

Home Automation Brings Dignity, Independence to Residents with ALS

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'Smart home' technology provides improved quality of life to residents with MS and Lou Gehrig's disease: controlling lights, thermostats and entertainment at Boston's Leonard Florence Center.

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By Julie Jacobson
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Steve Saling escorts me to the house he shares with nine other people, chatting along the way, as he takes me up the elevator and through the [motorized front doors](#) of his pad. He shows off the entertainment system in his bedroom, streams some [Pandora](#) radio through the in-wall speakers, and adjusts the lights, shades and thermostat just so.

His [home automation system](#) is pretty typical, but Saling is not: He has [ALS \(amyotrophic lateral sclerosis\)](#), also known as Lou Gehrig's disease. Like most of his housemates, Saling has no control over his arms, legs, hands, voice and other faculties. He can move his head pretty well, though, and that's all it takes to operate a custom control system from [Promixis](#), a mostly-DIY home automation vendor since 1998.

Promixis' new enterprise-grade control system, called [PEAC](#), is installed at the [Leonard Florence Center for Living](#) in Chelsea, Mass., near Boston.

The center, funded in part by the Chelsea Jewish Foundation, opened in 2010 with space for 100 residents in 10 living areas, or houses, each with about 7,000 square feet of living space. Residents — most of them elderly — vary in their ability to manage activities of daily living.

Daily living is especially challenging for Saling and his nine housemates in varying stages of ALS, a disease of the nerve cells in the brain and spinal cord that control voluntary muscle movement. Across the hall, PEAC is used by 10 more residents who have multiple sclerosis and slightly more dexterity.

"When I was diagnosed [with ALS], the doctors told me to get all my affairs in order," says Saling.

One of those "affairs" was to find a suitable home control system and a place where he and other ALS sufferers could live somewhat independently. A landscape architect by trade who "always had a knack for technology," Saling worked with the folks at Promixis to tailor the company's off-the-shelf home control system for the special needs of ALS and MS patients.

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A control system from Promixis gives new meaning to the term assisted living facility at the Leonard Florence Center for Living in Chelsea, Mass.

Promixis is a home automation vendor made famous a decade ago with its NetRemote and Girder PC-based home control software, which continues to attract an enthusiastic base of DIY consumers.

"It was a perfect fit," says Jason Mullen, the executive director of Leonard Florence. "They have a proven track record but they're small enough to give us special attention."

Another key reason for selecting Promixis was that "besides the software, everything is non-proprietary," says Mullen, an admittedly non-technical guy who now has a keen understanding of PEAC. "Steve was insistent on that."

Promixis managed the job from its headquarters in Santa Barbara, Calif., using subcontractors for the installation and programming the system via the Internet.

PEAC Performance

PEAC software is hosted locally on a Linux server at the Leonard Florence Center; it does not require Internet connectivity, but remote access is available for system programming and, of course, for streaming content and other online services.



VIDEO: Controlling the UPB lights from Powerline Control Systems

Low-cost, networkable I/O devices such as Global Cache serial, IP, relay and IR adapters, enable local control of audio, video, shades, motorized doors and other automated gear. A home-grown Promixis adapter bridges the IP network to UPB-enabled lights and appliances that communicate over the home's standard AC wiring. The thermostat is controlled via IP — all fairly standard fare for a modern-day home automation system.

The [user interface](#), though, is a different story. Absent the use of hands and voice, Saling and several of his housemates require nothing but head movements to control their environment and communicate.

A tiny reflective dot attached to Saling's glasses controls a tablet PC mounted to the wheelchair (head paddles control the movement of the wheelchair itself).

The head tracker is used like a mouse, with software engineered especially for people with limited dexterity. For example, intelligent word processors can finish words and sentences for the user. A text-to-speech engine gives voice to the written word.

"All of this varies with each resident," says Promixis CEO Ron Bessems. "Head tracking or eye gaze-tracking, sip-and-puff, or using eyebrows — all of these can be used to control a computer and thus PEAC. Some give full mouse control; others need scanning interfaces. PEAC provides both."

Feels More Like Home

Bessems says the PEAC interface is "infinitely adjustable to each resident's personal needs," mostly through a user-friendly, drag-and-drop interface: "Some residents want just [a few basic buttons](#) and the rest nested in sub screens, while others love to [have button overload](#). Steve's home theater page is an example of that."

Indeed, in demonstrating his system for *CE Pro*, Saling moved effortlessly from email to thermostat control to streaming media. He uses an Internet-connected LG [Blu-ray](#) player for online services.

All of this he performs with a sense of joy and hopefulness, explaining, "I hope and expect that it will revolutionize" the way people live with ALS and other debilities. "I am independent from wake-up to sleep."

Saling still needs help with some functions, like getting into bed and using the restroom, but even there he has some gadgets that get him from place to place and "clean my bum," he jokes.



VIDEO: Steve Saling controls home entertainment via Promixis home automation dashboard and LG Blu-ray player with streaming services.

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"Otherwise," says Saling, "you just sit there and wait for someone to change the channel."

Going Up, Going Down

If we can automate doors, windows, fireplaces and other home electronics, then elevators should be a breeze, right?

Not necessarily. The [Kone elevator at the Leonard Florence Center](#) was not equipped for remote control. Promixis hooked an IR-controlled relay system from GEWA into the elevator buttons, and bridged it to an optical controller that sits on top of the elevator.



VIDEO: Leonard Florence Center modified the elevators to enable operation via remote control.

Residents of Leonard Florence are fortunate with the level of care they receive there. "This is not a nursing home with home trappings," says Saling. "It is my home that happens to have excellent nursing staff."

During the day, one nurse and three shahbazim (nursing aids) are available to residents, as are a variety of other professionals including a talented cooking staff. On the day we visited, residents were sitting around a big dining table "discussing" the previous month's meals and planning the (kosher) menu for the upcoming month.

Make no mistake, Leonard Florence is a high-end facility with chic amenities, beautiful commercial kitchens, and plenty of space. And it has a nice garden specified by chief landscaper Saling himself. The area is wheelchair-friendly with a specially reinforced lawn that won't sink.

Unfortunately, Leonard Florence only accommodates 10 individuals each in the ALS and MS houses. But even with the limited capacity, says Mullen, "There really is no other residence in the country that's done

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Users communicate via Wi-Fi to the PEAC server, which relays signals optically to the elevator. The architecture mitigates any potential certification issues for the elevators, Promixis principal Ron Bessems says.

Of course, a rock-solid wireless network is required to ensure that signals permeate the elevator walls, but the facility does discourage unaccompanied travel in the elevators.

Apparently, Kone had never seen this level of integration with its elevators.

"I got to ride on top of the elevators while I was testing the system," says Bessems. "The Kone guys couldn't believe I was controlling the elevators from my laptop."

Inspired Installations

The Leonard Florence project motivated Promixis to develop a complete assisted living practice, and the company has since been involved with several other projects for people with disabilities.

Bessems says of the Leonard Florence job, "Steve [Saling] is a great guy. Even though he can't talk anymore and is severely restricted in his movement, he gives the tours of the facility, thanks to our system. It still gives me goose bumps."