

Aidloc: A high acoustic smartphone indoor localization system with NLOS identification and mitigation

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Abstract

We present Aidloc, an acoustic indoor localization system based on acoustic ranging which is very convenient for smartphone positioning. For the aim of smartphone indoor localization without modifying the hardware, we succeed to develop this smartphone indoor localization prototype system by taking advantage of the low transmission speed of acoustic and high robustness of chirp signal. To improve positioning precision and realize NLOS identification and mitigation, a new approach for NLOS problem and TDOA estimation based on FrFT is proposed, and the main idea of this approach is using indoor environment multipath characteristics estimated by IEMCE algorithm.