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Yashu Systems  
PO Box 101  
Archbald, PA. 18403  
pressrelease@yashu.com



[YASHU.COM](http://YASHU.COM)

## Yashu Systems : Vehicle Inertia Monitor supports Automatic Terrain Detection System developed by GS Engineering for U.S. Army Vehicles



The [Yashu Systems Vehicle Inertia Monitor \(VIM\)](#) is an advanced vehicle inertial measurement and vibration monitoring sensor with integrated J1939 CAN bus interface. It performs complex multi-rate frequency domain vibration processing using an onboard high-speed digital signal processor (DSP) and automotive grade accelerometer. The VIM also formulates dynamic vehicle pitch and roll estimates through fusion of an additional embedded gyroscope and J1939 motion parametrics.

The VIM supplies high-resolution sensory information to the [GS Engineering Automatic Terrain Detection System \(ATDS\)](#) to support autonomous terrain identification. The VIM heavily processes the vibration data and condenses it before transmission on to the J1939 CAN bus. This compressed data is subsequently received by the ATDS controller to be factored into the terrain detection algorithm.

An ATDS example supports the [U.S. Army Expedient Leader-Follower \(ExLF\)](#) system which extends the scope of the Autonomous Ground Resupply (AGR) program by developing autonomy kits for vehicles such as the Oskosh PLS A1. An ExLF convoy of optionally manned vehicles autonomously follows the path of the first manned vehicle.

Kevin Hubert, BD Manager for [GS Engineering](#), stated "The Yashu Systems VIM sensor is a key component that enables the ATDS to provide terrain state to the U.S. Army's autonomous convoy". Also John Yaron, CEO of [Yashu Systems](#), has stated "After many years of research and design synergy with GS Engineering, it is great to see that our efforts are being deployed to optimize U.S. Army operations and efficiency".

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