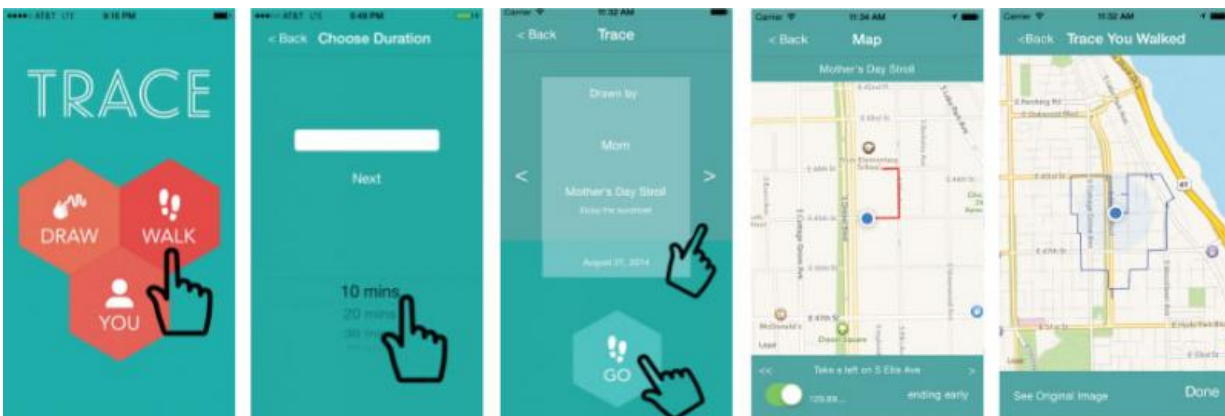# UW mapping app turns art into a sharable walking route

May 6 2015, by Jennifer Langston

The Trace app allows you to share the walk with a friend. Credit: University of Washington

Creative athletes have been using geographic information systems to transform their running routes into kangaroos, robots and other works of art that they share online, and one romantic cyclist last year even spelled out "Will you marry me, Emily?" with his bike.

A new mobile app developed at the University of Washington does the opposite. The Trace app turns a digital sketch that you draw on your smartphone screen—a heart, maple leaf, raindrop, sailboat—into a walking route that you can send to a friend or loved one. The recipient of the "gift" tells the app how long they want the walk to last and receives

step-by-step directions that eventually reveal the hidden shape on a map.

The sender can also include audio recordings, images, inside jokes or other messages that pop up at specified locations along the route to give the recipient hints.

The [free app](link), available from [Google](link) and [iTunes](link), was designed by UW Human Centered Design and Engineering researchers to explore how GIS mapping technology shapes how we experience the simple act of walking. Trace aims to encourage communication and reflection, rather than focusing on competition or efficiency.

"For some people it was a delight to find that slowing down allowed them to meet new people or see familiar sites in their neighborhood in new ways, but at the same time giving up that control was a stress for other folks who had a routine, " said project lead Daniela Rosner, assistant professor of Human Centered Design and Engineering and co-director of the UW's TAT Lab.

Activity tracking apps like FitBit help people reach exercise goals, and routing apps like Google Maps are optimized to send people on the most efficient route to a particular destination. Trace, by contrast, forces walkers to relinquish control, go where the app directs them and in some cases experience traveling through a city quite differently than they're used to.

In a [study](link) presented last month in Seoul at the Association for Computing Machinery's CHI conference for computer-human interaction, 16 avid walkers in Seattle, Boston and Chicago who used Trace for a week tested more than 150 shapes. Some participants—who included a dog walker, an artist, a Massachusetts Bay Transportation Authority employee and a lawyer who works on rights to public space—sent routes to friends while others simply used the app to draw

walks for themselves.

In one instance, a woman who met her boyfriend at a French cultural center in Boston sent him a walk that traced the outline of the United States, the country that brought them together. Along the way, she included hints to the mystery pattern, like "The Star-Spangled Banner." The two walked the route together in downtown Boston on a Sunday afternoon.

Unlike other apps that allow you to share a fixed route that you may have already run or biked, Trace allows a person to begin walking the route from any point in the city. The walker can also make the shape bigger or smaller by specifying how long the walk should last.
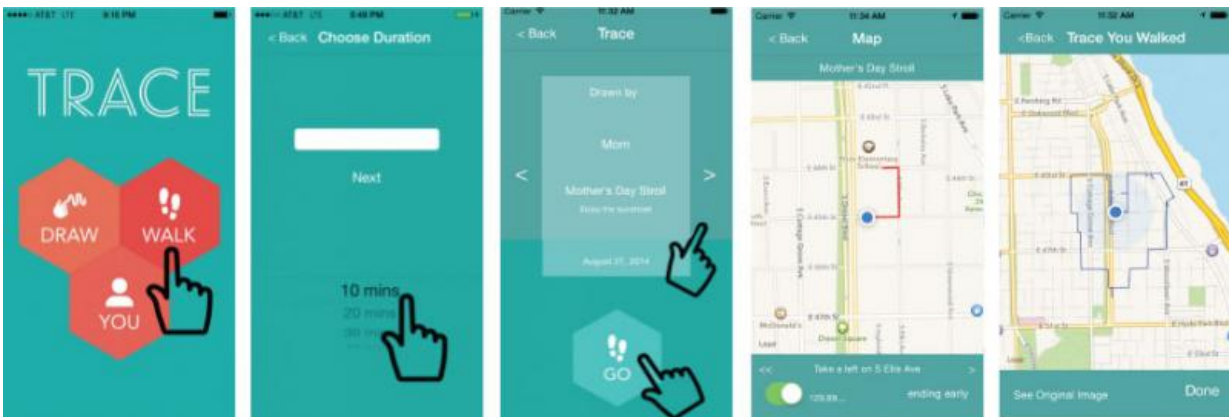
Trace converts the sketch into a set of walking directions that eventually reveal the mystery shape. Credit: University of Washington

Some people found that using Trace introduced a different pace into their daily routines. One found himself in neighborhoods that he usually biked or ran through, but rarely walked. Others discovered new paths to

local parks in their neighborhoods, or found time to engage with kids and neighbors as they paused to wait for the next direction. Rediscovering features that they often overlooked in their everyday environments invited unexpected surprises.

On the other hand, participants also found Trace to be deeply disruptive to familiar routines. It forced them to walk without having a clear sense of where they were going, and some shapes forced them to walk up and down the same street more than once, all of which felt disturbingly inefficient.

"We've sort of lost interest in exploring the same path two different ways, even though you can retrace your steps and have a different experience," Rosner said. "That deep-seated need for efficiency says something about what we expect from our tools and what maybe our tools have enabled us to expect."

In other instances, Trace routed people into neighborhoods that they perceived as unsafe or that made them feel uncomfortable. Those were among the times that people abandoned their walks. As some GIS routing apps have begun to experiment with using crime data to steer people away from certain neighborhoods, those algorithms raise questions about what becomes a discriminatory act, Rosner said.

"Our goal for this research wasn't necessarily to produce the next new app for walking, though we hope people will use and enjoy it," Rosner said. "It was to use the tool to start asking questions about what we expect from our GIS routing tools and about the role that technology can play in our walks."

Provided by University of Washington