Tracking limbs motion using wireless network of inertial measurement units

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ABSTRACT

Tracking the position and the orientation of human limbs to reconstruct postures and actions is becoming a crucial need in several application domains, including medicine, rehabilitation, sport, and games. However, most available solutions are expensive, imprecise, or require an instrumentation of the environment. This paper presents a low-cost tracking system based on a set of wearable inertial measurement units (IMUs) coordinated as a wireless body area network. After the system description, the characterization of the single node is provided through a set of experiments. Issues related to real-time processing, calibration, data synchronization, and energy consumption are introduced using a preliminary simplified setup with two nodes.