



AGRICULTURE GOES WIDE AREA WIRELESS WITH GREENPEAK'S ULTRA LOW POWER WIRELESS INFRASTRUCTURE

*Maintenance free solution for soil monitoring
in remote vineyards and open field applications.*

03 November, 2008 - Utrecht - The Netherlands - GreenPeak Technologies, a leader in ultra-low power communication technology for wireless sense and control applications, today announced a new remote soil moisture monitoring application developed by its Spanish integrator Sensing&Control.

Sensing&Control has developed an application where EC-5 soil moisture probes from Decagon Devices – a world leader in the measurement of water activity and soil moisture monitoring in vineyards or greenhouses – can wirelessly transmit their measurements in open field agricultural applications to remote monitoring sites.

Sensing&Control developed this solution based on GreenPeak's technology. According to Joan Escudero, CEO of Sensing&Control, "We wanted to omit the cost of wiring in vast open field applications and our customers need quick and easy installations without maintenance problems. GreenPeak's PeakNet LPR solution flawlessly combines both requirements."

The Sensing&Control application is based on GreenPeak's unique and patented PeakNet LPR communication stack, a wireless infrastructure network protocol developed on top of the IEEE 802.15.4 specifications in the worldwide certified 2.4 GHz band. The PeakNet LPR solution reduces the energy consumption in the access points in large networks, so they no longer require power lines and can run on energy harvesting or have a very long battery life.

In this application, low power routers are mounted throughout the field to allow the formation of an extremely large wireless mesh network. The configuration of this extended low-power sensor network is facilitated by the self-forming and self-healing mesh technology that enables the data to find its way to the gateway and to the rest of the world in a fully automated manner. Unlike competitive mesh solutions, by using the GreenPeak LPR stack, none of the routing nodes have to be defined as powered routers and consequently the network backbone no longer has to be powered. This is achieved by using smart power-up/power-down and duty cycling synchronization techniques. By organizing the network in this synchronized way the energy consumption for each router is reduced to a fraction (<1%) of what it

normally would be, allowing for an infrastructure that can run on energy harvesting without any maintenance or on batteries for a long time.

Every node is connected to three Decagon EC-5 soil moisture probes that gather information at 10cm, 20cm and 30cm depths below the surface to report the soil moisture within the rooting zone of the crops. This allows the farmer to accurately monitor soil moisture levels which are crucial to understand water uptake by the roots and to assure proper irrigation decisions. The hourly measurements are stored in the nodes, sent to the coordinator of the wireless network and then the collected information is transferred via GPRS on a daily basis to a remote office. The agronomic part of the project has been led by LAB-FERRER, a consultant company and distributor of Decagon in Spain.

Sensing&Control evaluated several alternative solutions. Joan Escudero clarifies why he decided to work with the GreenPeak technology: "Alternative technologies are very expensive, both for the communication cost and for the cost of the devices. The application collects field information every hour and it requires only one GPRS connection per day and per site. This solution allows a flexible reaction from the winegrower: close monitoring of remote vineyards."

Other typical GreenPeak PeakNet LPR applications that can benefit from the low power infrastructure protocol are sensor networks that cover large areas - i.e., agriculture, foresting or larger building structures like dams, bridges, tunnels, dikes, pipelines, etc.

About Sensing & Control

Sensing&Control is a company dedicated to providing solutions in the field of wireless communication sensors. Sensing&Control offers not only development of engineering with its R&D team but also complete product commercialization. Sensing&Control completes exhaustive research of the field (for wireless sensor networks) and selects the technologies that will best suit the customers' needs. The company has grown expertise in several technologies, as an example, one of the differentiating aspects of Sensing&Control is its track record and expertise with ZigBee, the standard of communication for wireless sensor networks. Sensing&Control has been working with GreenPeak's technology for several years and is integrator and distributor for Spain and Portugal.

www.sensingcontrol.com

About GreenPeak

GreenPeak is a fabless semiconductor company, and is a leader in battery-free communication technology for wireless sense and control applications. This revolutionary technology, based on the IEEE 802.15.4/ZigBee wireless networking standard, utilizes energy-harvesting to facilitate battery-free operation in a totally wireless environment, without the need for either communications or power connectivity.

GreenPeak Press Release

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GreenPeak is based in Utrecht - The Netherlands and has offices in Belgium, Japan and USA.

GreenPeak is backed by venture capitalists: DJF Esprit (UK), GIMV (Belgium), Motorola Ventures (USA) and Allegro Investment Fund (Belgium).

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