



Frank Morese

Chairman/CEO
(T) 408.216.7802
frank@oleasys.com

IoT INTELLIGENT SENSORS & ANALYTICS

Olea Sensor Networks (incorporated as Olea Systems, Incorporated) develops intelligent sensors and analytic software that promise to revolutionize mobile and cloud-based service solutions for a wide variety of applications, including connected car, connected care and security, identity access management, surveillance, using the “Internet of Things” (IoT) machine-to-machine (M2M) communications infrastructure.

OleaVision™ Human Presence Detector

Advances in world population, automation and mobility have created the need for a greater amount of information about how and when people move through their environment. Technology has also increased our expectation of what information should be immediately available to us in order to manage our lives on a daily basis. There is a call for advanced and responsible safety mechanisms to protect people from the dangers of such things as vehicle collisions, home invasion and excessive waste of energy resources.



Olea Sensor Networks answers that call with OleaVision™ technology, which has the unique ability to differentiate between live animate beings and inanimate objects up to a 5-meter distance for both moving and stationary applications regardless of whether the monitored subject is moving or motionless, and to distinguish between human and animal presence. OleaVision™ makes it possible to improve upon existing technologies for collision avoidance, intrusion detection, fire safety, search and rescue, surveillance, customer analytics (people counting) and energy management. These applications stretch across multiple industries including consumer automotive, transportation, industrial equipment, smart home, retail marketing and security.

Key Features

- 5 Meter Detection Zone in Total Darkness
- Discriminate Between Inanimate Objects & Human Presence
- Detecting Stationary & Moving Pedestrians
- Ability to Detect Occupancy In Vehicle (Child Left Behind)
- Contactless
- Transparent
- Ubiquitous

OleaVision™ Advanced Security Solutions

Olea's technology enhances security through continuous unmanned surveillance of an area without the need for scheduled and on-call patrol services designed to meet a number of demands from provisions of property inspections by vehicle or on foot. The ability to cover large perimeters in total darkness and Intercept and identifying trespassers before they compromise assets is key. Most commercial properties have motion sensor alarms systems that sound when any movement in unauthorized zones is detected. Although these alarms only alert owners to the presence of motion not necessarily the presence of intruders being plagued with multiple false alarms.



Another common way for companies who want to secure their goods and property is to have 24-hour video monitoring systems. The problem with these systems is the need for continuous monitoring by guards requiring good lighting, which is not practical in all scenarios. Cameras need to be hidden well to prevent thieves from destroying or shielding the view of the cameras.

An underlying principal for providing good security involves a concept called "Concentric Circles of Protection", sometimes also called "Security in Depth". This concept involves the use of multiple "rings" or "layers" of security. The first layer is located at the boundary of the site, and additional layers are provided as you move inward through the building toward the high-value assets.

Rather than placing full reliance on a single layer of defense, these layers require an intruder to penetrate a series of layers to reach his goal. The more layers that exist between the outside world and a high-value asset, the better the security. OleaVision™ enables Concentric Circles of Protection by providing an inexpensive way to deploy invisible layers of protection, which is similar to the "multiple lines of defense" strategy employed by many military planners.

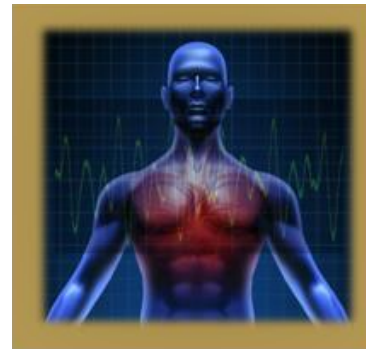
The logic behind having multiple layers of security is simple: having multiple layers eliminates total reliance on any single layer and provides redundancy. For example an intruder who "tailgated" through an exterior door would need to breach two additional layers of security before he could reach the high-value asset. While the chances of breaching any single layer may be good, the chance of breaching three or more successive layers becomes exponentially more difficult. The multiple layers concept also provides redundancy in case there is a breakdown in procedures.

How the Technology Works

OleaVision™ is a novel person detection and ranging technology that is applicable to ultra-wide bandwidth (UWB) systems. For indoor and outdoor scenarios, ultra-wide bandwidth (UWB) transmission is a promising technology, due to its high-resolution ranging and obstacle penetration capabilities. The system utilizes an UWB sensor with advanced detection algorithms that does not require a training database of template waveforms. Instead, the method capitalizes on the fact that a human presence induces small low-frequency variations that stand out against the background signal, which is mainly affected by wideband noise. With advanced machine learning and human presence detection algorithms, the system is able to analyze the environment and adapt to enhance the detection probability, using off the shelf UWB transceivers for indoor and outdoor environments.

Olea Authentication & Identity Management Systems

Olea an emerging leader in advanced authentication systems, has also created a disruptive technology that offers unmatched Strong Continuous Authentication for security, fraud management, physical access, banking, mobile commerce and e-commerce. This technology, referred to as Olea HeartSignature™, securely and passively authenticates users without physical contact.



An ideal heart- based biometric measurement approach would be a non- contact method, useable on moving subjects, that is able to measure the heart signal through clothing and, ideally, through other obstructions such as seat fabric or walls. Toward this end, Olea has developed a novel, revolutionary wireless heart- based biometric approach that measures chest wall motion using a Doppler radar technique referred to as radar seismocardiography (R- SCG). Seismocardiography (SCG) is defined as the measurement of accelerations in the chest wall produced by movement of the muscular tissues of the heart. R- SCG is a non- invasive measurement of this movement using a low- power microwave Doppler radar system. R- SCG can measure heart signals without physical contact, through clothing as well as other material such as the seats in an automobile, at a distance.

Olea also offers its IoT “intelligent partitioning” architecture to locally generate, fuse and analyze multi-sensor data and to aggregate and further analyze multiple sensor data streams in the cloud. Performing primary sensor data analytics at the local sensor network level can reduce IoT data traffic by filtering, combining and analyzing unstructured local sensor data prior to streaming only the more meaningful, structured information to the cloud for secondary analysis and ultimate action. This leverages the power of multi-sensor networks for real-time applications by using far less cloud processing resources.

Olea is a Delaware C-Corp headquartered in Sunnyvale, CA.