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FM-UWB Transceivers for Autonomous Wireless Systems

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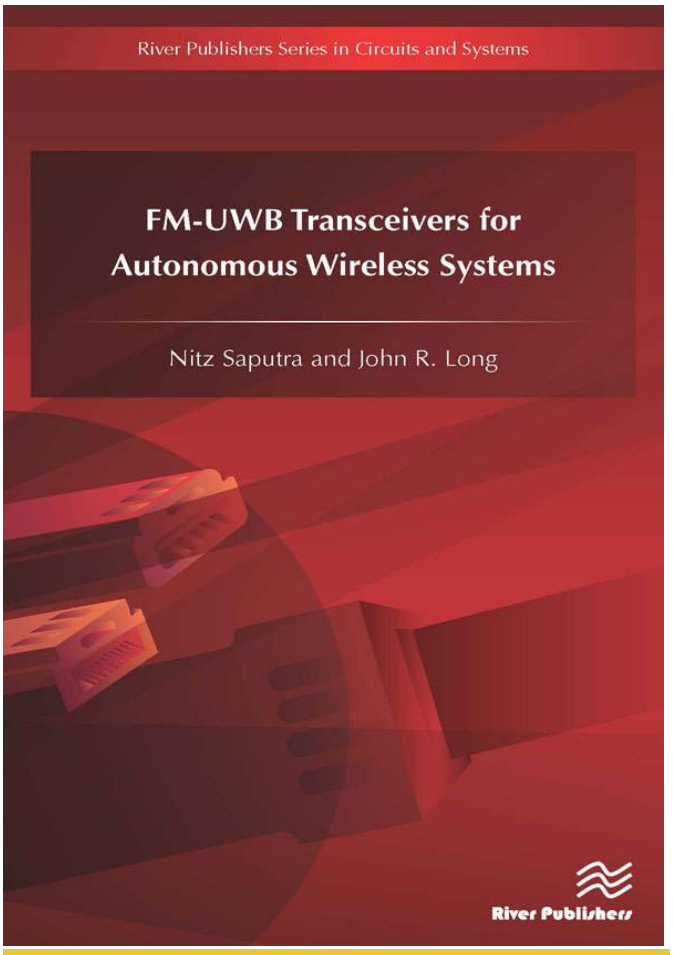
Significant research effort has been devoted to the study and realization of autonomous wireless systems for wireless sensor and personal-area networking, the internet of things, and machine-to-machine communications. Low-power RF integrated circuits, an energy harvester and a power management circuit are fundamental elements of these systems.

An FM-UWB Transceiver for Autonomous Wireless Systems presents state-of-the-art developments in low-power FM-UWB transceiver realizations. The design, performance and implementation of prototype transceivers in CMOS technology are presented. A working hardware realization of an autonomous node that includes a prototype power management circuit is also proposed and detailed in this book.

Technical topics include:

- Low-complexity FM-UWB modulation schemes
- Low-power FM-UWB transceiver prototypes in CMOS technology
- CMOS on-chip digital calibration techniques
- Solar power harvester and power management in CMOS for low-power RF circuits

An FM-UWB Transceiver for Autonomous Wireless Systems is an ideal text and reference for engineers working in wireless communication industries, as well as academic staff and graduate students engaged in electrical engineering and communication systems research.



River Publishers Series in Electronic Materials, Circuits and Devices

ISBN: 9788793519169
e-ISBN: 9788793519152
Available From: February 2017
Price: € 80.00 $ 105.00

KEYWORDS:
Ultrawideband, FM-UWB, low-power RF transceiver, autonomous wireless systems, SAR-FLL, digital calibration, RF-CMOS, programmable RF matching, regenerative RF amplifier, current-controlled oscillator, frequency tripling PA, bias current reuse, power harvester, power management, solar antenna, switched-capacitor, DC-DC converter, charge pump, LDO, RF circuit design

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