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Collana	Analog circuits and signal processing
Altri autori (Persone)	BreemsLucien MakinwaKofi A. A
Disciplina	004
Soggetti	Wireless sensor networks Metal oxide semiconductors, Complementary Radio frequency integrated circuits
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Fully Integrated Radios for Wireless Sensor Networks -- Fully Integrated Time References -- Mobility-based Time Reference -- Temperature Compensation -- Conclusions.
Sommario/riassunto	This book describes the use of low-power low-cost and extremely small radios to provide essential time reference for wireless sensor networks. The authors explain how to integrate such radios in a standard CMOS process to reduce both cost and size, while focusing on the challenge of designing a fully integrated time reference for such radios. To enable the integration of the time reference, system techniques are proposed and analyzed, several kinds of integrated time references are reviewed, and mobility-based references are identified as viable candidates to provide the required accuracy at low-power consumption. Practical implementations of a mobility-based oscillator and a temperature sensor are also presented, which demonstrate the required accuracy over a wide temperature range, while drawing 51-uW from a 1.2-V supply in a 65-nm CMOS process. Provides system

analysis to understand requirements for time/frequency accuracy in wireless sensor networks; Describes system optimization for time references in wireless sensor networks, with ad-hoc modulation schemes and system duty-cycle techniques; Includes an overview of different physical principles for integrated time references; Shows a practical alternative for integrated time-references; Details a competitive solution for temperature compensation of integrated references.
