

UTC Project Information	
Project Title	MPC-551 – Automated Track Geometry Monitoring System
University	North Dakota State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	<p>USDOT, Research and Innovative Technology Administration \$99,151</p> <p>NDSU/UGPTI \$99,151</p>
Total Project Cost	\$198,302
Agency ID or Contract Number	69A3551747108
Start and End Dates	December 4, 2017 to July 31, 2022
Brief Description of Research Project	<p>This study will develop, implement, and evaluate an autonomous track geometry monitoring system to screen the network for faults during normal train operations. The technology performance will depend on the specific implementation and deployment options selected. Therefore, automatic data collection and recording devices will be necessary to gather motion, location, and speed data to evaluate the performance of various system implementation options. Initial data collection will begin with a smartphone that has all of the required sensors. The PIs will develop a smartphone application that will be capable of autonomously collecting and uploading data from hi-rail vehicles where power is available. The technology transfer phase will</p>

	<p>inform commercialization partners about the best approaches to develop a lower-cost and self-sufficient version of the sensor system deployed during the research. This research project will focus on developing the signal processing and machine learning algorithms and models that will transform the on-board sensor data into track geometry equivalents. The research team will also develop a reporting and mapping system to provide decision-makers with a data visualization tool.</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"> • Reports • Project Website 	