

<b>UTC Project Information</b>	
Project Title	Developing a Smartphone App Platform to Decipher Travel Behavior
University	George Mason University Rensselaer Polytechnic Institute
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Funding Source(s) and Amounts Provided (by each agency or organization)	TransInfo UTC: \$106,797 George Mason University: \$41,400 Rensselaer Polytechnic Institute: \$49,013
Total Project Cost	\$197,210
Agency ID or Contract Number	
Start and End Dates	January 1, 2016 – December 31, 2016
Brief Description of Research Project	<p>Travel behavior data enables the understanding of when, where and how people travel, and plays a critical role in travel trend monitoring, transportation planning, and policy decision support. Conventional travel survey provides detailed information on trips in a given time period taken by a representative sample of households within a geographic area. Such survey data has been the primary source of travel behavior information for transportation agencies for a long time, and has played an essential role in the development and maintenance of regional transportation models. The relatively high cost of traditional travel surveys often prohibits frequent survey cycles. Researchers and practitioners desire cost-effective alternatives to the conventional survey method that could provide more up-to-date, or more ideally, longitudinal travel data. There have been some pilot studies that focused on collecting travel data using smartphone apps. However, the potential of smartphone apps in travel data collection cannot be fully unlocked until researchers overcome several major barriers, including challenges in subject recruitment, sampling bias, and privacy concerns.</p> <p>To address the aforementioned challenges, the research team proposes to develop a smartphone-based travel behavior data</p>

	<p>collection platform that can effectively recruit participants by 1) rewarding users with real-time parking information and, 2) balancing data needs and privacy concerns. The research team at GMU has developed a prototype smartphone app in both iOS and Droid that provides real-time information on parking space availability on GMU Fairfax Campus to users (see figure 1). The research team at RPI has developed a prototype algorithm that could add another layer of privacy protection in smartphone-based travel data collection. The research team will integrate the two parallel research efforts in GMU and RPI to develop a smartphone-based travel data collection platform that would address the two aforementioned challenges.</p> <p>A new user interface that allows users to share their travel information will be introduced to the app. Different rewarding mechanisms to encourage data sharing will be explored. The privacy algorithm will be developed by smartly sample mobile device data temporarily and spatially, based on the traffic situation. This can significantly reduce the size of the collected data, thus reducing the data communication load. The end project will be a set of algorithms and apps that can run on mobile devices to transmit data automatically to the data servers. Issues in app development, effective data fusion and integration, algorithm-based privacy protection, and app deployment will be addressed in this research. The research team will deploy the improved data collection platform at both GMU and RPI to test its effectiveness.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none"> <li>• Reports</li> <li>• Project website</li> </ul>	