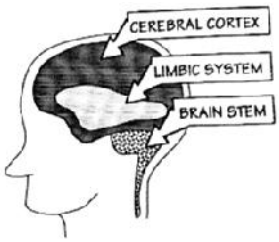
Features...

Real-time Video
Real-time Audio
Real-time Control
Half Mile Range

Simple to Use
Completely Wireless

Angelus Research Corp. 6344 Sugar Pine Circle, Angelus Oaks, California 92305-0098 (909) 794-8325

The Software Architecture is based on the three levels of intelligence found in the human brain



Cerebral Cortex-Physically the outer layer of the brain, which is characterized by the folds just under the skull. Functions include: Decision making, analysis, and dreaming. This is called the Goal Level in the Triune Operating System.

Limbic System-The gray matter found in the center of the brain, controls human behavior such as breathing, hunger, etc. This is called Behavior Level. Real-time decisions are made when simple or complex actions are triggered.

Brain Stem-The base of the brain is connected to the spinal cord and nervous system. This controls our critical responses and instinctive behaviors. It is analogous to the Instinct Level which gives the machine common sense. Motor/sensor fusion allows the machine to instantly react to its environment. The Behavior and Goal levels can alter the Instinct's reaction at any time.

> Consider what happens when a person touches something *hot*. The nerve endings in the skin detects the heat and causes an immediate muscular response (*Instinct Level*). Additionally, a message (pain) is sent to the brains' Limbic System that activates a higher level behavior or set of actions based on *programmed behaviors* or *learned experiences*. This behavior or actions pre-empt the Cerebral Cortex (Goal Level) while the behavior is executing. When the action is finished, the Cerebral Cortex (Goal Level) regains control and continue where it left off or it may decide to change strategies or goals.

Moving-Two independent DC motors provide locomotion using an advanced pulse width modulation motor speed control. Speeds can be controlled from one to one hundred percent in one percent increments.

Touching-Two whiskers on the base section are used for tactile sensors.

Seeing-Four independent optical sensors are mounted on the base using Light Emitting Diodes (LED) and phototransistors pairs. A proprietary narrow beam sonar system is mounted in the panning head section for navigation and long range sensor scans. The sonar can detect object distances to one eight of an inch. A single Visible Red LED sensor located in this section has the capability to see about three to four feet. Three optical sensor arrays are located in the non-moving collar section for additional object detection.

Feeling-A force feedback system is used to monitor wheel load. Force is measured continuously to monitor the surface type or load. It is sensitive enough to determine whether the robot is operating on carpet of hard flooring.

Thinking-The processor in the base section performs real-time collision avoidance while the head processor navigates and scans the environment, simultaneously. The two computers are networked together. This allows them to cooperate in solving the navigation problem.

Learning-The language used for programming the onboard computers is English. No prior programming experience is necessary to create new commands (words) for this robot. However, the very tools used to create this easy to use and powerful language is always available to the user. The user words actually become part of language. The potential for this robot is limited only by the users imagination.

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Specifications

Wireless System

½ mile range, line of site (no obstructions)
1 real-time video camera link
1 RS232 9600 baud computer control link
1 Remote controller using a single two axis joystick for robot control
(optional second 2 axis joystick for arm of video pan/tilt control)

Onboard Computers

One Motorola 68HC11 High Integration microcomputer
with resident operating system and language onboard
32 Kilobytes PROM
32 Kilobytes of battery backed RAM
RS-232 Communication port
One megabit per second network port

Optional second controller as above for head pan/tilt or arm control

Sensors (optional)

Four Optical Sensor channels
Two independent motor drag sensors
Sonar ranging

Physical and Electrical

Size: 14x17x7 inches
Weight 30 pounds

Optional Sonar Subsystem

Range: 20 feet
Distance accuracy: ± .125 inch
Software controlled acoustic power
Sampling rates of 10 per second for 20 foot range
Sampling rates of 20 per second for 10 foot range

Includes:

20 foot communication cable
Charger
Technical manual
Software disk

Price List

Basic Platform $9995

All wheel drive
Articulated in the center for maximum traction (not shown)
Intelligent Controller
Rs-232 Interface 9600 baud (three wire)
7 Amp hour lithium battery
Battery charger
remote control unit

Collision Avoidance Sensor Package $995

Four IR optical sensors arrays
Single channel sonar array

Wireless Options

Dual Video Channel/dual audio channels $3995

Onboard GPS $9995

A dual system utilizing 12 channels of the US Global Positioning System and the Russian Glasnost System with a resolution of 7 meters. Navigation software is currently under development a should be ready by the fourth quarter 1997.

Delivery: 6 weeks

Terms: 50% down when placing order and the balance due on delivery.