Wireless Sensors Monitor Gates And Doors

The Flex Aware system is a wireless outdoor contact sensor with a built-in cellular connection. "There's nothing else like Flex Aware on the market," says a company representative. "For the first time, farmers and ranchers can monitor their remote gates and equipment and get notifications every time they are accessed."

All Aware aims to simplify remote or out-of-sight property management through innovative sensors managed through its mobile app. The Flex Aware sensor can reduce the risk of theft and vandalism at remote properties, giving you confidence that doors and gates are closed as required. It works for barns, sheds, mailboxes, perimeter gates, machine sheds, pasture gates, delivery boxes, pool gates, storage units, shipping containers and more.

"Traditional security systems aren't a great option for farmers and ranchers," explains the company representative. "Some folks use trail cams to monitor their gates, but they generally fail when sending relevant alerts. For example, some have motion detection but would alert you when anything moves. Maybe a cow walks by, a branch blows in the wind, or a playful calf triggers an alert. This creates 'false alerts,' which usually lead us to ignore all alerts."

In this way, Flex Aware fills the gap in security systems to monitor spaces that might otherwise get missed. All Aware can also proactively notify you when your garage door was left open, someone unexpectedly opened your pool gate, or the mail was delivered. "It's tamper-proof," says the company representative. "You can receive notifications right on your mobile device via push notifications, SMS, or email, and you can share notifications with family and friends so they can get alerts, too."

Flex Aware comes with a built-in SIM card. Immediately after purchase, you'll share your zip code to determine whether Verizon or AT&T will be the more reliable network. The easy-to-install technology is fully wireless; no power or Wi-Fi is required. The IP56 rating ensures it's built to withstand rain, snow, and extreme heat. It's rated for temperatures from -40 F to 140 F**.** It's backed by Alarm.com's world-class technology, which offers customizable alerts and flexible protection.

Easy-to-install technology is fully wireless; no power or Wi-Fi is required. The IP56 rating ensures it's built to withstand rain, snow and extreme heat.

Two Flex Aware versions are available. The standard version is perfect for sheds, latching pasture gates, or any other remote property that latches. In contrast, the Flex Aware Connected Cable is better suited for non-latching property points. Included within each box are multiple mounting options like screws, zip ties, and strong dual-lock tape. The sensor uses four 1.5V AA lithium batteries included in the box. The batteries have a 2-year life expectancy.

Both Flex Aware versions are currently offered for $12/month, including the hardware cost and the monthly cell service. Subscriptions can be canceled at any time without hidden fees. Each order includes a 30-day return policy.

"The 'Flex' in Flex Aware comes from its ability to be mounted anywhere," explains the company representative. "There are no complicated wiring or pairing instructions. Just mount it and use it. It's completely self-contained. Mount it to anything you can imagine with ease."

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3D Printer Makes Solar Tracker Functional Again

Tom Farrell routinely uses solar panels to generate electricity on his farm. When Ken, a friend and "solar buddy," had trouble with his Wattsun solar tracker system, Farrell stepped in to help.

Ken's system uses a solar eye and small plastic gears to track the sun and rotate his solar panels but after a small, 1 1/2-in. straight-cut gear broke, he discovered the unit was obsolete and couldn't find a replacement.

Farrell owned a 3D printer to make random parts for his home and side-by-side vehicle, so he attempted to build a replacement gear for his friend.

He found an internet site to pick the gear drive, size, diameter, and thread pitch and downloaded the software program for free.

"It wasn't foolproof and took about 10 tries and three different materials to get it right," Farrell says. "Some were too rigid and kept breaking the teeth, but after experimenting with some nylon-impregnated plastic, I printed off a set which worked well for him, making his obsolete tracker functional again."

Farrell estimates the total cost of the build to be about $40, with the most expensive part being the purchase of an entire roll of filament when needing only about 1/50th for the small gear.

3D printer used to make replacement gear that was no longer available.

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Turning Used Grain Bins Into Raised Garden Beds

Doug Taylor of Bengough, Sask., found a way to repurpose a Westeel grain bin into a durable garden bed. "My wife wanted raised beds as they're so much easier on the back," he says. "I'd previously built raised beds from 2 by 6s, but they rotted away after 3 or 4 years. Still, we didn't want to use treated lumber because of the chemicals it contains."

Taylor explored alternatives. "I thought about building some with galvanized steel but found that new steel is quite expensive. I wasn't concerned about the galvanizing as it's mainly zinc, which is actually beneficial (depending on which websites you read)."

Taylor used the bottom ring of a damaged 14-ft. grain bin as a raised garden bed.

Then, a windstorm came through and tipped over his neighbor's 14-ft. Westeel grain bin, destroying the roof and upper rings. "The easiest way to dispose of the bin was to dismantle it," says Taylor. "So I offered to help in exchange for the bottom ring. With impact wrenches, it only took an hour to dismantle it. We left the bottom ring intact, and I hauled it home in my flatbed truck."

Taylor's neighbor also gave him a 6-ft. dia. damaged cattle feeder. He modified both to make a keyhole-style raised bed. "The bin originally had a door, about a 3 ft. opening. I cut a 3-ft. opening into the cattle feeder, effectively removing the damaged section. I had some sheets of corrugated galvanized siding, which I cut to the correct length and tied to the cattle feeder. Then I bolted a couple pieces of angle iron from the opening of the feeder to the opening on the ring." The final detail was a strip of 1-in. black plastic pipe that he slit lengthwise with a razor knife and placed around the edge of the steel ring. "As for the cost, it was just my time. I had everything here lying around that I needed."

To fill the bed, Taylor took advantage of natural debris. He gathered tree branches, straw, and leaves and placed them in the space between the feeder and the ring to a 16 in. depth. "Then I used a front-end loader tractor and added another foot or more of topsoil mixed with aged manure until the dirt was a foot from the top. I didn't fill to the top because I want to be able to add more compost each year."

He spent less than a day on the project overall and considers it time well spent. "Some people think that the steel will heat up and damage the plants, but the galvanized steel seals to reflect the heat away," he explains. "And we've never grown such large carrots and beets. The keyhole entrance makes watering a breeze. Just stand in one spot and turn slowly with the garden hose."

The design works so well that Taylor wants to build a second bed. "There isn't much I'd do differently," he says. "I have a complete ring with no door opening, and I haven't found another cattle feeder for cheap, so I may just build a stairway to get inside if needed." He plans to use the second bed for planting vegetables that spread, ensuring there's no reason to get inside the bed until harvest time. "It'll be easy enough to maintain by watering from the outside. And once they start growing, the leaves cover all the ground, and weeds don't seem to grow much."

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Ergonomic Handles Make A Better Wheelbarrow

Emmanuel Carlos came across a discarded wheelbarrow project featuring an incomplete pivoting handle design, which sparked his interest. He decided it would be quite simple to complete the ergonomic product.

He developed and patented the Pivot-All Wheelbarrow using the partial design, featuring pivoting handles for improved user balance during transport and unloading. He also added protective hand cups and tabs.

"The cups protect the hands from impact, and the rotation is limited to 180 degrees, making it safe to use," Carlos says. "We changed the center of the rotation to the middle, so it essentially runs down the middle of your knuckles, dead center to the palm."

The rotation starts and stops at 180 degrees to keep the cups from over-rotating and injuring the wrist.

"You have better control of the load because it rolls with the body," he says. "It's not rigid and awkward, plus the handle doesn't have to be so thick that it pulls away from you. If you're going down a hill or berm, the cups rotate to your natural position."

The Pivot-All Wheelbarrows are available in 6-cu. ft. standard or heavy-duty gauge tub options and retail for $70 and $100, plus S&H.

"You have better control of the load because it rolls with the body," he says. "It's not rigid and awkward, plus the handle doesn't have to be so thick that it pulls away from you," says Carlos.

The wheelbarrows are available directly from the store, but Carlos is attempting to place them in larger box, hardware, and retail businesses.

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