

基于MEMS加速度计的车用自动呼救系统

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摘要:

提出设计一种使车祸伤员得到及时准确救助的自动呼救系统,它能够自动识别车祸并向Web GIS监控中心发送事故信息。该系统的车载终端利用高抗冲击性的三轴MEMS加速度计,通过三向加速度合成算法和倾角测量对车辆的行驶状态进行监测,能在GPS盲区下进行车辆精确定位。车载终端一旦检测出车祸及类型,会由ARM自动触发求救,也可手动按钮求救。经模型车实验表明,系统能有效避免由于路面干扰引起的误报,并准确检测出碰撞和侧翻两种类型的车祸而实现自动呼救。

关键词: 自动呼救; MEMS加速度计; 碰撞; 侧翻

Vehicle-used Automatic Alarming System Based on MEMS Accelerometer

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Abstract:

The system was designed to rescue accident injured in time, capable of identifying traffic accidents and sending information to Web GIS Monitoring center. Based on the 3-axis MEMS accelerometer of high shock survivability, the vehicle terminal can detect the status of the vehicle with tri-axial synthetic acceleration algorithm and inclination measurement, and improve locating ability in the GPS' blind spot. The emergency call can be triggered either automatically through judgment by ARM, or manually by pushing a button. The experiments with the model cars prove that the system can detect accidents accurately without misinformation both in the case of collision and rollover.

Keywords: automatic alarming; MEMS accelerometer; collision; rollover

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