Project Brief - June 2014

Transportation Planning Through Mobile Mapping Technology

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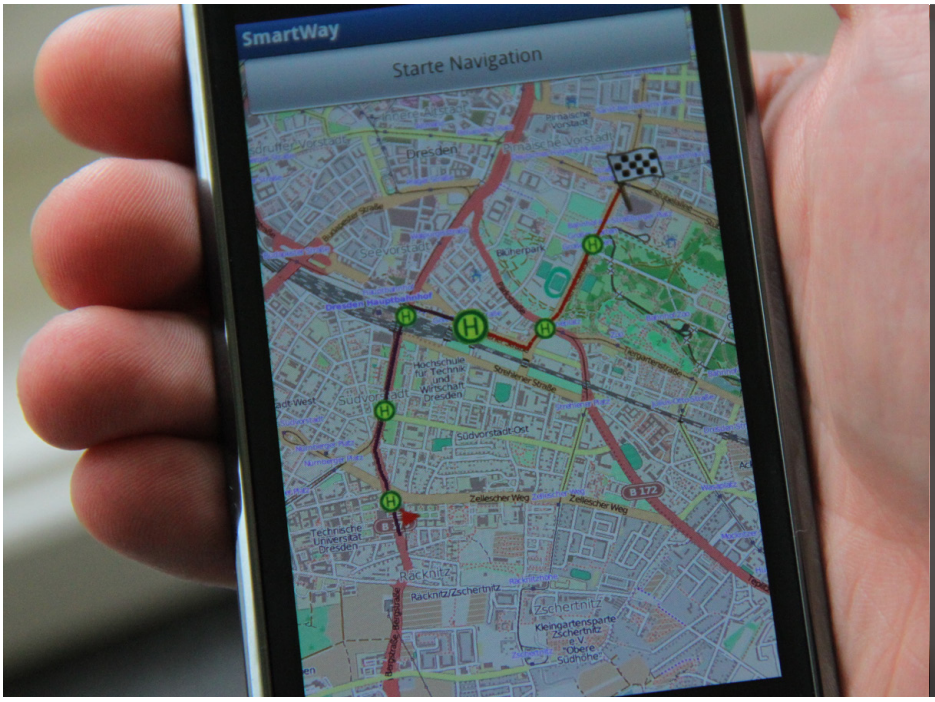

THE ISSUE

How can we collect data from communities about their transportation environments?

THE RESEARCH

We tested the "Fix This Tool" iPhone app, after finding out in previous research that restrictive GIS-based technologies are challenging for everyday use by the public.

THE IMPLICATIONS

The "Fix This Tool" was an effective way to easily communicate and document everyday active-transportation environments that may otherwise go unnoticed by government-based efforts.

Image by www.fraunhofer.de

The Issue

The planning of transportation systems for bicyclists and pedestrians is in its infancy in the United States and requires more integrated transportation planning. The final research report describes the development and testing of the Fix This Tool, a spatial, participatory, active transportation and built environment assessment tool created on an iPhone platform.

The goal of this project was to create a tool that could be widely distributed to communities across the country to document small-scale elements in local active transportation environments. The benefits are two-fold: commuters can document overlooked transportation issues, and public officials can focus their energy on making appropriate improvements.

This research addresses a key issue that local action is not only a function of policy, but it is also linked to data availability. Researchers from the University of Oregon and Sustainable Cities Initiative sought to address this gap by developing a data collection tool that is cost-effective, addresses the local scale important to pedestrian and cycling networks, and engages the public in a meaningful way in transportation decision making.

The Research

The researchers developed the Fix This Tool as a community engagement and data collection tool to assess transportation infrastructure. The development of this tool emerged out of previous work that used a GIS-based tool. While this past work was successful in collecting data and encouraging community conversations, the GIS tool had huge limitations. For example, GIS technicians must be present, users must be trained, and any resulting data must be specially stored and processed. As a result, the GIS approach was expensive and hard to widely distribute.

The Fix This Tool uses an iPhone platform to collect data, which is a departure from other public engagement tools because it uses privately owned devices that are highly user friendly. As a primary benefit to this apporach, there is no limit to the number of devices used for data collection.

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Also, because the devices are privately owned, they need not be purchased and participation doesn't require training or oversight by a GIS professional.

Instead, participants record observations on both survey and map interfaces, which are sent to a central server automatically and in real time. This process can provide public officials with immediate information that is richer than before because it includes metadata, such as exact time and place the record was made.

Researchers tested the validity of using decentralized, privately owned devices for data collection by distributing 10 pre-paid iPhones to university student volunteers. Volunteers noted important issues on their regular biking and walking routes. Upon returning the phones, they took a five-minute survey of their transportation decisions, perceptions of the data-collection process, and the application's ease of use. In a future, fully decentralized model, this interaction and

The Implications

This is a new tool that has the potential to revolutionize transportation data collection by making it more user-friendly and comprehensive. Users require no training, which is leaps and bounds above previous GIS-based audit tools that did require more extensive technological training.

The Fix This Tool is designed to overcome distribution and cost barriers because it can be easily downloaded by community members using technology they already own. This ease of use means that hundreds of thousands of Americans can document millions of instances of good and bad active-transportation situations in their communities. This is data that no top-down approach could ever collect because certain problems for pedestrians and cyclists are too small-scale for government-based efforts to keep updated. For example, temporary obstructions can be a huge frustration for commuters but too small or fleeting for public officials to address in a meaningful, quick, and permanent way.

With the Fix This tool, subjective and temporary data, when collected by hundreds of residents in a given community, can add up to larger meaning with policy and programmatic implications. In other words, the Fix This Tool turns community engagement and data collection into action.

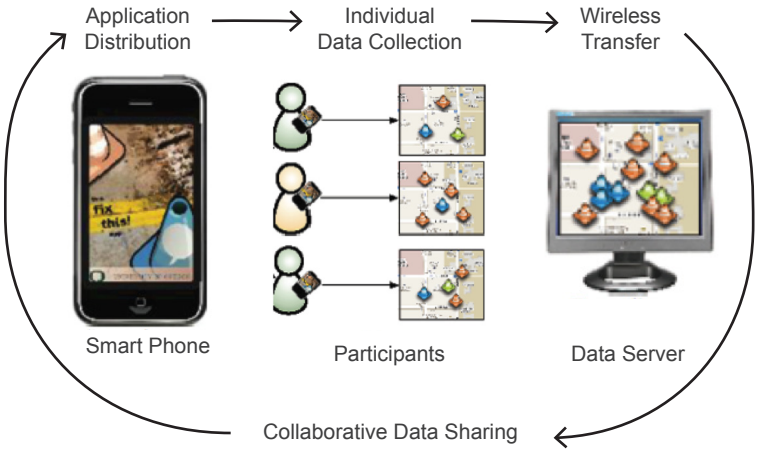

Image Caption: The figure above illustrates the research project's distributed approach to data collection and synthesis.

PROJECT INFORMATION

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Completed: July 2011

Online: http://otrec.us/project/320/