The potential of B-WIM systems to support law enforcement and transportation planners in the management of oversized and overweight commercial vehicles was recognized by an International Scanning Study Team during a visit to Europe in the summer of 2006. The UTCA is currently testing the state-of-the-art commercially available B-WIM technology (SiWIM) developed by CESTEL, a Slovenian technology company. This project will be an extension of work initiated in 2007 under UTCA Project #07212 - Bridge Weigh-on-Motion (B-WIM) System Testing and Evaluation which is establishing a baseline understanding of the commercial SiWIM system. The SiWIM B-WIM system has demonstrated promising results in Europe and Canada, and testing was commenced in Alabama in late October 2007. However, the current technology can limit the practical use of B-WIM to a small range of bridge sizes and structural design types, and there is need to improve the overall accuracy and reliability of B-WIM technology. The proposed project will test the SiWIM system on two additional bridge structures of differing primary girder type and will explore beyond the current state of technology to recommend concepts and potential additional sensor technology configurations which could significantly contribute to more reliable and versatile B-WIM systems. Expanded use of video images, laser technology, and other sensors will be considered coupled with the concepts for solution algorithms, data pattern recognition and information processing. In addition, promising research employing layers of carbon nanotubes to product inexpensive wireless sensors for measuring strains could have a major impact on the affordability and range of use of B-WIM.

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