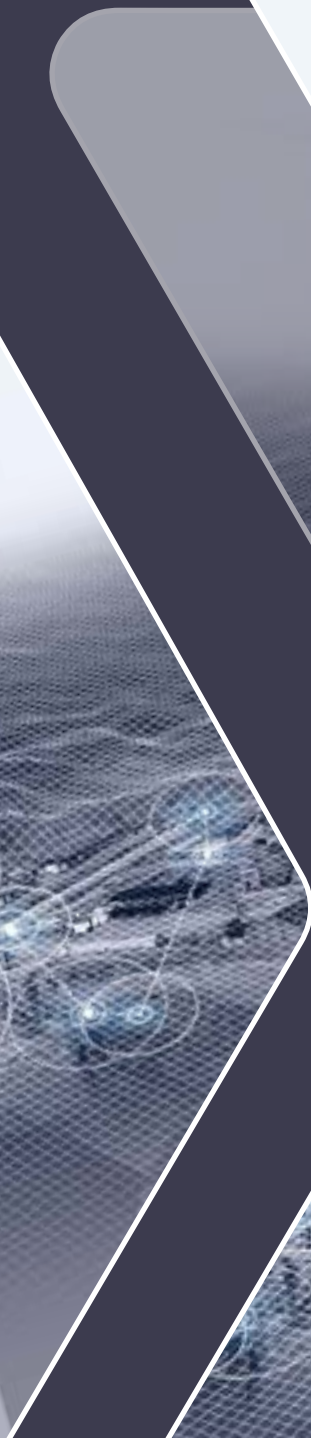


FLEXNET

WIRELESS SURVEILLANCE PLATFORM



FLEXNET

Comprising a toolbox of wireless, battery-powered Unattended Ground Sensors (UGS) and cameras, Flexnet is a rapidly deployable system for detection, classification and identification of threats, regardless of the situation or environment.

Flexnet is composed of passive, wireless, battery-powered sensors and cameras that enable operators to customize the system according to their operational requirements. Through fusion of covertly deployed sensors and cameras, threats will be detected, classified and identified without exposing either the personnel or the system. The Command and Control (C2) software, Flexnet Commander, is available for both Microsoft Windows 10 and Android-based platforms.

Flexnet' scalable and customizable design allows for both standalone system deployment and integration into an existing Battlefield Management System (BMS) via the Flexnet API. Third party sensors and devices can be integrated into Flexnet to provide a comprehensive protection and surveillance system tailored to each specific situation.

Flexnet devices are specifically designed for rapid deployment and use in the field, even under

harsh conditions. By offering a lightweight and compact footprint for easy transportation and concealment, the Flexnet system can be easily deployed to remote areas.

Integrated batteries and radio components are part of most Flexnet devices. They have been designed to enable integration with legacy or customer tailored solutions.

In its smallest form, Flexnet comprises a handheld tablet, the Flexnet PDA, and a couple of sensors and/or cameras for protection of a small site, location or group of people. A fully deployed Flexnet system can be used for temporary or permanent protection and surveillance of larger sites, areas or borders. Whether deployed as a fixed or mobile system, Flexnet is a force multiplier providing early warning in real-time, as well as an increased situational awareness to facilitate decision-making.



SENSOR PORTFOLIO

The proven sensor portfolio consists of the Mini Mk3 seismic and acoustic sensor for 360-degree detection and classification of personnel and vehicles; PIRs for detection of movement and determination of travel direction, as well as scout cameras for detection and identification of intrusions. The Scout cameras are triggered by other Flexnet sensors and use intelligent motion detection algorithms to capture pictures using a thermal imager and/or black and white cameras. Each Flexnet sensor comprises rechargeable batteries, radio for communication and GPS for self-localization on map in the graphical user interfaces Flexnet Commander.

Thanks to a flexible design, the system can be extended with further sensor types and capabilities such as video cameras, radars, magnetic sensors, ROV/UAV and effectors to provide a comprehensive solution.

Mini Mk3 - Seismic and acoustic sensor

The Mini Mk3 sensor is a wireless, seismic and acoustic sensor used to detect and classify human activity within a specific area of interest. Collected data is analysed by advanced algorithms, classified and transmitted to the wider surveillance system.



PIR – Passive infrared sensor

The PIR is a compact, rapidly deployable passive infrared sensor for fast and reliable detection of moving targets and their direction of travel.



Scout Mk3 – Intelligent remote imager

The Scout Mk3 is an intelligent motion camera providing high quality pictures and videos during both day and night. User friendly and rapidly deployable, the Scout can control two camera heads and has various accessories to fit the users' specific needs.



FLEXNET MESH NETWORK



In the Flexnet solution, each individual item – sensor, camera or gateway – acts as a network node and communicates with other devices in the system to route data back to the C2 system. In addition to range extension, the self-healing network improves communication reliability and sensor deployment flexibility.

Flexnet communicates through a wireless, self-healing mesh network to ensure a reliable and continuous data flow.

The system can operate in “silent mode” to become completely radio silent. In this mode, sensors and cameras will store alarms and pictures until the operator requests data from the unit. All communications can be encrypted using AES-256. As a result, Flexnet is capable of operating in an Electronic Warfare environment.

COMMAND AND CONTROL (C2) SYSTEM

Flexnet Commander is the Command and Control (C2) interface of the Flexnet UGS system. It can be operated either on a Windows 10 or Android-based platform. Exensor provides rugged laptops, tablets and PDAs with an integrated and proprietary radio module.



Flexnet Commander displays all necessary sensor data in a user-friendly, map-based interface giving the operator full control of the system. The software combines an overview, a mission log and an image viewer in a single application.

manual positioning of sensors in the control software. Flexnet Commander is scalable; it can operate a small system by use of an Android based PDA/phone or a Windows 10 PC/tablet.

By using the Flexnet API, Flexnet can be integrated into a Battlefield Management System (BMS).

Sensors fitted with an internal GPS receiver are automatically identified and displayed on the map provided by Flexnet Commander. This enables rapid deployment without need for

- All sensors and nodes are geographically represented on the map by unique color-coded symbols
- All device settings can be changed remotely
- Status reports from each sensor are automatically sent and displayed if required
- The alarm log details all events including time and classification data
- Event view allows grouping of alarms into events
- Graphical representation of mesh network routing for all nodes
- Filter functionality allows the operator to filter alarms and events to search for specific events
- Supports multiple map formats (e.g. GeoTIFF, CADRG)
- Can be installed on any Windows 10 device

EXTENSION OF THE FLEXNET PLATFORM

The Flexnet platform meets the roughest requirements of a flexible and scalable unattended ground sensor platform, with the possibility to integrate third party sensors.

Surveyor – Vehicle identification sensor

Dedicated to the detection, classification and identification of enemy vehicle movements, the Surveyor belongs to Exensor’s next-generation of sensors. Fifteen years after the release of its predecessor, the Surveyor is a completely redesigned device, being more robust and reliable than ever before. Lighter and smaller, it now provides more accurate classifications while showing the same operational endurance.



Tripwire – Digital tripwire

The Flexnet Tripwire enables the user to quickly setup sensors to cover a large perimeter, thereby enabling him/her to focus the more intelligent sensors on key areas and approaches.

Tracker – Light tactical radar

The Flexnet Tracker is used for fast and accurate detection of persons and vehicles in areas where a seismic sensor will have trouble making accurate detections, such as urban areas, rocky islands or marshlands.



Long-range camera

The long-range camera solution is based on a Nikon DSLR mounted in a rugged housing. Triggered by deployed sensors, the camera will take pictures or record high-definition videos on a local Digital Video Recorder (DVR) and transmit thumbnail pictures to the base station over a radio network.

PTZ Camera - Mast mounted camera

Pan-Tilt-Zoom (PTZ) cameras are operated by the Flexnet Commander software for mobile or fixed surveillance. It can be mounted on a mast or small tripods, and can be connected to a radar for autonomous tracking and recording.



Second Sight MS - Standoff gas detector

Second Sight MS is a standoff gas cloud detector for real-time detection, visualization and identification of chemical gases. Operated through Flexnet Commander, it is the perfect solution for critical area surveillance and protection against chemical threats (Chemical Warfare Agents and Toxic Industrial Compounds).

APPLICATIONS

Nowadays, threats to personnel and critical infrastructures are key issues for Defense Forces, security services and border protection forces, whether they operate on sovereign soil or overseas. Highly versatile, the Flexnet network provides a comprehensive surveillance system regardless of the situation or environment. Initially developed for self-protection of military forces deployed on operations, the system is now entirely customizable and can be used for various applications, ranging from section level force protection to tactical surveillance of fixed installations.

MILITARY APPLICATIONS

Military operations require efficient solutions to reduce threats and track targets across an area of interest, so the units can respond proportionately while remaining safe and unobserved. Allowing for quick deployment and recovery, Exensor' sensors and cameras offer a full surveillance solution adapting to the full spectrum of operational needs. As it covers both line-of-sight and non-line-of-sight deployments, Flexnet significantly reduces the burden of operators and acts as a high-performance force multiplier.

Force protection

To fully focus on their mission, soldiers on operations need to rest assured that approaching threats will be detected and identified before any harm is done. Offering 24/7 monitoring over any terrain, Flexnet enables operators to conceal an adapted network of rugged sensors and cameras to cover their flanks and detect threats or targets out of ear and eyesight. Deployable both locally and in large areas, the solution is well suited for any setup, be it mobile, semi-fixed or fixed.

Patrol - Protect a vehicle on a shorter mission

Flexnet can be deployed to protect stationary vehicles against potentially hostile elements. Its sensors provide early warning and classification of the approaching threat, allowing the tactical commander on site to evaluate the situation, make a fact-based decision and take necessary action.

Critical asset protection

When a critical asset, such as an aircraft, is deployed in remote locations or forward operating bases, ensuring its safety can be a complex and resource consuming task. Flexnet provides an invisible barrier to enhance the protection of the valuable asset, give early warning, and minimize the risk of sabotage.

Flexnet' sensors are available in camouflage-coloured versions for discrete surveillance in tactical situations, or in bright colours.

Self-protection

Flexnet offers units on operation "extra eyes and ears". Real-time, early threat detection allows tactical commanders to respond immediately to any suspicious activity and take decisions based on reliable and valuable information.

Counter-mobility

Counter-mobility operations seek to disrupt and restrict the enemy's ability to manoeuvre freely, by denying the use of certain roads, terrains or areas. In such scenarios, Flexnet provides an autonomous and wireless sensor network able to detect and identify moving objects. It could be used to trigger a third-party effector and provide real-time battle damage assessment.

ISR

To avoid being detected, soldiers use covert and remotely placed observation posts for surveillance missions. Perfectly adapted to Intelligence, Surveillance and Reconnaissance (ISR), Flexnet provides great surveillance coverage of the objective when terrain and vegetation prevent direct sight.

Cameras capture videos and images when triggered by the intelligent covert ground sensors, in order to record target movements over time and determine pattern of life. All the data can be transmitted to the remote observation post for continuous monitoring of the designated areas.

Remote long-range surveillance

Long-range surveillance missions can be difficult when terrain and vegetation prevent direct target observation. Thanks to intelligent autonomous sensors, Flexnet's short, medium and long-range cameras can be triggered to capture images and video clips directly transmitted through the system to the observation post.

CIVILIAN APPLICATIONS

Flexnet is ideally suited for fixed and mobile configurations, and can be deployed without pre-existing infrastructure. It can be used as a temporary solution to enhance security around critical areas, including high-value assets and sensitive locations. Its flexibility and ease of deployment makes Flexnet ideal when conventional CCTV and other surveillance systems are not adapted. This turnkey solution includes project management, installation, commissioning and lifecycle support of the complete system which can include third party sensors and cameras.

* Closed-Circuit Television

Border Control

Protecting terrestrial borders against illegal activities and movements of people is essential to homeland security. When fences and cameras cannot be installed, the Flexnet solution allows to monitor specific points of interests. Sensors and cameras deployed along the border line communicate together in a self-healing wireless mesh network. The gateways are used as repeaters to extend communication to a remote observation post along the border.

The system can be monitored and operated by multiple users from a large operation centre, but also through a small handheld device. When a sensor detects a movement, police officers are immediately notified.

Site Surveillance

Flexnet can be used for both permanent and temporary surveillance to enhance the security of critical areas, including sensitive targets and high-value assets. With its battery-operated concept, the wireless sensor network is quickly deployable for autonomous surveillance.



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