

The Green Case



Bell pepper farmers in Europe are facing fierce competition from farmers abroad, where climate conditions are often more conducive to growing vegetables. To address this problem, some of these farmers are installing cutting-edge technology to monitor and control enormous greenhouses and to promote the successful growth of bell peppers and other vegetables. These solutions use wireless sensors to monitor humidity and temperature to help create idyllic growing conditions.



GreenPeak's low-power mesh technology for mobile harvesting carts

Kronos, a global provider of human capital management solutions, has selected GreenPeak's low-power wireless mesh networking technology for one of their wireless terminals. This terminal is installed by one of Kronos partners in a picking administration system to monitor every individual picker's harvest details. This solution uses GreenPeak's wireless mesh technology to transmit data from individual mobile harvesting carts to routers, which enables the data to be gathered and analyzed in a central coordinator unit. The challenge was taking the system wireless in an area with wireless-adverse weather conditions, including high humidity, dense foliage and a lot of metal.

Result: 15% better picking results

Using the new solution, every picker in the greenhouse places the cut bell peppers in a personal mobile harvest cart. The vegetables are counted and transported via a conveyor belt to a central packaging unit. Pickers get remunerated exactly for the amount of vegetables they pick. This has resulted in an impressive 15% better picking results. Until recently, pickers were paid based on the collective crop, which was not motivating for better individual performance. With this solution of individual picking administration, the contract workers wages are linked directly to their achievements and this is proved to be great motivator.

Higher efficiency, richer crop and better cost control

The ability to track which areas have been harvested and how much has been picked also enables greenhouse operators to quickly implement corrections in spraying and fertilizing patterns thereby allowing for a richer harvest.

An additional benefit can be recorded in the other greenhouse logistics: the scheduling of the packaging unit can be better organized and just-in-time transportation can be planned for, which results in even better cost control.

Robust in radio unfriendly environments

A key factor in Kronos' decision to select GreenPeak's wireless networking technology was its excellent performance in radio unfriendly environments. GreenPeak's multi-hop, mesh technology enables each wireless sensor and actuator device, utilizing integrated mesh software, to act as a repeater for other wireless devices even if one or more would become blocked by changes in the greenhouse structure. This approach enables the network to span larger distances (even when individual nodes can only see a local area of the network), allowing site-wide wireless coverage throughout the greenhouse.

The glass house environment is harsh for radio waves: it is metal rich, with extreme high humidity levels and dense foliage. Kronos researched several wireless solutions, but found that many of the solutions came up short. GreenPeak provided Kronos with a robust and reliable solution which proved to be successful in the most demanding scenarios used during the testing period.

Kronos

Alain Van der hoeven, VP Marketing and Business Development Kronos Western Europe states:

" We first tested Wi-Fi, but the radio coverage in the greenhouse was not satisfactory. We also tried a ZigBee solution from one of GreenPeak's competitors, we were not satisfied on the performance of the technology and the local support. GreenPeak was the only company that could provide us a technology, wireless mesh network solution that answers correctly the needs of our customers and is providing the support we expect from a partner.

We needed GreenPeak in the development of this application for their expertise and outstanding competence in the IEEE 802.15.4/ZigBee area, but we also appreciate their high level of customer support and responsiveness. We enjoy working with their team and we have built a partnership, rather than a customer/supplier relationship. I'm confident we will continue working with GreenPeak for other wireless labor and production registration systems as well. "

