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**Research Article**

**Experimental Results on an Integrated GPS and Multisensor System for Land Vehicle Positioning**

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**Abstract**

Global position system (GPS) is being widely used in land vehicles in urban canyons, rural tree canopies, and tunnels, the GPS signal is often interrupted, resulting in a complete loss of positioning information. To obtain positioning information in such environments, an integrated GPS and inertial navigation system (INS) is used. However, the utilization of INS in land vehicles could be quite expensive despite the use of the micro-electromechanical system (MEMS) sensors. Contemporary research is focused on reducing the number of inertial sensors in a multisensor system (MSS) involving single-axis gyroscope and an accelerometer. This paper presents a Kalman filter (KF) model for the proposed MSS. Furthermore, a Kalman filter (KF) model is used to reduce the errors of the proposed MSS. The performance of the proposed MSS is evaluated using both MEMS and tactical grade inertial sensors. The results show that the positional inaccuracies caused by GPS signal blockages are significantly reduced. The information can be used to steer the land vehicles during GPS outages.

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