Pedestrian tracking with shoe-mounted inertial sensors

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Abstract: InterSense has developed a system called NavShoe, a new approach to position tracking based on inertial sensing. The inertial sensor can be used all day powered by a small battery and tucked easily into the shoelaces. In outdoor applications, a user would barely notice the Navshoe's meter-level error combined with any error in the head's assumed location relative to the foot. Indoors, the system will need computer vision to provide the precision tracking of the head-mounted display (HMD). The approximate position information provided by the system can greatly reduce the database search space for computer vision, making it much simpler and more robust. In addition, it also has an extremely accurate orientation tracker on the foot and serve as a portable azimuth reference for a handheld or head-mounted tracking sensor.

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