

Location Detection of Vehicular Accident Using Global Navigation Satellite Systems/Inertial Measurement Units Navigator

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Abstract : Vehicle tracking and accident recognizing are considered by many industries like insurance and vehicle rental companies. The main goal of this paper is to detect the location of a car accident by combining different methods. The methods, which are considered in this paper, are Global Navigation Satellite Systems/Inertial Measurement Units (GNSS/IMU)-based navigation and vehicle accident detection algorithms. They are expressed by a set of raw measurements, which are obtained from a designed integrator black box using GNSS and inertial sensors. Another concern of this paper is the definition of accident detection algorithm based on its jerk to identify the position of that accident. In fact, the results convinced us that, even in GNSS blockage areas, the position of the accident could be detected by GNSS/INS integration with 50% improvement compared to GNSS stand alone.

Keywords : driver behavior monitoring, integration, IMU, GNSS, monitoring, tracking

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