



UNITED STATES DEPARTMENT OF DEFENSE

HUMANITARIAN DEMINING R&D PROGRAM

Mine Stalker

A vehicular detection system which utilizes an ultra-wide-bandwidth ground penetrating radar with advanced automatic target recognition algorithms to detect AT landmines for road clearance.

The Mine Stalker system is a vehicular mine detection system optimized for anti-tank (AT) landmine road clearance. The system consists of a 3.2 meter wide ultra-wide-bandwidth ground penetrating radar (GPR) array mounted on a Multidrive 4x4 landmine survivable tractor. Mine Stalker is equipped with advanced automatic target recognition algorithms. The vehicle automatically stops and physically marks when approaching mine-like objects. This capability allows follow-on demining teams to quickly locate and interrogate marked AT landmine detections. Additional capabilities include accurate electronic mapping of mine detections using differential global positioning system.



STATUS

The Mine Stalker system was tested in Angola in May-June 2009. An operational field evaluation in Angola is planned in 2011.

Mine Stalker completed a successful evaluation in realistic environments in Cuito Cuanavale, Angola during May-June 2009. The system found nearly 100% of AT land mines that it encountered. It detected hard-to-detect low metallic AT landmines including the South African #8 and Chinese Type 72. The system faced several challenges during the Angola test, resulting in improvements to the radar, algorithms, and associated electronics. The Mine Stalker will undergo an operational field evaluation with The HALO Trust-Angola in FY11 for on-road AT landmine clearance operations.

Cutting-Edge Solutions
DEMINING TECH

MINE DETECTION



FEATURES

- Man-operated Multidrive 4x4 landmine survivable tractor
- Advanced automatic target recognition algorithms that enable the system to automatically detect, physically mark and stop when approaching mine-like objects
- In testing, demonstrated near 100% probability of detecting metallic and low metallic anti-tank landmines.

APPLICATIONS

- On road anti-tank landmine detection
- Ideal for detection of hard-to-detect low metallic AT landmines

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Platform: Man-operated Multidrive 4x4 landmine survivable tractor

3.2 meter wide GPR (four panels x 0.8 meter width)

Very clean and ultra-wide-bandwidth impulses (200MHz to 7 GHz)

Advanced automatic target recognition algorithms

Automatically detects, physically marks and stops when approaching mine-like targets

Differential GPS provides mapping capability and centimeter accuracy of sensor path and targets

Automatic sensor height control

Operational height (near-zero inches to about 16 inches)

Operator control unit with subsurface visualization display



Subsurface visualization display