



UNITED STATES DEPARTMENT OF DEFENSE

HUMANITARIAN DEMINING R&D PROGRAM

A UXO detection system using a 1.8-m wide Minelab metal detector array with electronic and physical marking capabilities.

Status

The Scout UXO Detection Trailer underwent testing at US test sites in 2010.

The Scout took part in an evaluation of robotic-aided UXO clearing technologies for the Joint Ground Robotics Enterprise in August 2011.

Scout is being prepared for return to the US having recently completed an operational field evaluation with the Mines Advisory Group in Cambodia.

Scout UXO Detection Trailer

The Scout Unexploded Ordnance (UXO) Detection Trailer is a towed system that detects and marks UXO in an overpass mode. Three interchangeable sensor options are available depending on the UXO threat: A Minelab Single Transmit Multiple Receive (STMR) Electro-Magnetic Induction (EMI) array provides high resolution with low clutter rejection; a Geonics EM61 array with low resolution and high clutter rejection, and a 3m wide Ebinger UPEX 740 array for very large areas. The sensor is integrated with differential global positioning system (DGPS) data to mark suspect target locations. The Scout is also equipped with an inertial measurement unit (IMU) to provide centimeter-accurate, real-time mapping of the sensor path.



The trailer houses a dye marking system that provides both target and lane marking, a generator and battery backup on board power supply, GPS, and Wi-Fi radio for data output.

The 680kg trailer can be towed in varied terrain by an adjustable class II ball hitch. The sensor data and mapping information is transmitted real-time to a ruggedized laptop operator control station where the data can be overlaid on satellite imagery, aerial photographs or any geo-rectified user provided maps. The system produces an alarm dig list where each alarm includes a confidence value scaled from 0-1 and a set of GPS coordinates.

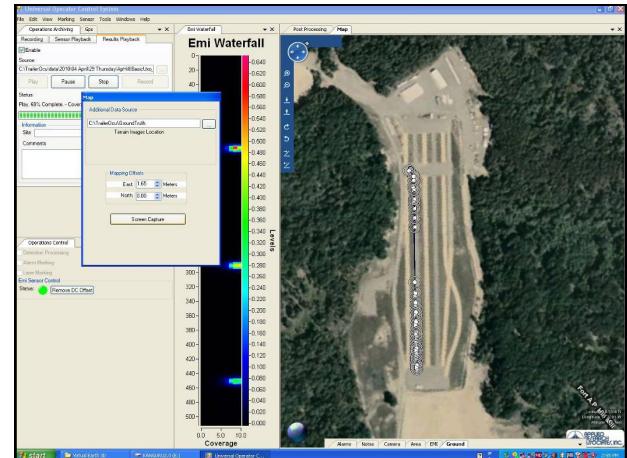
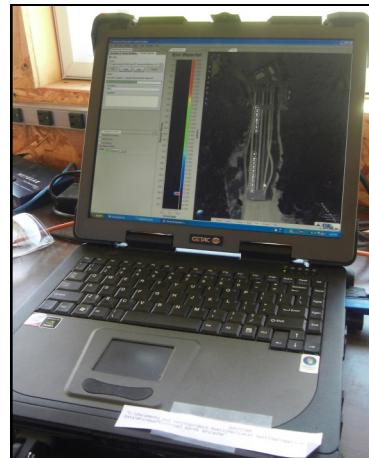
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DEMINING TECH
MINE CLEARANCE & AREA PREP

FEATURES

- Self-contained trailer with ball hitch for towing
- Ruggedized operator control station
- Real time mapping and marking of target locations and vehicle path
- DGPS/IMU provides 2-cm accurate position data
- GUI-based data processing to generate ‘dig sheets’
- Real-time graphical display of EMI data over Wi-Fi
- Can be integrated with other COTS EMI sensors

APPLICATIONS

- Rapid area reduction for UXO remediation tasks
- Detection of UXO in areas where overpass is allowed
- Create GPS-based dig lists of prioritized targets

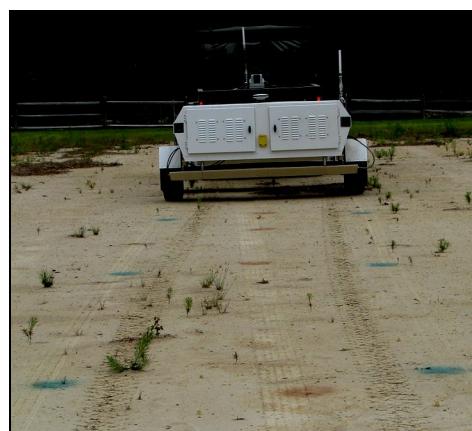


Operator control station and screen

SPECIFICATIONS

Scout UXO Detection Trailer

System Weight	680 Kg / 1,500 lbs
Trailer Length x Width	4.3 m x 2.2 m / 14' x 7.2'
Sensor Ground Clearance	21cm, 12cm or 3cm / 8.25," 4.75" or 1.25"
Sensor Width	1.8 m / 5.9'
Sensor Resolution Across Track	18 cm / 7"
Dye Marking System Capacity	2 tanks, 11 L / 3 gal each
Data Radios	802.11 b/g (2.412-2.462 GHz) @ 1 Watt
Mapping views	Follow-behind 3-D, Overhead 2-D
Optimal Travel Speed	5-10 kph / 3-6 mph



Target Marking (Red)
Lane Marking (Blue)



DGPS Base Station for
NovAtel SPAN-CPT GPS

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