

UTC Project Information	
Project Title	Improving the Service Quality of Bike Sharing Systems via the Analysis of Real-Time User Data
University Partner	University at Buffalo
Principal Investigator	Jose L. Walteros
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Funding Source(s) and Amounts Provided (by each agency or organization)	\$50,000 TransINFO \$25,000 University at Buffalo as cost share
Total Project Cost	\$75,000
Agency ID or Contract Number	
Start and End Dates	September 1, 2017 to August 31, 201
Brief Description of Research Project	Bike sharing is an innovative urban transportation alternative that provides citizens fast access to bicycles for inner-city commuting. These types of systems are known for bringing significant benefits to its users in the form of a healthy and efficient transportation option, and to cities as an effective way of reducing CO2 emissions and traffic. The principal objective of this project is to develop a predictive statistical framework to efficiently estimate the ability of a bike-sharing system to serve incoming bike requests. By mining user data collected from the system's smartphone app, an operator can utilize the proposed models to predict the likelihood that any potential user who desires to use the system decides to do so under the given the system's conditions the user encounters.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Task 1: Analysis of the model inputs and data generation: The team will investigate all the different parameters required to develop the proposed statistical model. The team will also generate different data sets varying the user behavior and the demand conditions to test models that will be developed in tasks 2 and 3. (Currently being developed) Task 2: Development of data Analytics framework for demand estimation: The team will produce the predictive model and test the different proposed approaches to cope with the imbalanced nature of the data. The team will

	<p>use the preliminary data generated in Task 1 to analyze the performance of the predictive framework. (Not implemented yet).</p> <p>Task 3: Development of the bike redistribution model: The team will work on the development of the optimization bike redistribution model for systems that comprise both free-floating and fixed station dock. The model will be combine with the statistical model developed in Task 2. (Not implemented yet).</p> <p>Task 4: Case study of Reddy Bikeshare: The proposed methodology will be applied to the data provided by the industry collaborator. (Not implemented yet).</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	