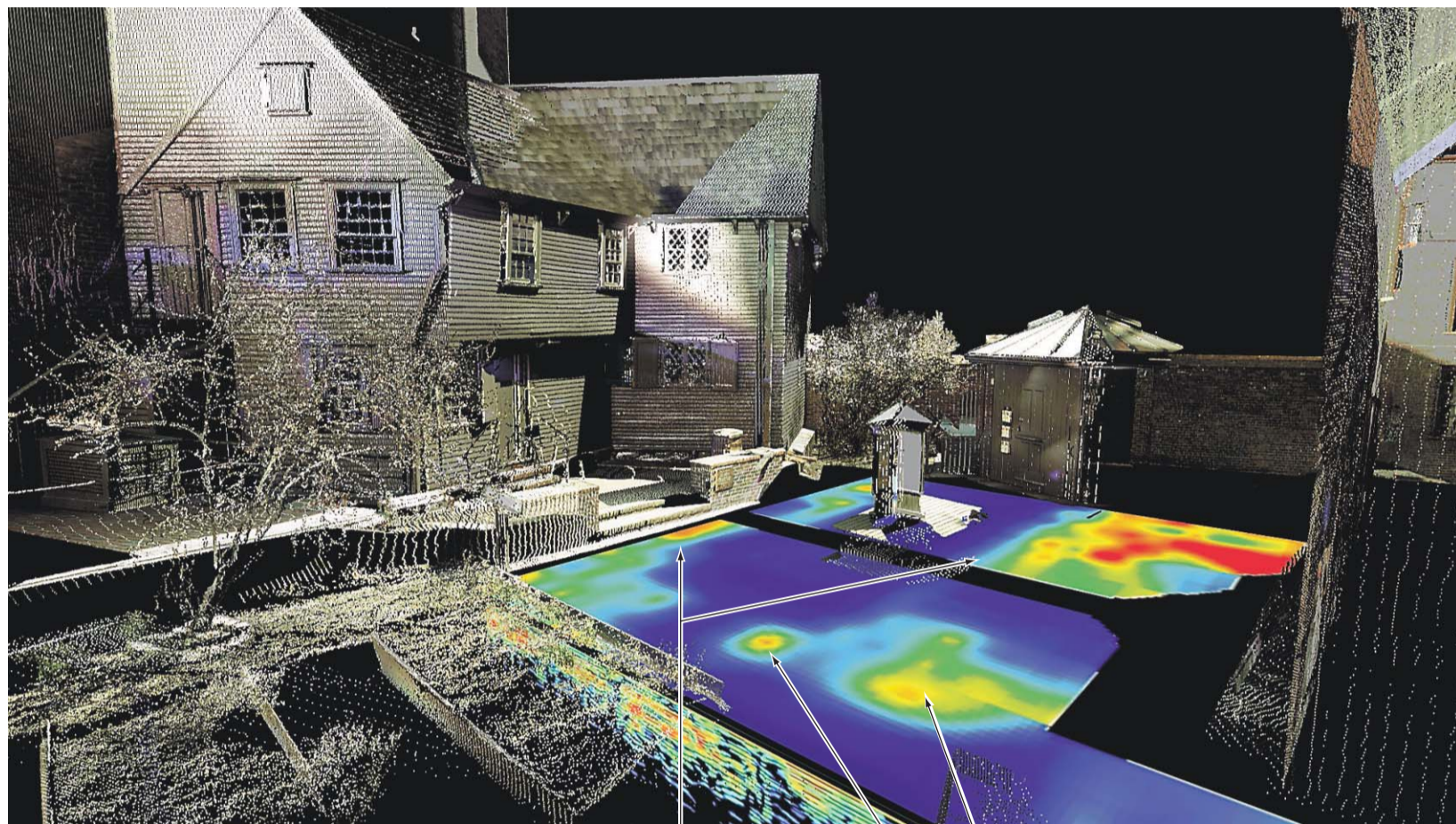


# Business & Innovation

THE BOSTON GLOBE MONDAY, MAY 19, 2008 | BOSTON.COM/BUSINESS

## A look into the past, with laser precision



The marriage of two technologies produced a three-dimensional computer model of the Paul Revere House and related buildings in the North End. That model was used to generate the image above.

Former foundation walls Undisturbed rocky soil Possible hand-dug well Dark blue areas show radar did not detect buried objects.

### 3-D LASER SCANNING

Surveyors collect data with a laser scanner.

Each laser pulse measures the distance from the scanner to whatever the beam strikes.

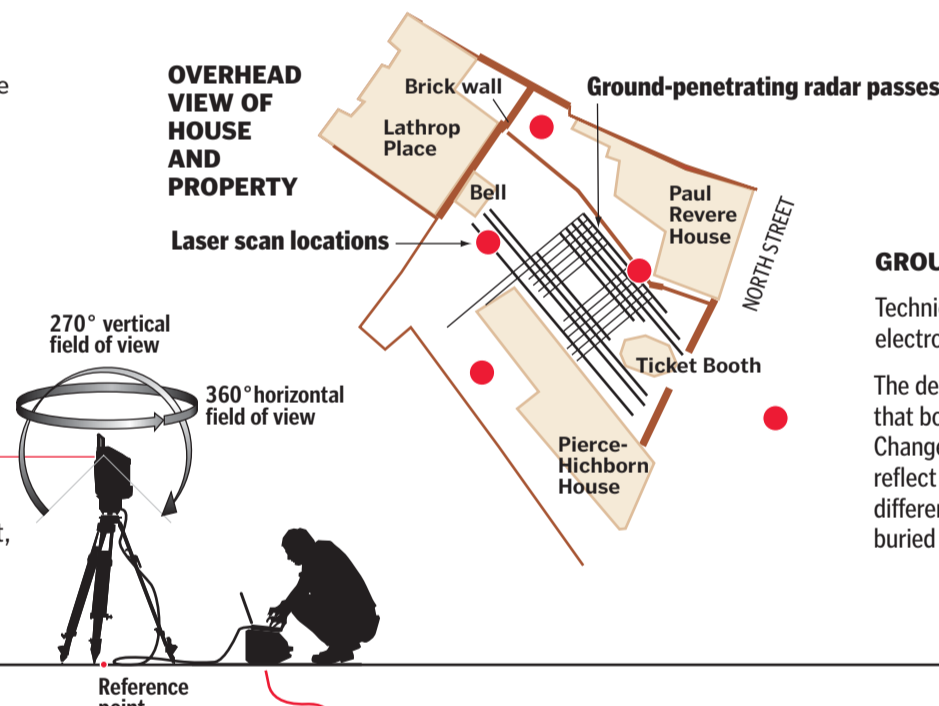
The scanner can take millions of measurements from a reference point, each accurate to 1/16th of an inch.

With the distance and angle from a reference point, computer software can calculate the position of each data point in relation to every other point.

Subsequent placements fill in data blocked out in the first scan.

Photos can be superimposed over the laser point image by aligning specific spots.

The laser scan portion of the Revere house model has 23 million data points.

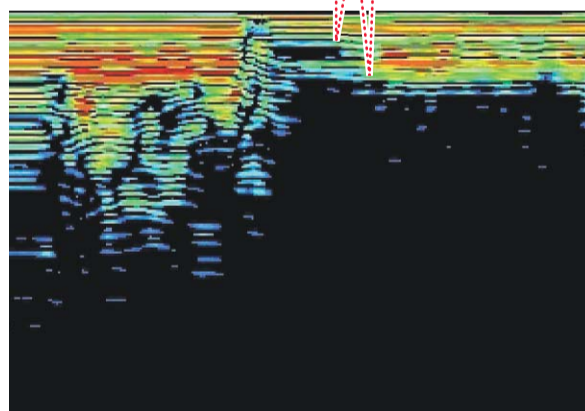


A laser scan with no photograph superimposed.

### GROUND-PENETRATING RADAR

Technicians drag a sled that directs electromagnetic pulses into the ground.

The device records echoes that bounce back. Changes in composition reflect pulses differently, indicating buried objects.



A profile from ground-penetrating radar showing possible foundation walls.

SOURCES: Stephen Wilkes, Harry R. Feldman Inc.; Allen Gontz, UMass-Boston

DAVID BUTLER/GLOBE STAFF

## Scientists and surveyors team up to catalogue every inch of the Paul Revere site, above and below ground

By Thomas C. Palmer Jr.  
GLOBE STAFF

The organization that runs the Paul Revere House aims to expand its historic North End site to include a neighboring property Revere once owned, creating more space for school groups and the thousands of others who make the pilgrimage each year to the starting point of one of the American Revolution's best-known episodes.

But before the nonprofit association that oversees the property can renovate the former residences at Lathrop Place, install an elevator to accommodate those with disabilities, or connect the two properties through an existing brick wall, executives want to catalogue every inch of the one-fifth-acre

site — above and below the surface.

Doing that will involve marrying three-dimensional laser surveying techniques with the work of a geologist and budding environmental scientists from the University of Massachusetts at Boston.

In the process, researchers hope to learn things they never knew about one of the Boston tourism industry's jewels.

The project started when the Paul Revere Memorial Association began planning to make additions and improvements to the site as its 100 anniversary approached this year. After the association purchased Lathrop House for \$1 million, Nina Zannieri, executive director, wanted to know how the planned

REVERE HOUSE, Page B7

## High-tech solutions redefining 'disabled'

Boston facility a leader in keeping focus on residents' quality of life

By Jennifer Batog  
GLOBE CORRESPONDENT

Don Olivier can read books and the scientific journals he covets, though he has no control over his body from the neck down. Dianne Connor can send friends greeting cards and play Mahjong but has little control of her hands.

Olivier and Connor are residents of the Boston Home, a facility for people with progressive neurological diseases, primarily multiple sclerosis. The home has embraced technology as a way to give its 96 residents, all of whom use wheelchairs, dignity and independence — as well as pieces of the lives they had before they were disabled.

**Voices can control computers; a person's breath can dial a telephone.**

The home has a cyber cafe with computers that respond to voice commands, telephones that dial with a person's breath, and lifts to ease the transition from bed to chair.

Residents' wheelchairs, most of which are designed so they can operate them independently using their breath, chins or heads, have magnetic strips that signal doors and elevators to open them.

BOSTON HOME, Page B7



JONATHAN WIGGS/GLOBE STAFF/FILE 2007

Marva Serotkin, CEO of the Boston Home, says technology helps battle the social isolation that people with progressive illnesses are apt to feel.

## Is America.com a \$12m name like Sex.com?

Rights to the domain going on auction block

By Robert Weisman  
GLOBE STAFF

America.com goes on the auction block this week, and specialists who monitor the buying and selling of Internet domain names say it could fetch one of the highest prices ever paid for a domain.

The Cambridge auctioneer and a Swiss broker representing the overseas owner of the America.com domain say there has been strong interest among prospective buyers and the sale price could exceed the estimated \$12 million paid for Sex.com earlier this decade, thought to be the most ever.

Others think the America.com price is likely to fall short of the record.

"I think it's a seven-figure name," said Ron Jackson, editor and publisher of the Domain Name Journal in Tampa, Fla., a magazine and website that tracks transactions.

AMERICA.COM, Page B7

### ONLINE

#### Meet George

Watch Chestnut Hill Sound's Steve Krampf demo the George iPod music system in a video at [boston.com/business](http://boston.com/business).



### INSIDE

#### Goodies for geeks

Hungry for a USB drive shaped like a fortune cookie, doughnut, or even a slice of cake? Check out this vendor's site. **B6**



#### Microsoft, Yahoo mulling alternatives

The software giant and Internet search firm are considering an arrangement, short of a purchase, that may stall a proxy fight. **B7**

A gyroscope to help steady your swing. **B6**

New device has iPhone-like qualities. **B6**

Smarter way to vanquish Web pirates. **B6**



DAVID L. RYAN/GLOBE STAFF

An expansion plan will provide more space for school groups and others who visit the Paul Revere House in Boston's North End.

## Team peers into Revere house's past

► **REVERE HOUSE**  
Continued from Page B5

changes would affect what is above the surface — and what might be underground.

Although the Revere house was built in 1680, no thorough land survey has ever been done.

Now surveyors from the Boston firm Harry R. Feldman Inc. and an academic team from UMass Boston are collaborating to create a three-dimensional digital picture of the house and associated structures, the garden where water was once drawn from a hand-dug well, and even what's below ground, down to about 10 feet.

A picture of what's above the surface, created by the Feldman firm using a laser scanner, is being stitched together electronically with a radar-generated image of what's underground produced by the UMass Boston team, so history — even the remains of a privy — can be protected as the space is enlarged.

"You've got the building in its entirety," said Stephen M. Wilkes, director of 3-D services at Feldman, as he projected an image of the property that looked more like a color photographic negative than a picture. "You can plan to the nth degree."

Allen Gontz, assistant professor of coastal geology and geophysics at UMass-Boston, jumped at the chance to bring his students to study the Revere site when Zannieri approached him. His focus is on the city's original coastline, and the Paul Revere House was originally only two streets from Boston Harbor.

Gontz's team spent six days pulling an electronically equipped "skid plate" along the surface of the ground, directing waves of radar deep down. Those bounced back and were recorded, revealing anomalies — "hot spots" — in the layers of earth and sediment.

In 1983, a privy — a gold mine

for historical researchers for what it reveals about the lives and habits of those who used it — was found under the 1711 Pierce/Hichborn House, another historic structure on the Revere association's property.

Although the data from the recent surveys are still being analyzed, based on preliminary readings the UMass team suspects that another privy and other foundations or walls, revealing structures now long forgotten, will be discovered.

Gontz compared an underground area that has never been disturbed to "a seven-layer chocolate tort," with layers of soil or sediment or sand instead of cake icing. If the chef got hungry, Gontz explained, "and dug the center out to eat it, and then filled it with something else" — well, that's how the evidence of a privy or old well might look, surrounded by undisturbed material.

Zannieri is interested in knowing where, for example, she can place the foundation for a new elevator without disturbing an old cobblestone walkway that once connected the two buildings.

"I can give her an idea," he said. "A lot of it is interpretation and looking at how things relate to each other." That will determine where alterations can be made to the property, and it will identify spots that city and state archeologists might want to explore.

Revere's house marks the start of the journey he made to warn other patriot leaders that the British were planning to march on Lexington and Concord, setting the stage for the first armed conflict of the American Revolution.

Over the years, the Paul Revere House has been a wealthy merchant's home, an artisan's resi-

dence, a rooming house, and a tenement with shops. It was renovated in 1907 and opened to visitors a year later.

Paul Revere, the great-great-grandson of the silversmith and patriot, is chairman of the association's board.

The house is the oldest in what was originally Boston, though not the oldest in Boston as it exists today. Revere lived there in four rooms, an attic, and a basement with some of his 16 children from two wives, as he prospered in the silver, iron, and copper businesses.

Zannieri said the board hopes to raise money and perhaps use a modest portion of its endowment to renovate the new property. "We have such a high demand, particularly for summer and after-school programs, that we need additional space," she said.

The site has about 250,000 visitors annually.

A few months after the UMass group got started, Michael A. Feldman, president of the surveying company and a Boston history buff, called Zannieri. He wanted to choose a couple of historic sites in Boston and offer them professional surveys free of charge. "I wanted to give back," said Feldman, who has done large developments like the W Hotel being built in the Theatre District and a planned South Station office tower.

His timing couldn't have been better.

"It was the most beautiful thing," said Zannieri. "I said it just so happens we need a boundary survey done."

Feldman told her about the 3-D scanning he does, and she told him about the below-ground radar search that was already being conducted. "He said, 'Oh wow.' At that point the technology guys got to-

gether, and that was the last I saw of them."

What was originally to be a standard ground survey turned into five days of laser scanning and conventional survey work — some 23 million laser dots, about 1/16 of inch in size, recorded digitally from five angles. The work includes valuable data that can be used by architects and contractors, but it also produced colorful, surrealistic-looking images of the existing structures.

"The scanned images Michael is doing, they're art," said Zannieri. "They're really cool."

Feldman employees and the UMass group are now working with their images, cleaning them up and creating a virtually perfect computerized image of the property. Using medical imaging software, the same technology that helps produce pictures of unborn babies, they will produce an image that can be rotated and viewed on a computer screen. Precise dimensions of the building will be available, and an exact record of the historic property is established for posterity.

Some version of the data that is produced may even show up on the Paul Revere House's website. "Nina will be able to produce animation or a walk-through tour," Feldman said.

The final and hardest task is stitching together the images from below ground and the laser picture from above. "The integration of laser scan data and GPR data is a very new thing," Wilkes said. "It's really cutting-edge work anywhere in the world, let alone archeology and engineering."

And it's good for anybody interested in Boston's past.

"I love it when we can say to the public all these things mesh together," Zannieri said. "The history, the geography, the science, the technology."

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**With high-tech surveying, an exact record of the Paul Revere House is established for posterity.**

## High-tech solutions redefining 'disabled'

► **BOSTON HOME**  
Continued from Page B5

"It keeps your mind off of everything you can't do," said Connor, a 10-year resident. Connor once spent time doing things with her hands, such as macramé or crewel work. Now, she spends a lot of time in the cyber cafe, e-mailing friends and family greeting cards, shopping online, and playing games.

An automatic lift in each room reminiscent of the revolving racks at a dry cleaner helps Connor, 61, feel more secure about transferring from her bed to her wheelchair. The lift has a T-bar to which residents are secured with straps. Without technology, "I wouldn't be able to get out of bed," she said.

For Olivier, 67, the home's emphasis on using technology to improve its residents' quality of life means he can keep in touch with the world outside his window. The computer in his room allows him to read books and magazines online, e-mail his daughters, one of whom lives in Spain, and see photographs of his granddaughter. He

dials his telephone using his breath, puffing into a tube to get a dial tone, and then puffing to tell the phone which number to dial.

"It makes it a whole lot easier to be disabled," he said. "There are things I can do. I feel like I'm in touch with the world in a lot of ways I couldn't be if I didn't have this window looking out on it."

Focusing on the latest technology dovetails with the home's mission, chief executive Marva Serotkin said. The technology gives residents mobility, mental stimulation, access, and the ability to communicate. All of that helps combat the social isolation many with progressive illnesses feel, she said.

That's especially important at the Boston Home because its population is generally younger than at most long-term care facilities. Residents range in age from 32 to 80. The average age is 56.

The home has recently entered into a partnership with the Massachusetts Institute of Technology's Age Lab to develop wheelchairs that would operate with voice



JONATHAN WIGGS/GLOBE STAFF/FILE 2007

Marva Serotkin is chief executive of the Boston Home, where the average age is 56. Residents mainly have multiple sclerosis.

commands. For example, to go to the kitchen, a resident would simply tell the chair to go there. The lab has developed a prototype, but it's about a year away from being ready to test.

Eventually, the home's administration hopes to create a WiFi network for a nurses' call system and have a real-time resident locator system, both of which are steps toward providing remote control wheelchairs, said Don Fredette, the home's equipment technician.

"We need to do everything we can to make life better for our residents," he said. "The technology

allows them to have some vestige of their former life."

The home's emphasis on technology is unusual in the world of long-term care, said Dorothy Northrop, research and clinical operations vice president for the National Multiple Sclerosis Society in New York. Indeed, other MS long-term care providers have come to the home to study its use of technology, she said.

"They are definitely a leader in this area," she said. "Because of the level of disability the residents have, it makes technology all the more crucial."

# Microsoft has new plan for a Yahoo deal

By Andrew Ross Sorkin  
NEW YORK TIMES NEWS SERVICE

Microsoft has proposed a complex new deal with Yahoo that would involve collaboration between their online advertising businesses but would not involve a full takeover, Microsoft said yesterday.

Microsoft released a brief statement disclosing the renewed talks, a surprising reversal just weeks after it withdrew its \$47.5 billion takeover bid for Yahoo and said it had "moved on." The statement hints that Microsoft may later seek to reenter merger negotiations.

Microsoft said it was "considering and has raised with Yahoo an alternative that would involve a transaction with Yahoo but not an acquisition of all of Yahoo." Microsoft provided no additional details.

People involved in the confidential discussions said the talks center on a partnership or joint venture for search-related advertising to compete against Google.

When Microsoft made its unsolicited bid of \$31 a share for Yahoo in February, it said it was doing so as part of its battle to increase its relatively small slice of the search-related advertising market against Google, a behemoth with more than 58 percent of the market.

The timing of Microsoft's new approach may seem opportunistic. Yahoo has been racing to complete its own partnership with Google and was expected to announce a formal agreement as ear-

ly as this week. A Yahoo-Google partnership, which is likely to face antitrust scrutiny, could make Yahoo a less desirable partner or takeover candidate for Microsoft.

The new discussions also come as Yahoo is facing increasing pressure from shareholders, some of whom are furious that its board did not work harder to reach a deal to sell the company to Microsoft.

Last week, Carl C. Icahn, the activist investor, mounted a proxy contest to replace Yahoo's entire board, saying the directors had "acted irrationally and lost the faith of shareholders."

He is hoping to push Microsoft and Yahoo back to the negotiating table to reach a full-scale takeover. People close to Microsoft and Icahn say neither has been in contact with the other.

It is unclear whether Microsoft would pursue a takeover bid again.

In its statement, Microsoft insisted it was not making a bid, but hinted that it could be persuaded to reverse course.

"Microsoft is not proposing to make a new bid to acquire all of Yahoo at this time, but reserves the right to reconsider that alternative depending on future developments and discussions that may take place with Yahoo or discussions with shareholders of Yahoo or Microsoft or with other third parties," the company said.

A spokesman for Yahoo declined to comment.

## Can America.com get Sex.com's \$12m price?

► **AMERICA.COM**  
Continued from Page B5

"You could sell anything from there: hotel rooms, flights, ground transportation from airports. For someone with the right vision, there's a lot you can do with that name. But I don't think it's going to be the all-time highest domain sale."

America.com will be auctioned off between Thursday and May 29 by Sedo, an Internet research and appraisal company that runs online marketplaces for domain names from Cambridge and its home office in Cologne, Germany. Bidders must be certified by the company at either of two websites: Sedo.com or GreatDomains.com, a site acquired by Sedo last year to handle auctions of its premium properties.

The site America.com currently contains information about the upcoming auction.

Jeremiah Johnston, the Sedo general counsel and chief operating officer for the Cambridge office, said the auction has already begun generating inquiries from would-be buyers, ranging from yachting companies to clothing retailers. He said Sedo's largest sale ever was of the Vodka.com domain, purchased for \$3 million by a Russian vodka company planning to enter North America.

Buyers have been especially attracted recently to "geo domains" that contain the names of cities, states, or countries, Johnston said. "We brokered Chinese.com for \$1.1 million last year," he said. "So we're hoping America.com goes

for more than that. America has stronger value as a brand. I think it has the potential to be a record."

The domain name was acquired three years ago by a foreign investor who does not want to be identified. Paolo Belcastro, the owner's representative outside Geneva, said the ultimate price will depend on the number of serious bidders and their visions.

"I really think this name has very, very great potential," Belcastro said. "For some domain names, we attract investors who want to resell it and for others we can attract end users who want to use the power of the name to build a business. You could imagine tourism, you could imagine real estate, you could imagine a lot of things."

"When your website is called America.com, you're going to multiply the power of your market investment by 10 or 20. When someone sees your advertisement once, they'll never forget the name."

Robert Weisman can be reached at [weisman@globe.com](mailto:weisman@globe.com).

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