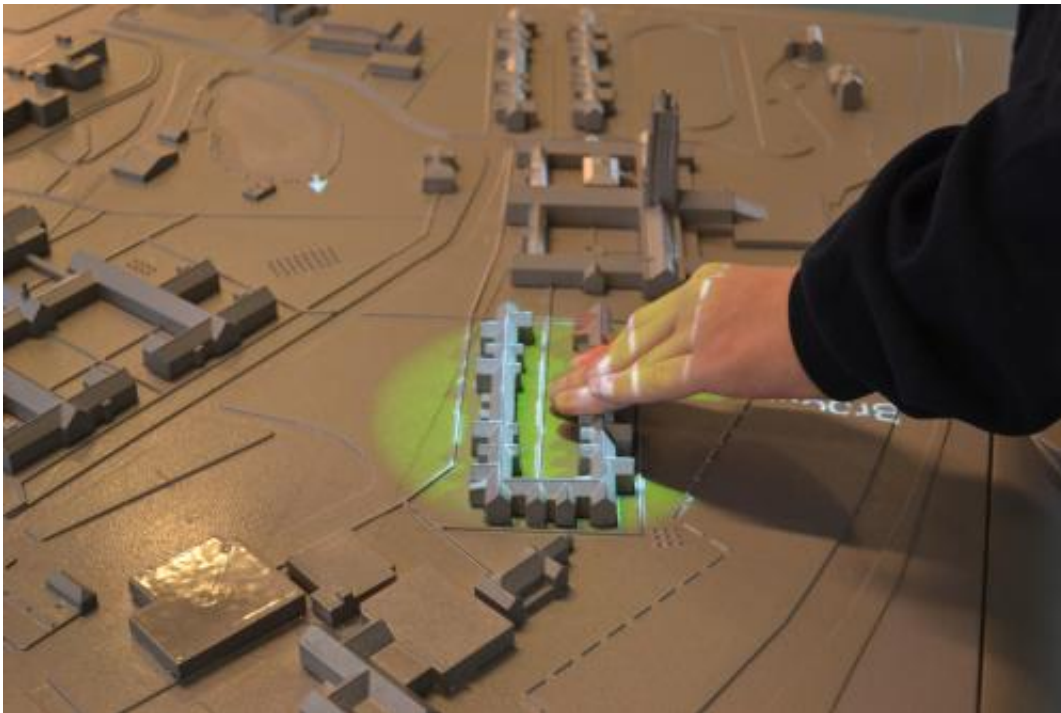


# Touch-responsive 3-D maps provide independence to the visually impaired

November 20 2014, by Charlotte Hsu

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Sighted, blind and visually impaired users benefit from the Perkins School's multisensory model, which offers audio, tactile and visual cues for inclusive interaction. Credit: University at Buffalo IDeA Center

These maps are made for talking. And touching. And they're beautiful, too.

In partnership with Touch Graphics Inc., developers at the University at Buffalo's Center for Inclusive Design and Environmental Access (IDeA

Center) have built and tested a new kind of interactive wayfinder: 3-D maps that vocalize building information and directions when touched.

The technology is designed with an important mission in mind: to help [visually impaired](#) visitors navigate public spaces like museums and college campuses.

"It's really about giving this audience, this population, a way to understand their environment," says IDeA Center researcher Heamchand Subryan, who led the project with IDeA Center Director Edward Steinfeld, ArchD, and Touch Graphics President Steve Landau. "We're providing a level of information that allows them to navigate their environment easily, without help, which gives them a sense of independence."

The latest installation, at Perkins School for the Blind in Massachusetts, uses conductive paint on miniature buildings to sense pressure from a visitor's fingers.

As guests explore the model with their hands, the map announces building names and directions for getting to destinations. A menu controlled by just three buttons lets users browse a verbal index of all points of interest.



Sighted, blind and visually impaired users benefit from the Perkins School model, which offers audio, tactile, and visual cues for inclusive interaction. Credit: University at Buffalo IDeA Center

Sound effects embedded in the landscape serve as auditory landmarks for people who are visually impaired: A fountain gurgles when tapped, and a bell tower chimes.

"The touch-responsive models solve the 'last mile' problem for blind pedestrians, who can often navigate to a building or campus address using GPS, but then need help to get to the classroom building or doctor's office where they need to be," Landau says.

Though the technology was designed for people with visual impairments, the multisensory models make wayfinding a better experience for everyone.



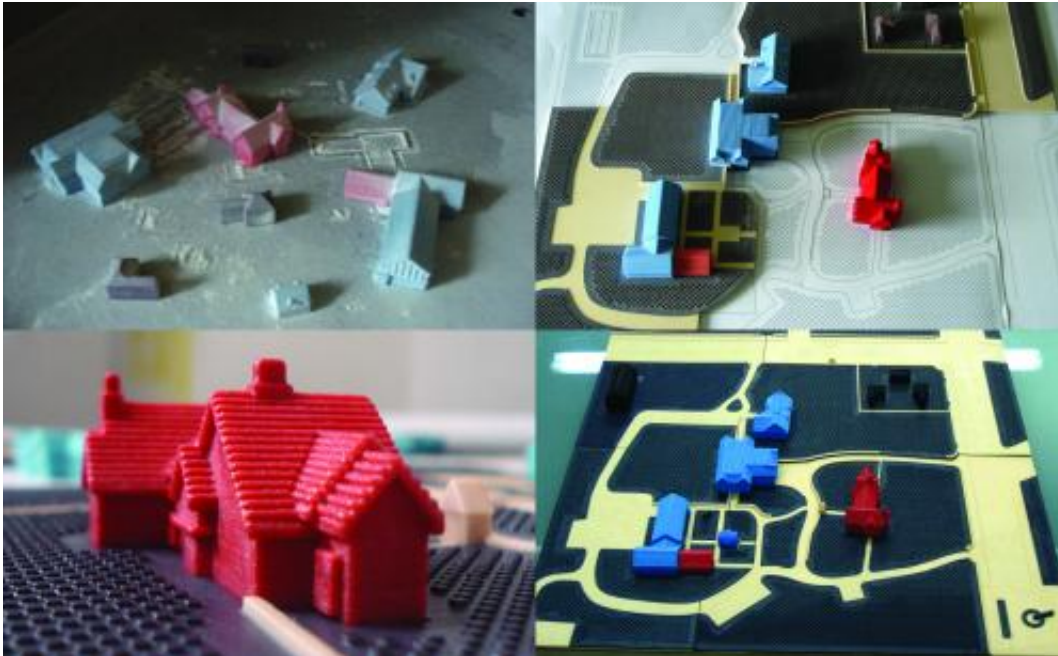
The Chicago Lighthouse talking map is a raised interior plan that uses dynamic overhead projection to illuminate the map and display all audio content as text. Credit: University at Buffalo IDeA Center

A projector above the Perkins installation shines a spotlight on buildings when they're touched, casting a beautiful light over the ornate, three-dimensional landscape. A new model under development for the Overbrook School for the Blind in Philadelphia will also be visually stunning, with a video screen glowing through a translucent base, illuminating the models of each building on campus from below.

And unlike the vertical maps found at many museums and shopping malls, the models are horizontal, allowing users to experience the world as they would in real life.

In addition to the one at Perkins, prototypes have been placed in the last

few years at the Carroll Center for the Blind in Massachusetts and the Chicago Lighthouse for the Blind, where the model shows a two-story building's floor plan.



To construct the talking maps, buildings and landscape are printed separately using a 3-D printer and then assembled into a single model. Credit: University at Buffalo IDeA Center

All three projects employ universal design, which aims to produce buildings, spaces and products accessible to all people instead of individual segments of the population.

It's a specialty of the IDeA Center, which is part of UB's School of Architecture and Planning.

**More information:** For more information on the maps, visit [segd.org/interactive-wayfinding-visually-impaired](http://segd.org/interactive-wayfinding-visually-impaired).

Provided by University at Buffalo

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