



Project Information Form

Project Title	Field Validation of a Drive-By Bridge Inspection System with Wireless BWIM + NDE Devices
University	Georgia Institute of Technology, University of Alabama at Birmingham
Principal Investigator	Yang Wang, Nasim Uddin, Laurence J. Jacobs, Jin-Yeon Kim
PI Contact Information	Dr. Yang Wang School of Civil and Environmental Engineering Georgia Institute of Technology 790 Atlantic Drive Atlanta, GA 30332-0355 Phone: (404) 894-1851, FAX: (404) 894-2278 Email: yang.wang@ce.gatech.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	NCTSPM - \$210,000 Georgia DOT - \$180,000 Alabama DOT - \$100,000
Total Project Cost	\$490,000
Agency ID or Contract Number	DTRT12GUTC12 NCTSPM 2013-010
Start and End Dates	November 1, 2013 - November 1, 2015
Brief Description of Research Project	The proposed system incorporates a next-generation high-fidelity portable wireless BWIM+NDE system (bridge weigh-in-motion and nondestructive evaluation system), and compatible wireless sensing devices aboard a heavy drive-by inspection vehicle. As the inspection vehicle drives through a bridge, both wireless sensors aboard the vehicle and wireless BWIM+NDE devices on the bridge simultaneously trigger on. This wireless sensing system measures both truck excitation and the corresponding bridge vibration and ultrasonic characteristics, providing an unprecedented mix of heterogeneous data set for bridge safety management and maintenance planning.
Describe Implementation of Research Outcomes (or why not implemented)	Experimental validation of the proposed wireless system will be performed both in the lab and in the field. The final deliverables of this project are: a) A drive-by bridge inspection system consisting of portable wireless BWIM+NDE devices is to be developed for providing automated



<p>(Attach Any Photos)</p>	<p>and convenient bridge safety evaluation; b) Performance of the system should be demonstrated by field validation, correlating vibration data of both the bridge and the drive-by inspection vehicle, as well as ultrasonic characterization at potential crack locations.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>The wireless BWIM+NDE device provides an overarching tool that offers vibration measurements for both the bridge and vehicle, as well as the ultrasonic characterization of hot-spot areas. BWIM and vehicle-bridge dynamic interaction studies, when correlated and strengthened with ultrasonic NDE data, offers high-fidelity evaluation of bridge safety.</p>
<p>Web Links</p> <ul style="list-style-type: none">• Reports• Project website	