ROBOT MOWERS

Cutting Work

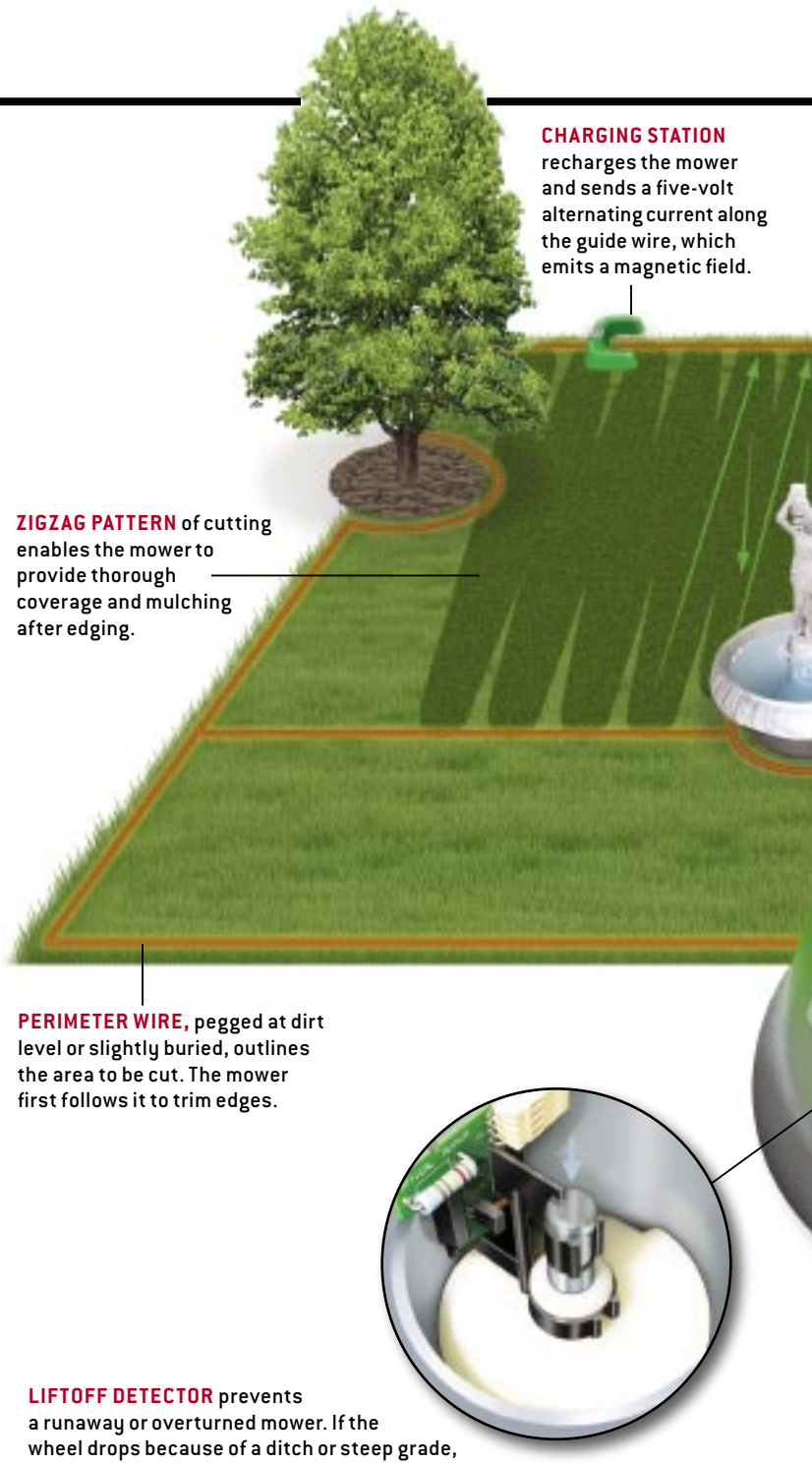
Autonomous lawnmowers have been around for several years, but after improving through hard knocks (some of them into trees), the newest generation is gaining popularity.

Of course, a human must set the stage, by outlining a yard with a dirt-level guide wire and by programming the robot with dates and times for cutting. After that, though, the electric mowers will start themselves, cut and return to base for recharging as needed, all on their own. Contrary to myth, they do not store maps of the territory or consult the Global Positioning System; they simply track where they are in relation to the guide wire [*see illustrations*].

Batteries are a key factor. Most units use lead-acid technology because it can provide the high power output needed for thick grass and is inexpensive. But the best mowers still cover only about 6,000 square feet per charge; half an acre will take four sessions. The machines also need two to three hours to complete those 6,000 square feet, crisscrossing and doubling back over their own paths to ensure they do not miss spots and for thorough mulching. That means the mower is on the lawn a lot, "but you're not out there pushing it, so why do you care?" notes Roy Tamir, technical expert at Systems Trading Corporation in Dallas. The company manages the RoboMower line, the biggest U.S. seller, made by Friendly Robotics in Israel.

Some prospective customers with large lawns balk at a bot mowing almost every other day to keep up. But the routine requires a change in mind-set; instead of a person shoving a mower through high grass and raking every weekend, the bots venture out more frequently and therefore only have to snip the tips of blades each time, which, turf experts add, leads to a healthier lawn. Despite all the activity, manufacturers say recharging costs only a few dollars a month.

Homeowners may find the frequent forays a nuisance (although the bots can cut at night). Owners may have to push a mower into tight corners or use the robot's manual controller. And they do still have to pick up sticks and debris that can ruin any mower's blades. Then there's the price: $1,500 or more. But busy people may be willing to pay for extra hours of free time. And the dog may make a new friend. —*Mark Fischetti*



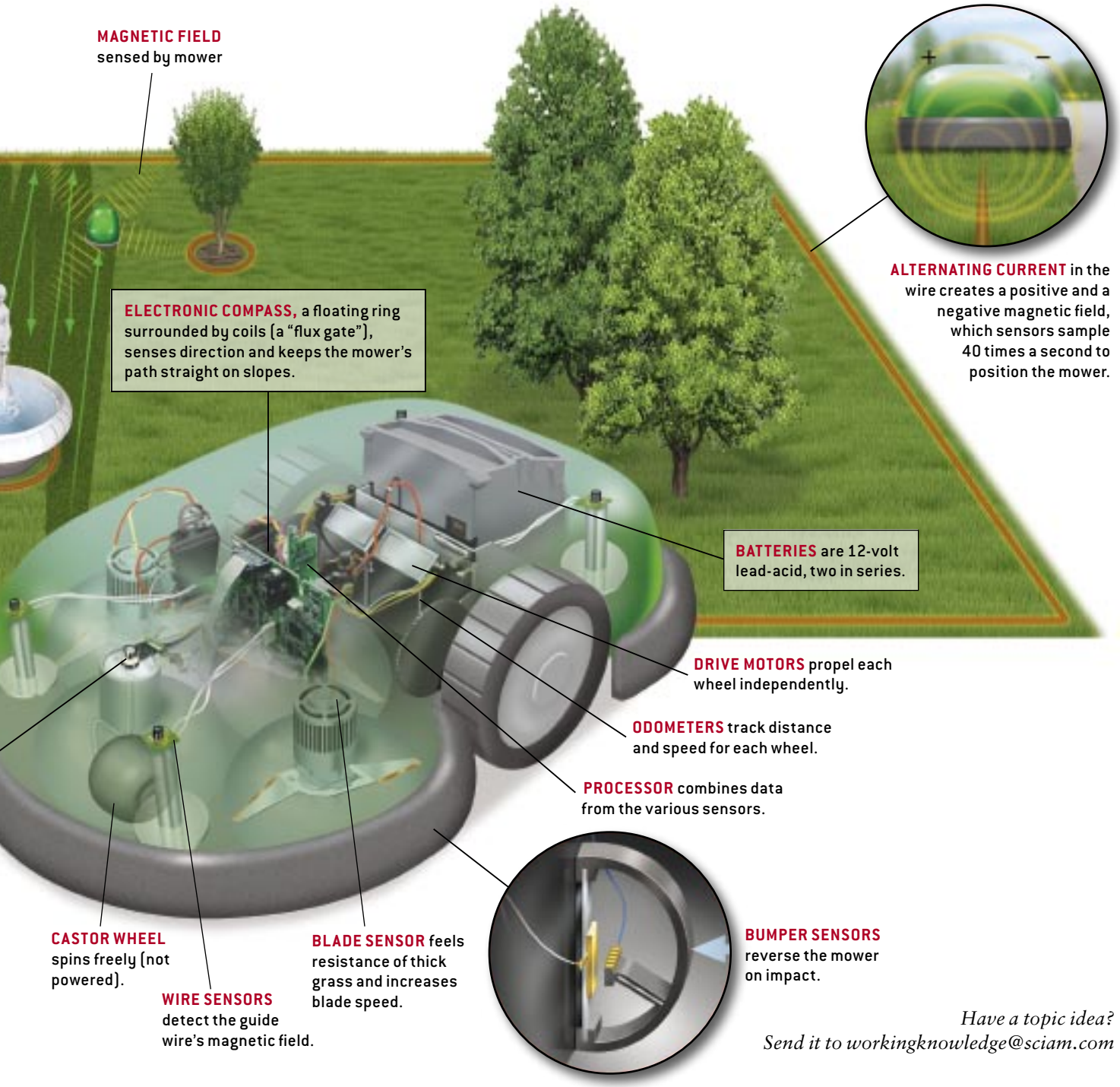
KENT SNODGRASS *Precision Graphics*; SOURCE: SYSTEMS TRADING CORPORATION

DID YOU KNOW...

➤ NEW ANGLE: Robot mowers follow a counterintuitive pattern of zigzags to cover a lawn [*see illustration on opposite page*]. Manufacturers made prototypes that cut rows, back and forth, as most people do. But the inability of the compass to determine a perfectly parallel path, and slippage on slopes or wet grass, left islands undone. The course follows a precessing triangle scheme that eventually covers all spots several times over.

➤ VACUUMS, TOO: Small robot vacuums that clean floors or short-pile carpet can be programmed ahead of time, return and dock for recharging on their own, and follow byzantine coverage patterns. There is no guide wire, though; to navigate, they reflect infrared or ultrasound beams off walls, objects and floors (the last to sense a stairway). Most look like a four-inch-thick Frisbee on wheels and underneath have a beater brush, spinning wand (for wall edges) and a suction slit. Models sell for $200 to $1,700. Some makers offer similarly styled units that wash floors.

➤ SITTIN' BY THE POOL: Automatic pool cleaners resemble a large, hard-shell bowling ball bag that crawls along the pool floor and walls, sweeping up sand, pebbles, leaves and scum. Powered by an electric cord, an impeller draws water through a filter while rotating scrub brushes scour surfaces. Other models have water jets that expel debris through a hose to the pool's filter system.



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