Abstract

Design of a cost effective and accurate positioning of a wireless device is one of the challenging issues in Wireless Local Area Networks (WLANs). In this paper we present a novel positioning system by utilizing WLAN received signal strength measurements. The technique includes two parts; First, distance estimation using received signal strength indication (RSSI) using polynomial fitting method. Second, simplified and accurate geometric location algorithm (GLA) is proposed. The proposed technique is less complex and easy to implement. The technique not requires any extra hardware and offline training. This location algorithm is designed and tested in MATLAB tool and described using Very high speed integrated circuit Hardware Description Language (VHDL), synthesized in XILINX ISE 10.1 and simulated in ISE simulator. Novelty of the HDL description is that, IEEE754 floating point representation is used, which increases the accuracy.
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Index Terms

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