High-scalable 3D indoor positioning algorithm using[1] loosely-coupled Wi-Fi/Sensor integration

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Abstract—**This paper proposes high-scalable 3D indoor positioning algorithm in commercial smart-phone by combining two complementary technologies, Wi-Fi and sensor based positioning. Because a smartphone usually has low-grade MEMS sensor and heterogeneous Wi-Fi chipset, it's very difficult to achieve the globally bounded position in scalable indoor environment. Furthermore, the deployment of wireless infrastructure, e.g. Wi-Fi, is hardly controlled by LBS service providers due to the gigantic set-up cost and time. Considering this limitation, the proposed solution is most realistic and opportunistic positioning method, in especially large and complex indoor environment. Firstly, our indoor LBS platform is summarized for understanding the high-level architecture. Then the principle and concept of this proposed algorithm is described. Finally, the experimental set-up and its results are analysed and its successful achievement are presented from about half an hour test scenario.**

Keyword— **Indoor, Positioning, Scalability, Loosely-coupled, Wi-Fi, Sensor**

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