

THE GREEN DREAM

ONE MAN'S MISSION TO BUILD AN ECO-FRIENDLY, AFFORDABLE HOME



JOHN B. CARNETT, PopSci's staff photographer, is using the latest green technology to build his dream home. Follow his progress in each issue, and visit popsci.com/greendream for tips, videos of the build, and John's blog.

STAGE #6:

SWAPPABLE SWITCHES

A WIRELESS LIGHTING SYSTEM MAKES ELECTRICAL SWITCHES PORTABLE

MOST HOUSES require hundreds of feet of electrical wire to connect light switches to a main power source, but not my eco-friendly dream home. I've installed a wireless lighting system called Verve that uses radio waves instead of copper wiring to command all the lights and outlets in my house. The system not only saves copper (imagine the savings in a skyscraper) but also lets me put switches wherever I want—beside the kids' beds, in my pocket or even on the dash of my car—without the need to pull out wires or rip up walls.

A small module inside each light switch harvests energy from the motion of turning the switch on or off and uses it to transmit radio signals up to 300 feet away to

a central 10-channel controller that's hardwired to my fuse box. Since the switches generate their own power, they require no batteries, wires or messy electrical channels carved into my brand-new insulated wall panels.

Strategically placing networked controllers around my house allows me to turn on or off every light switch from a few convenient locations. For

instance, I can program the controller to let me turn out the lights in my son's bedroom from the living room. I can even pull a switch from its wall-docking plate and use it as remote, turning all the lights off in the house as I'm pulling out of the driveway.

Other whole-home lighting control systems offer more programming options, but they're also more expensive and cost more to install because of all the wiring. At \$3,500, Verve runs me only a bit more than the price of a home's worth of fancy dimmers. The downside? The system is designed mostly for new construction—retrofits get messy and costly because they require ripping out wires. For eco-friendly ideas on how to upgrade your existing lighting, check out the next page.—**JOHN B. CARNETT**

THE SPECS

HOUSE: 3,500-square-foot, four-bedroom contemporary

LOCATION: Greenwich, N.Y.

PROJECT: Installing a wireless lighting system

COST OF MATERIALS: \$3,500

TIME TO INSTALL: A few days

ECO-ADVANTAGE: Saves energy and hundreds of feet of electrical wiring

WHAT'S INSIDE

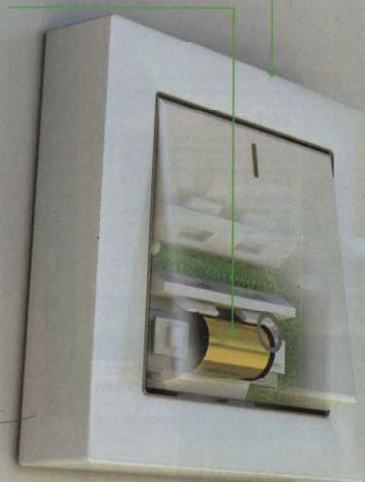
Wireless light switches

TRANSMITTER

Sends a radio signal to a receiver up to 300 feet away

MICROGENERATOR

Harnesses energy from the press of the light switch to power the radio transmitter



CONTROL UNIT

Capture radio signals beamed from light switches throughout the house to turn them on or off

ALREADY HAVE A HOME?

How to Make Your Lighting More Efficient

KITCHEN AID

Under-cabinet lighting can be hard to install and inefficient. Kichler's Design Pro LED Linear lighting gives off a bright, warm glow from eight LEDs that last about 20 years and draw 75 percent less energy than a comparable incandescent bulb. The foot-long fixture is a cinch to install and uses just one easy-to-hide transformer. kichler.com

PRIZE BULBS

The government's \$10-million "L Prize" competition aims to find a low-energy replacement for the ubiquitous 60-watt incandescent bulb. The first entry, an LED bulb by Philips, consumes less than 10 watts while producing light quality equivalent to a 60-watt incandescent. Look for it on shelves next year. philips.com

THINNEST YET

The organic LEDs in the new Orbeos lighting panel are thinner, lighter and more flexible than traditional LEDs. They also throw very little heat, so the 2.1-millimeter-thick panel can be hung just about anywhere. Unlike CFLs, the OLEDs contain no mercury and cast a bright, inviting light that lasts about 5,000 hours. osram-os.com

SEE-AND-SAVE

The colored LEDs in this wall switch help you visualize how much power your fixtures use. Flip the switch, and when the very top LED is on, you'll know your lights are drawing full power. Clicking the rocker switch down to dial back the amount of energy the light draws can save you up to \$30 a year per bulb. lutron.com

PETER BOLLINGER

NEXT COLUMN: BUILDING A GRAYWATER RECYCLING SYSTEM