The Problem:

IED Threats
- Pressure Plate IEDs
- Remote Controlled (RC IEDs)
- Battery – Wire (on command) IEDs
- IR Triggered IEDs

Mines
- Pressure Land Mines
- Switch Triggered (booby trap) Mines
- Anti-Personnel Mines
- Anti-Vehicle mines
- Blast Mines
- Anti-Helicopter Mines
Detection:
Costly for Armed Forces -
- Cost in Lives
- Cost in Equipment
- Cost to Detect & Defeat
Detection by Helicopter

Barrier: Cost

Helicopters cost over a $1.7 Million to deploy & maintain
The Solution: Airborne Bomb Detection ABD325 Series

The Airborne Bomb Detector is used to search for:
- IEDs
- Land Mines
- Remote Controlled Radio Triggered Explosives
- Unexploded Ordnance
- Ammunition & Weapons Caches

**ABD200 + ABD325**

**Operating Parameters**

- Magnetic field data is transmitted wirelessly or stored on the drone
- Data is processed upon mission completion or in real-time
- Analyzing magnetic field variations allows detection of landmines
Airborne Bomb Detection

The Airborne Bomb Detector consists of a light weight custom-designed UAV, with a frame and mount built to house proprietary communication and logging platforms, power supply, and sensor telemetry.
The ABD325 Series during Multiple Altitude Survey Tests
The ABD325 Series with Mortar Samples: DETECTED
During testing, the ABD325 series set out to accomplish the following:

- Determine whether or not metallic targets could be detected with a magnetometer mounted on a sUAS (Unmanned Aircraft System).

- Gain knowledge specific to the ability to detect varied sizes and types of targets and how the flight parameters (specifically, flight speed and elevation) affect detection capabilities.

- Increase our understanding of the UAS-Sensor performance specifications required to develop an enhanced magnetic survey platform, including but not limited to motor size, thrust propeller size, frame geometry and materials, navigation and orientation electronics.

- Assess the magnetic noise level of a multi-rotor UAV and determine what steps should be taken to remove craft noise from the final product.
ABD200 + ABD325 Navigation & Software

Similar to an aircraft, the ABD200 + ABD325 are able to employ a Graphic Interface that shows navigational controls for the operator in order to conduct search and detection missions for hidden threats on and under the surface.

**Ground Station Software**

The ABD Series configures Ground Station applications with a full-featured software suite + intuitive graphical interface, including tools for:

- Mission planning
- Automatic sensor control and cueing
- Situational awareness
- Image viewing on a moving map display
- Target detection tools and report generation
ABD200 + ABD325 Acquisition Elements

- Linux or Win 7 Embedded based
- Uses Single Board Computing (SBC) technologies such as: PC 104, Arduino, etc.
- Multiple frequency counters, I/O ports and Analog/Digital (ADC/DAC) converters.
- Field Programmable Gate Array (FPGA) for high-speed throughput
- Time stamp accuracy for Multiple sample rates
The layout of the targets for this survey is presented here.

The ABD325 Series used a single magnetometer mounted rigidly below the craft.
ABD200 +
ABD325
Detection
Test Objects as data output by the sensor telemetry