

Wireless Sensors Use Case: Animal Environment Monitoring

The Problem:



A law enforcement agency in the southern United States had an incident with a patrol vehicle's air conditioning unit failing while the officer was responding to a call. Due to the extremely hot weather, it didn't take long for the K9 left in the vehicle to suffer from the heat. The officer had no idea that the air conditioning had failed or that his partner was in trouble. These K9's work hard, and are regarded as part of the team. And it is devastating when a situation like this happens.

Monnit was contacted by the agency's K9 trainer, wanting to find a solution for monitoring temperatures around their dogs whether they are on or off duty.

The Solution:



Using various temperature sensors deployed in the patrol vehicle kennel, the facility kennels, and attached to the dog's collar, Officers and staff have an affordable means of remotely monitoring the conditions around their dogs. The data, provided by the temperature sensors, is passed back to the Monnit online software via a CDMA cellular gateway in the patrol vehicle or facility. The sensor information is checked against conditions that are configured in the software, and alerts are sent to the officer's or staff's cell phones and/or email if the temperatures are too high or low. The data is accessible via any Internet enabled device such as a computer, tablet or smart phone. Using a secure login, officers and staff can access and view the history of conditions and alerts that have been tracked through the system.

Wireless Sensors Used

| Wireless sensors used: | How sensors are used: |
|------------------------|---|
| Temperature sensors | Monitor temperature around dogs at all times to ensure safety. |
| | Monitor vehicle temperature to make sure AC or heating is adequate. |
| | Monitor facility kennel temperatures to ensure dog safety. |

The Result (Cost Savings)



Monnit makes it easy to realize an immediate return on investment, however, to determine the ROI for this application, you would have to put a price on the health and well being of your law enforcement K9 and factor in training cost and time, not to mention the emotional connection of the team. Partnering with Monnit allows this K9 trainer to send a temperature monitoring system with every dog that leaves his care. Since initiating this solution, several instances of unsafe conditions have been detected allowing officers or staff to respond quickly, ensuring the safety of their dogs.

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

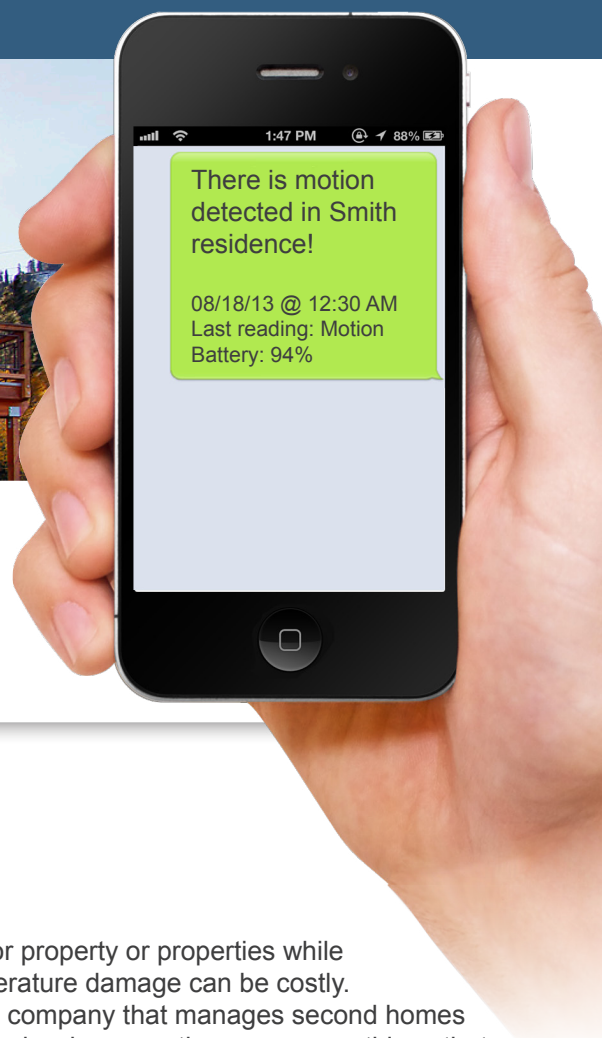
- Provide a simple and reliable temperature monitoring system with each trained K9 to ensure it's safety in the field.
- Monitor the temperatures around their dogs at all times (integrated onto dog collar).
- Monitor the temperatures throughout their facility kennels.
- Monitor the temperatures in K9 patrol vehicles.

"There is so much time and care invested in training our K-9's. It's comforting to know that every dog we send out has a greater chance at remaining safe from heat exhaustion. Thank you for making such a great product!"

- Lee H., Head Instructor



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Wireless Sensors Use Case: Second Homes

The Problem:



For second and vacation home owners it is important to monitor property or properties while away. Problems that arise from trespassing and water or temperature damage can be costly. Monnit was approached by a residential property management company that manages second homes for homeowners. They send staff to check on properties once a day, however there are many things that can occur in the span of 24 hours. They had an incident of a plumbing leak in one high-end home that wasn't detected for at least 12 hours. The damage was very costly to both the home owner and the property management company.

The Solution:



The property management company identified Monnit as the perfect solution provider and wanted to resell Monnit products and services to their customers. Monnit provides a reliable remote monitoring solution that includes low-cost wireless sensors that can detect if doors or windows are opened, motion, temperature, water, humidity and if lights are left on.

The property management company sells and installs Monnit wireless sensor systems for their customer's homes. The sensor data is sent wirelessly to either a MonnitLink™ CDMA cellular gateway or a MonnitLink™ Ethernet gateway if the home has active internet. The gateway sends the information to iMonnit™, the online sensor monitoring system where notifications are set to alert the homeowner and property management staff immediately if any incident is detected.

Wireless Sensors Used

| Wireless sensor: | How it is used: |
|--------------------|--|
| Water sensors | To detect immediate presence of water around water heaters, sinks, toilets and other plumbing. |
| Temperature sensor | To monitor home temperatures to make sure AC or heating is set correctly. |
| Open/closed sensor | To monitor home doors and windows to detect break-ins. |
| Motion sensor | To detect movement in the home (break-ins). |

The Result (Cost Savings)



Monnit makes it easy to realize the immediate return on investment. Partnering with Monnit as a reseller enables this property management company to offer a reliable remote monitoring solution as part of their service. For less than \$300 a cellular connected remote monitoring system can be implemented to detect both water presence and temperature in a home. Since partnering with Monnit the company has been able to respond to every incident detected in their monitored homes reducing the associated damage costs.

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

- Offer a simple, complete and comprehensive wireless monitoring solution as part of their property management service.
- Privately brand and sell products and services as their own.
- Expand their offering with any newly developed Monnit wireless sensors.

“Your remote monitoring system sets us above our competition! Finding a complete solution that we are able to brand as our own and sell to our customers is a game changer. They are easy to install and use! Our customers love it!”

- Kevin T., Business Owner



Wireless Sensors Use Case: Server Rooms

The Problem:



Server rooms and data centers are full of expensive computers and networking equipment that are designed to operate within a given temperature range. The electronics also need to be kept away from water. Monnit was contacted by the manager of a large corporation's internal data center, that had an issue with a plumbing leak over the weekend. While their existing system monitored for temperatures and humidity, they had no existing water detection system in place.

The previous weekend, a toilet leak outside of the data center caused water to cover the floor which leaked into the server room. The water caused an electrical short which took down several server stacks and damaged a handful of servers.

The Solution:



Monnit provides a reliable remote monitoring solution that includes wireless water detection sensors as well as a variety of other useful sensors. The company deployed wireless water sensors throughout the server room to detect any water. Monnit wireless gateways support up to 100 wireless sensors each, so the company also decided to extend their wireless sensor network by deploying temperature sensors in their HVAC ducts to more closely monitor their environmental control system.

The sensor data is sent wirelessly to a MonnitLink™ gateway located in the center of the server room. The gateway sends the information to iMonnit™, the online sensor monitoring system. The wireless water sensors detect immediate presence of water, and the temperature sensors were set to check temperatures every half hour. Notifications were setup to alert the IT staff if water is detected or if the temperature fluctuates too much.

Wireless Sensors Used

| Wireless sensor used: | How it was used: |
|-----------------------|--|
| Water sensors | To detect immediate presence of water around server stacks. |
| Temperature sensors | To check the temperature output of the environmental control system. |

The Result (Cost Savings)



Before implementing Monnit wireless sensors this company had no current water detection system for their server room. The toilet leak caused over \$35,000 in damage. For an initial investment ~\$1,400 they deployed a Monnit remote monitoring solution consisting of an Ethernet gateway, 20 water detection sensors and 5 temperature sensors.

Since installing the system, temperature sensors detected an incident where the environmental control system was not providing adequate cooling to one side of the server room. Monnit temperature sensors detected the issue early in the failure, allowing them to repair system before any damage resulted.

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

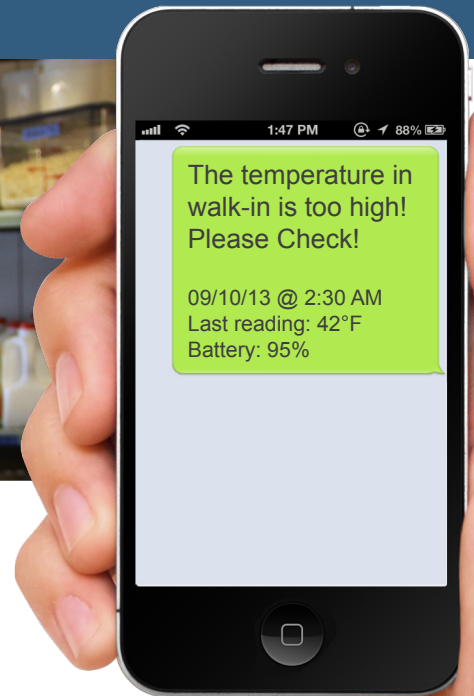
- Prevent costly damage to their servers due to plumbing and water leaks.
- Ensure that their environmental control system is functioning properly.

"We would have never anticipated that an overflowing toilet, could take down our server room. It's just not one of those things that seems possible. Prior to using Monnit, we had no way to detect anything other than temperatures of our servers. Now we are able to detect numerous conditions that could cause problems and I'm finally able to sleep stress free, knowing the system will alert me the instance anything is wrong."

- Douglas G., VP Information Technology



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Wireless Sensors Use Case: Restaurant / Food

The Problem:



Monnit was contacted by the manager of a popular US based restaurant franchise. He had came across our products when searching for a solution to an issue they had with temperatures in one restaurant's walk-in cooler. A week earlier the cooler's compressor failed at some point during the day and went unnoticed until the following day when a chef noticed that the cooler was warm and some of the food had spoiled. To be safe, they had to dispose of all the food in the cooler and restrict restaurant service until the cooler was fixed and restocked. The company wanted to implement a reliable temperature monitoring system, that would alert restaurant managers if temperatures in there coolers were fluctuating to far out of range.

They realized that their process of manually tracking temperatures was not enough to protect them against the possibility of inventory loss. They needed an automated solution to track temperatures.

The Solution:



Monnit recommended the customer use leaded temperature sensors and a MonnitLink™ gateway. The sensor housings were attached to the outside of their walk-in coolers and Freezers with temperature probe running through the door seals and attached inside. Monnit provides a reliable remote monitoring solution that includes other useful wireless sensors, so the customer also installed open/closed sensors on the walk-in cooler's door to tell them if it has not been properly closed.

The sensor data is sent wirelessly to the MonnitLink™ gateway 80 feet away, which sends the information to the iMonnit™ online sensor monitoring system. The temperature sensors were set to check and record temperatures every 20 minutes. Notifications were setup to alert their staff if any door is not fully shut or if temperature readings are above their limit, allowing them to respond appropriately.

Wireless Sensors Used

| Wireless sensor used: | How it was used: |
|-------------------------------|--|
| Temperature sensor with probe | To monitor and record temperatures inside walk-in refrigerators and freezers, providing data for FDA requirements and notifications set to alert staff of temperature fluctuations, preventing product spoilage. |
| Open/closed sensor | To monitor door access, alerting staff if a door does not close fully. |

The Result (Cost Savings)



For an initial investment of less than \$500, the customer was able to deploy a comprehensive solution addressing all of their needs. Each walk-in refrigerator/freezer that the company is monitoring contains upwards of \$20,000 in food product. Within the first month the system alerted their staff of an incident where a cooler door was not shut completely at the end of a shift, which could have resulted in several thousands of dollars in spoiled inventory. Since their initial install, the customer has deployed additional monitoring systems in six more of its restaurants that have experienced similar issues.

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

- Avoid potential product spoilage by using temperature sensors in their walk-in coolers.
- Tell if cooler doors are not closed properly, preventing temperature fluctuations.
- Automatically track and document meat storage temperatures per FDA requirements.
- Ensure that the product leaving their facility has been kept within set temperature parameters.

"Having a walk-in refrigerator fail really cost our business. It's not just the cost of repairing the unit, it's all of the food inside. Monnit's wireless sensors were a breeze to install and the monitoring system is top notch. Now I get a text message whenever there's an issue, so we can correct it before it impacts our business. If you run a restaurant, this is a no-brainer purchase!"

- Brian C., Restaurant Manager