



UNITED STATES DEPARTMENT OF DEFENSE

HUMANITARIAN DEMINING R&D PROGRAM

Quadcopter

Commercial quadcopter adapted for demining mission planning and pre / post clearance aerial survey

The Quadcopter is a small commercial quad-rotor platform that provides mine and unexploded ordnance (UXO) clearance managers significantly enhanced management support capability. Quadcopter's high definition video and photographic equipment provide an unprecedented set of tools to help minefield managers perform pre-clearance mission planning, aerial survey and post clearance survey tasks. Video is transmitted in real time, enabling supervisors to monitor clearance activities at any point in the mine / UXO



STATUS

Operational field evaluations are ongoing in:

- **Cambodia** (Mines Advisory Group, the Norwegian People's Aid)
- **Chile** (National Demining Commission)
- **Guadalcanal** (Golden West Humanitarian Foundation/Royal Solomon Islands Police Force)
- **Thailand** (Thailand Mine Action Center)

contaminated area being cleared. It also gives remote control clearance equipment operators the ability to examine the ground ahead of the equipment and identify hazards to the equipment. The system is easy to operate and easy to train. Advanced navigation functions include "Failsafe" and auto land. With Failsafe, should the battery become low or should the quadcopter lose its connection to the controller, it will automatically return to its take-off location. If global positioning system (GPS) is available, the system will fly back to its take-off location and land automatically.

Cutting-Edge Solutions
DEMINING TECH
MINE CLEARANCE & AREA PREP



FEATURES

- Aerial high definition video / still photo capability to support technical survey and clearance surveillance missions
- Real time video capability to support minefield manager need to monitor clearance operations
- Simple to train and operate making it highly suitable for deployments to third world nations
- Auto-return home capability using GPS
- “Failsafe” subsystem will return the Quadcopter to its take-off point if contact with the controller is lost



Quadcopter documenting progress of technical survey operations in Thailand



(left) Cambodia deminers undergoing training (right) Quadcopter close-up

APPLICATIONS

- Technical survey
- Reconnaissance ahead of remote control clearance systems for increased system safety
- Safety and monitoring aid for minefield managers

SPECIFICATIONS

Phantom 3

Battery	6000 mAh LiPo 25
Weight	1280g
Hovering Accuracy	Vertical +/- 0.1m; horizontal +/- 1.5m
Max Yaw Angular Velocity	200%
Max Tilt Angle	35°
Max Ascent / Descent Speed	5 m/s ascent, 3 m/s descent
Max Flight Speed	16m/s (ATTI mode, no wind)
Wheelbase	350mm
Tilting Range of Gimbal	-90° to + 30°
Operating Frequency (RC)	2.400 GHz–2.483 GHz
Communication Distance	CE Compliance: 3.5 km; FCC Compliance 5 km
Camera Resolution	12.4 Megapixels
Camera Field of View	94° 20 mm

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