1. Record Nr. UNINA9911018942303321

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Titolo	Ground-based radio positioning / / authors, Kegen Yu, Ian Sharp, and Y. Jay Guo
Pubbl/distr/stampa	Chichester, West Sussex, U.K. ; ; Hoboken, NJ, : Wiley, c2009
ISBN	9786612186325 9781282186323 1282186329 9780470747988 0470747986 9780470747964 047074796X
Descrizione fisica	1 online resource (451 p.)
Collana	Wiley - IEEE ; ; v.5
Altri autori (Persone)	SharpIan GuoY. Jay
Disciplina	621.384/191
Soggetti	Location-based services Radio direction finders Mobile geographic information systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
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Sommario/riassunto

Ground Based Wireless Positioning provides an in-depth treatment of non-GPS based wireless positioning techniques, with a balance between theory and engineering practice. The book presents the architecture, design and testing of a variety of wireless positioning systems based on the time-of-arrival, signal strength, and angle-of-arrival measurements. These techniques are essential for developing accurate wireless positioning systems which can operate reliably in both indoor and outdoor environments where the Global Positioning System (GPS) proves to be inadequate. The book covers a wide range of issues including radio propagation, parameter identification, statistical signal processing, optimization, and localization in large and multi-hop networks. A comprehensive study on the state-of-the-art techniques and methodologies in wireless positioning and tracking is provided, including anchor-based and anchor-free localisation in wireless sensor networks (WSN). The authors address real world issues such as multipath, non-line-of-sight (NLOS) propagation, accuracy limitations and measurement errors. Presenting the latest advances in the field, Ground Based Wireless Positioning is one of the first books to cover non-GPS based technologies for wireless positioning. It serves as an indispensable reference for researchers and engineers specialising in the fields of localization and tracking, and wireless sensor networks. . Provides a comprehensive treatment of methodologies and algorithms for positioning and tracking. Includes practical issues and case studies in designing real wireless positioning systems. Explains non-line-of-sight (NLOS) radio propagation and NLOS mitigation techniques. Balances solid theory with engineering practice of non-GPS wireless systems.