Pexx Brings a Heightened Level of Awareness with Wireless

A better "sense" of the world around us

The ability to see our surroundings, listen, and "sense" the world around us comes from basic abilities that most of us are born with. It is hard to imagine that these innate abilities are the basis for some of the most advanced technologies that we have available to us today.

Today's world situation has resulted in a critical need for heightened situational awareness. Technology leaders continue to develop and enhance high-tech integrated systems gathering and distributing intelligence through video surveillance, motion, thermal and sound detectors, and voice and data communication systems. "With these state-of-the-art systems the ability to see, listen, and communicate with the world around us is drastically enhanced." says Jennifer Greene, President of Pexx, Inc.

With heightened situational awareness and the need for more sophisticated technology, businesses have expressed concerns about the potential rising costs of infrastructure and security threats. Industry leaders continue to address the evolving requirements and concerns by utilizing integrated systems and sensors that branch from existing network structures including LANs (local area networks), WANs (wide area networks), WWANs (wireless wide area networks) and Global Networks.

Security measures have been controlled utilizing wired and wireless technology with an RF system called SCADA (supervisory control and data acquisition) for many years. SCADA systems are used to monitor the attributes for process control, monitoring of temperature, pressure, valve positions gate positions, flow, pressure and just about any set of data you can think of in industry.

Wireless networking is becoming increasingly popular because of the reduced cost of infrastructure and ease of installation, implementation, integration and expansion. Conversely, wireless networks have been publicly accused of being vulnerable to hackers and other cyber thieves and terrorists and posing security risks. Unfortunately, this viewpoint is based upon uninformed assumptions of those who do not understand the extent of the security measures and encryptions that have been built into these systems. When breaches of security occur it is most likely because the installer or network administrator is rushing through the process and skipping critical steps, or simply not understanding how to properly configure their network, leaving it vulnerable to security breaches; or the designer or purchaser failed to include security in the initial design and materials list. However, a properly installed wireless network can actually be more secure than a fixed wired network, and it's attachment to a firewalled and secured network can be enhanced by additional security devices inside the network.

Many new encrypting codes are on the market and the technology continues to be enhanced. Currently 256 bit AES (Advanced Encryption Standard) / Triple DES (Data Encryption Standard) is in use on many systems. The utilization of constantly changing encryption codes makes it exceptionally difficult to be penetrated and decoded; and the time and resources required make "hacking-in" nearly impossible.

Jennifer Greene says "With the rapid progression of today's technology the value of working with a team of experts to design, install and maintain your network far outweighs any upfront costs that you may save by designing and installing it yourself." Pexx, Inc. employs a trained staff of experienced networking and tower experts. The company has designed, installed, maintained, expanded and upgraded numerous wireless networks and complete RF and video systems. Pexx customers include the City of Baytown, Katy Police Department, Harris County Sheriff's Department, Lower Neches Valley Authority, Texas Department of Transportation, Houston Metro, and numerous Chemical companies, Texas Universities, Fire Departments, Police Departments and other City, County, State and Federal agencies.

There are an unlimited number of examples of how wireless networking can be applied to improve communications, data transfer, as well as environmental and situational awareness. Basically, anything that your imagination can think of is likely possible with wireless networking. New applications for wireless networking are being implemented consistently as technology and demands evolve. The demand for applications involving enhanced situational awareness, however, is rising most rapidly during this period of heightened security.

WWANs have an inherent flexibility that fixed (or wired) networks don't allow. Because of this flexibility, WANs are becoming increasingly popular for applications that utilize sensors and monitoring systems that enhance situational awareness. Alternative power sources are also being deployed allowing networks to be powered in situations where there is no line power or fuel available.

There are a broad variety of sensors and surveillance systems that can be seamlessly integrated into both fixed broadband and broadband wireless networks enhancing situational awareness in populated locations as well as isolated or unmanned sites. For instance, video equipment, infrared cameras, motion detectors, sound sensors, and air quality monitors are currently being integrated into networked monitoring systems. Data packages of various types and sizes are transmitted from point-to-point and point-to-multipoint systems. Information can be transmitted from building to building, or across vast distances, and even across the world rapidly at GigE speeds.

Video surveillance conducted over wireless networks is currently being used by homeland security, government, municipalities including police departments and emergency response teams, water treatment facilities and power plants, offshore pipelines, large public gatherings such as the Olympics and Super Bowl … the list is quite extensive and growing. Infrared cameras are also used in applications where thermal imaging and night vision is essential. Pexx supplied remote wireless video surveillance equipment at SuperBowl XXXVIII held in Reliant Park and Stadium in Houston, Texas. The system provided live streaming video from security cameras located in multiple points throughout the stadium. The video collected was sent over a dedicated primary secure wireless link to an undisclosed location where special response teams were deployed in an active standby mode before, during and after the game. Images from cameras were available to members of multiple City, County, State, and Federal agencies as part of their emergency preparedness.

Motion Detectors and sound sensing detectors are integrated within networks (both wired and wirelessly) to activate camera and alarm systems in a specific area where motion, sound or other monitored data faults or errors or breeches are detected. You will find motion and sound sensing detectors used in home systems such as burglar systems, pool side alerts, outdoor light activation and gate controls. However, the application for these systems goes far beyond the home. Elaborate detection systems are designed and utilized for a broad spectrum of industrial uses. Intrusion detection and perimeter control is a critical requirement for many industrial settings such as for water supply facilities and reservoirs, nuclear power plants, or anywhere a hazardous area exists. These systems are also utilized in public facilities, construction zones, prisons, and other locations where access to a specific area needs to be monitored for security reasons, as well as protection of the public.

When a disturbance or intrusion is detected the system will perform a pattern of actions that are pre-programmed into the system. Each action is determined by the level of threat detected according to the parameters. For instance, when a motion is detected, the designated camera(s) will focus on the surrounding area immediately for closer monitoring. If a threat is found, by sensors or monitoring personnel an alert will be released, and the notification process will be performed according to the stage/level of the threat. Depending on the threat and the parameters programmed, the system will start recording data and sound an alarm, send an email, send a page, make a phone call, dial 911, or perform other pre-programmed actions.

In this new millennium we have seen a myriad of changes in technology. We are an information and technology hungry nation. Our hunger to receive more data – faster, continues to grow. Technology leaders continue to work aggressively to not only satisfy our hunger; but to look to the future needs of our society. One of the most significant benefits of wireless networking technology is that systems are designed to keep up with the speed of developing technology without incurring significant costs for upgrades and expansion. Integration of new technologies and sensors are easily, and seamlessly, added to existing systems.

Pexx, Inc., a privately held company, is a technology based integrator and VAR employing a world class team, with over thirty years of varied industry experience and wireless networking expertise. Growing out of successful project management and consulting businesses, Pexx continues its practice of finding new ways to use technology to improve productivity, control costs and maintain a competitive edge. Pexx serves its clients from headquarters in Plantersville, Texas. For more information about Pexx call (832) 237-5888 or visit http://www.pexx.net/.