Abstract

With the rapid increase in guide services by smartphone or mobile terminal, demand for positioning has increased especially in complex indoor environment which often needs to determine the location information of the mobile terminal. In order to provide indoor positioning for real-time guide service that is on a mobile terminal platform, a new indoor positioning approach is proposed in this paper. We introduced a new concept of distance space and proposed a hybrid computation architecture which is divided into offline computation and online computation, to obtain a good realtime performance with less computation time. Here, an offline processing that may be complex computation will produce a numerical DB for a specified spot area, and an online computation with very simple computation is only for detecting the spot area. The offline computation is carried out in a high performance personal computer environment, and the DB data result is sent to NAND memory in a mobile terminal for online use. The online computation that will not cost much computation resource is run in an embedded platform that may have less computation ability. The simulation experimental results demonstrates that the detecting error is only within 5cm and the computation speed was
improved greatly.

References


Index Terms

Computer Science Communications
Keywords

Indoor Positioning, TOA, Space Mapping, Indoor Ultrasonic Positioning System, Smart Tourist Guide