Market Need

Current physical intrusion detection systems rely on fixed location sensors such as video cameras, infrared detectors, moving object sensors, trip wires, fences, etc. These methods are costly, need significant amounts of power, are easily detected, require time to set up, often require hard wired communication and have limited fields of view.

APL Solution

The Swarming Network for Intruder Detection was developed by researchers at the Johns Hopkins University Applied Physics Laboratory to address current limitations in personal, business and national security. The technology uses hundreds of small (1-2 cm diameter) sensors which are scattered randomly in an area to be protected. The sensors are disguised to resemble the terrain in which they are seeded - making them covert. In the event individual sensors are discovered and removed, the remaining sensors continue to provide uninterrupted protection.

Sensors can be seeded from airplanes or by hand, depending on the area under investigation. This versatile system can be used in large commercial buildings - such as malls and arenas - or in smaller areas like rooms and houses.

Each sensor is solar powered and is made up of various sensing elements including those to detect sound, motion, vibration, chemicals, biologics and radioactivity. Each sensor transmits its findings to near-by sensors using a very low power signal. A receiving station monitors the grouped sensors, or swarm, using directed energy. When specific levels and types of activity are indicated by the collective communications from the sensors, appropriate actions are triggered, similar to current systems.
**Swarming Network for Intruder Detection**

**Technology Status**
Existing designs provide a practical starting point for rapid prototyping. Technology was presented at the 3rd International Conference on Intelligent Sensors, Sensor Networks, and Information Processing (ISSNIP) 2007.

**Applications**
- Military
- Commercial
- Residential

**Intellectual Property**
US Patent Pending #60/944,199

**Availability**
Currently seeking a development or licensing partner.

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**Key Features**
- Inexpensive
- Wireless
- Covert
- Energy efficient
- Rapidly deployed

![Diagram of sensor network](image)