

SWIMERS

Slow-speed Weigh-In-Motion Error Reduction Systems

Problem Statement

Security checkpoints now require vehicles: (1) to slow or stop, to pass through serpentine roadway approaches, and (2) to be subject to visual evaluation before entering secure facilities. While all of these measures can reduce the risk for attack, there remains the likelihood for hidden payloads. These payloads: (1) may not be easily detectable using only visual observation and, lacking other reasons to require a detailed vehicle inspection, and (2) may be passed through security check points with hardly a second look. This is particularly true for passenger vehicles, such as sedans, or small pickup trucks.

The Army's Engineer Research and Development Center (ERDC) awarded SBIR contracts to develop a sensor system that measures axle and wheel weights of slow-moving (<10 mph) passenger vehicles and passes the data to the ERDC hidden payload detection algorithm.

Technical Approach

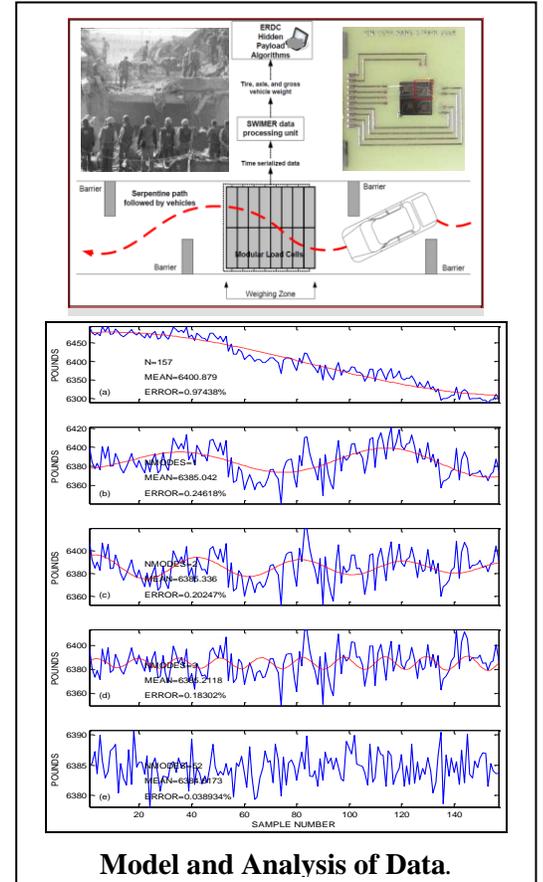
International Electronic Machines Corporation (IEM) and Oak Ridge National Laboratory (ORNL) are teaming to develop a Slow-speed Weigh-in-Motion Error Reduction System (SWIMERS). SWIMERS is employing state-of-the-art sensors embedded in a set of modular, light-weight pads that increase the core level performance of the WIM to produce accurate weights from the patent-pending signal processing mode removal of noise and error developed by ORNL, which have increased the precision to better than 0.1%.

Benefit

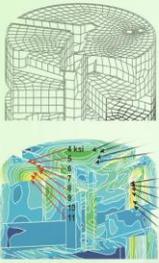
- SWIMERS will filter and remove multiple modes of noise and error as a vehicle slowly winds through a serpentine security checkpoint.
- Research leading to these innovative error reducing algorithms was initially funded by the US Army, enabling IEM to leverage past government-funded R&D in development of advanced WIM technology.

Point of Contact:

Robert K. Abercrombie, Ph.D.
 Co-Director, Computational Intelligence Behavior Modeling Laboratory
 Oak Ridge National Laboratory
 P.O. Box 2008
 Oak Ridge, TN 37831-6085
 Phone: 865-241-6537 FAX: 865-576-0003
 E-mail: abercrombier@ornl.gov, Website: <http://www.ornl.gov/~abe>



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