

Without Wires

Can wireless irrigation systems and all their digital doodads transform the industry?

BY LARRY AYLWARD
EDITOR

Even George Jetson, who lived in a time when the highway speed limit topped 500 miles per hour, would be amazed with the wireless capabilities of some golf course irrigation systems.

Jetson never would have imagined that irrigating turf could be so ... well ... far-out.

But that's just what it has become. High-tech irrigation may not be as popular on greens and fairways as Big Berthas are on tees, but it's spurring "wow" talk among superintendents. A question arises: Can wireless irrigation systems and all their digital fixings transform the industry?

Wireless irrigation systems have improved dramatically the past few years, and nowhere is that upgrade more evident than with reliability. The switch to narrowband communications and high-speed digital communications in the late 1990s, in accordance to efforts spearheaded by the Federal Communications Com-

mission (FCC), was a catalyst for improved reliability. The FCC required radio manufacturers to make more efficient use of the available radio spectrum because of the onslaught of pagers, cell phones and telemetry systems in the past 10 years.

This meant that voice channels had to be converted into half as much bandwidth, requiring data speeds to be greatly increased. At roughly the same time, the move to synthesized communications from crystal communications technology in radios provided the improved accuracy required for this transition and was also a catalyst for improved reliability.

"Every next generation of wireless is actually presenting tremendous benefits to users," says Dave Shoup, product manager for central control for Hunter Industries. "When we went from crystal-controlled radios to synthesized-programmable radios, reliability increased a hundred-fold. A superintendent doesn't see that directly, but reliability means less down time and repair costs."



While many courses have benefited from the technology, questions arise about its complexity. For instance, is the technology too complex? And is it too expensive for many golf courses?

Dan Dinelli, certified superintendent of North Shore CC in Glenview, Ill., admits that too much technology can confuse even the most computer-savvy superintendents. "It's supposed to be a friend, but it can be a foe if things don't go well," he says.

But for the most part, wireless irrigation is a friend to Dinelli. "The good far outweighs the bad," he says of his course's system.

The reliability factor

The golf course maintenance industry — manufacturers and superintendents included — has been slow to react to wireless irrigation technology over the past few years, says Brian Smith, president of Signature Control Systems. "It's a conservative industry, and there's not a lot of risk-taking involved," he says. "However, the irony is that high-speed digital communications have been used on golf car global positioning systems for several years."

That said, Smith says he's starting to notice that more superintendents are getting in tune with modern irrigation technology. Their increased comfort level goes hand in hand with the technology's increased reliability.

While wireless communication equipment of 10 years ago was considered way cool, it's

considered primitive to what's used today. "The reliability factor is so much better today," Shoup says.

That's good news for two reasons. The first reason is obvious: A superintendent needs to be able to trust his course's irrigation system. How it functions is a reflection on his performance. The second reason is that many superintendents are intimidated by wireless technology because they don't know what to do if something goes wrong with it. But because today's wireless systems are more reliable, less can go wrong with them than in the past. Hence, superintendents don't have to double as information technology specialists. "When [wireless technology] first came out, it was something we weren't trained to understand fully as far as troubleshooting," Dinelli says.

Wireless systems, like all technology, are constantly evolving, notes Norma Frotton, golf controller product manager for Rain Bird's Golf Division. "With experience comes better equipment," she adds.

Shoup says most superintendents are open to learning more about wireless irrigation unless they've been burnt by poor applications in the past.

The upsides of wireless are obvious. A superintendent can worry less about lightning strikes frying the hardware that comprises the course's irrigation system. A superintendent can also perform upgrades on a wireless system

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“A golf course that spans a highway would be a great candidate for a wireless system.”

NORMA FROTTON
RAIN BIRD

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without digging up the course and disrupting play.

“I don’t see much resistance to wireless technology,” Shoup says, noting that even older superintendents are receptive to it.

The cost factor

No doubt, a new irrigation system with all its remote-control components can cost more than \$1 million. But while wireless systems require a higher investment for the equipment, the savings come from the reduced installation and material costs. Wireless, of course, means not having to worry about installing miles of underground wires, which takes time, costs money and creates down time.

“A golf course that spans across a highway would be a great candidate for a wireless system,” Frotton says. “Imagine having to cut across or under the highway to route the communication and power wires. This would be costly and maybe even impossible.”

Frotton notes that more superintendents

have opened their minds to wireless technology because of its convenience.

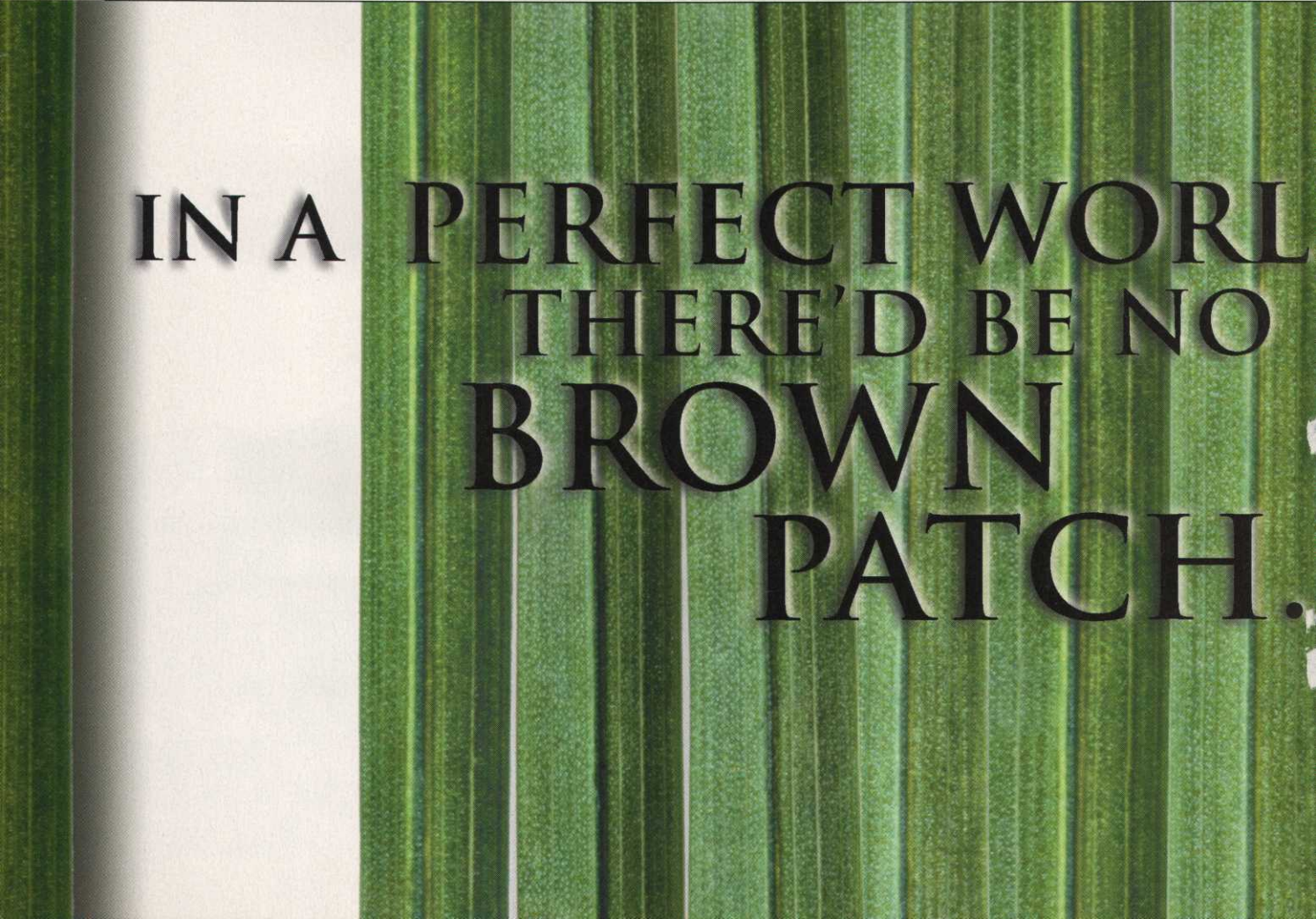
“It’s much easier to install a piece of equipment when no wires are required,” she says. “In the case of a wireless rotor, for instance, superintendents would have to connect the water supply, but not any communication or power wires.”

Dinelli says the cost of a wireless system is justified because of another big reason: efficient water use, perhaps the industry’s hottest topic.

“There’s no question that a new irrigation system is pricey,” Dinelli says. “But as water becomes more critical as a resource, superintendents are striving to apply the minimal amount possible agronomically and economically. So they need technology to help them.”

Smith stresses that water needs to be managed better, and golf courses need to continue to do their part.

“There is an increasing demand for water allocations by consumers and industry alike,” Smith says. “Because water is a finite resource, we need to be a good custodian of its use.



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For instance, if you have a golf course where sprinklers are unreliable when turning on and unreliable when turning off, how can you honestly say that you're managing the turf and your water resources well?"

The moral to Smith's story is that wireless irrigation systems are here and will enable golf courses to manage water more wisely.

And more, according to Dinelli, who explains that wireless technology allows superintendents and their crews the chance to do things they couldn't do before. For instance, Dinelli says a fertilizer can be applied and watered in by the same person quickly and safely, thanks to remote control. All it takes is for the applicator to punch a few buttons on a hand-held radio to activate the controller to turn on the sprinklers to water in the product after it's applied. The fertilizer becomes inert right before the applicator's eyes.

"The applicator acts as a policeman to make sure that everything is secure — that a squirrel didn't walk through the area and a golfer wasn't approaching the area before the product was

watered in," Dinelli says. "The applicator never had to leave the site because of this new wireless way of turning on and off sprinklers.

"It's nice to be able to do that — instead of having to write yourself a note to do it when you get back to your computer in the office."

The future

The majority of the 17,000 golf courses in the United States don't have wireless irrigation systems, so the market is wide open for companies to market their technology. Spindler realizes that every superintendent has a preference, and there are those who prefer older systems and enjoy troubleshooting them to locate problems.

"They might have a harder time transitioning to the new technology," she says. "But younger superintendents who use cell phones prevalently and have worked with radio communications in the past don't even consider wireless irrigation as a leap. It's second nature to them."

How far will the industry go with high-tech irrigation? It's a difficult answer. Maybe the ques-

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“The control systems are so powerful that probably only 2 percent of superintendents use them to their full capabilities.”

DALE WINCHESTER
IRRIGATION CONSULTANT

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tion should be: How far *can* the industry go?

“Let’s say you have voice-activated field controllers, which have been talked about for years,” Shoup says. “Then you have to drive up to each controller and talk to it — and there could be 30 of them. It’s not such a good idea.”

There is a bottom line, Shoup notes. “There’s a limit to what we can do while staying within the confines of irrigation.”

There are potential problems to consider. One is that some remote control systems — picture a superintendent with a personal digital assistant in hand and the ability to use it as a walkie-talkie, a phone and a device to activate irrigation — could be dependent on wireless communications providers such as Nextel Communications. Such a device would be a superintendent’s dream, Shoup says, but would have to use a carrier.

“If we bring out a system that makes exclusive use of Nextel’s exclusive features, what do I do when I have a golf course that isn’t in a Nextel service area, or the course has a major

commitment to some other service provider?” Shoup says.

Wireless sprinklers are also being discussed, but Spindler says they could be a difficult sell. “It’s a whole other echelon of technology that will probably take longer to trust.”

At least one industry insider predicts things will get interesting in the irrigation segment. Dale Winchester, an irrigation consultant based in Utah, says manufacturers of the technology are becoming increasingly competitive. “They all want to be one step ahead of each other,” he says.

Winchester insists that the current wireless irrigation systems on the market offer more than most superintendents need. “The control systems are so powerful that probably only 2 percent of superintendents use them to their full capabilities.”

Like we said, even George Jetson would be amazed. ■

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