



The Leader in Low Cost Monitoring Solutions



Wireless Sensors Use Case: Greenhouses

The Problem:



Monnit was approached by a large agricultural / produce grower about a project they wanted to implement. They were seeing variations in growth throughout their greenhouse and wanted to have a better understanding of what was causing and hindering the growth in certain areas. They were looking for an easy to use, reliable wireless sensing solution that could help them monitor and optimize the climate in their greenhouses for better efficiency.

Effective greenhouses management is to minimize energy use while preventing crop issues due to temperatures, high humidity and leaf wetness. If the climate is not being measured, growers tend to overcompensate so that no area within the greenhouse falls outside of acceptable perimeters, without knowing whether or not its needed.

The Solution:



For their initial project, the grower implemented 100 wireless sensors (12 to 15 sensors per hectare), for monitoring temperatures and humidity. The sensors were placed in a grid throughout the greenhouses, attached to suspended wires just above the plants.

The sensor data is sent wirelessly to the MonnitLink™ gateway at one end of the buildings, which sends the information to the iMonnit™ online sensor monitoring system. Due to the extensive size of the area being monitored, a repeater was placed in a central location to ensure sensors transmissions are received. Using iMonnit Sensor Maps, the grower was able to upload a graphic showing the plant layout of the monitored area, and visually “drag and drop” sensor tags on to the map with live data, allowing them to see the performance of their greenhouses from an aerial type view.

The sensors were set to check temperatures every few minutes and record temperatures every 10 minutes. Notifications were setup to alert their staff if temperature or humidity levels fall outside of their nominal range, allowing them to adjust the greenhouse climate appropriately.

Wireless Sensors Used

Wireless sensor used:	How it was used:
Temperature sensors	To monitor temperatures around plants in the greenhouses.
Humidity sensors	To monitor humidity levels around plants in the greenhouses.

The Results (Cost Savings)



During the initial phase of this project, the grower found that the temperature and humidity levels varied widely from one part of a greenhouse to another. Some areas were warmer (partly due to the angle of sunlight), while other areas were cooler with different humidity levels. Being able to visualize the climate in their greenhouses from an aerial type overview, they were able to adjust the climate while minimizing the energy being used. Within the first month alone, they saw an increase of 14% in their crop yields, while decreasing their energy costs by around 18%.

Using Monnit's comprehensive monitoring solution, this customer is now able to:

- Monitor and track temperature and humidity levels throughout their greenhouses.
- Maximize efficiencies in growing climate while lowering energy consumption.
- Increase their crop yields (product output).
- Lower their operating costs.

"We have tried several different sensor platforms over the past few years - and none of them come close to Monnit. These sensors are very reliable and cost a fraction of the others we have tried. The sensor mapping tool in the iMonnit Premiere monitoring software is a valuable tool and helped us understand and optimize our greenhouses. Great product guys!"

- Ralph T., Agricultural Systems Engineer

It doesn't matter where in the world you are or what time it might be, deploying a Monnit wireless sensor and monitoring solution connects you from anywhere, 24/7 so you'll know immediately when a problem starts.

For information about our products or to place an order, please contact our sales department at 801.561.5555.

Visit us on the web at www.monnit.com.



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