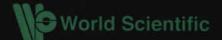


dharma p agrawal & bin xie

## encyclopedia on ad hoc and ubiquitous computing

theory and design of wireless ad hoc, sensor, and mesh networks



## encyclopedia on ad hoc and ubiquitous computing

theory and design of wireless ad hoc, sensor, and mesh networks

edited by dharma p agrawal & bin xie university of cincinnati, usa





## Contents

LS	Prefa	ice	v
CER	Part 1: Mobile Ad hoc Networks		
	1.	Survey on Link Quality Models in Wireless Ad Hoc Networks $M.\ Lu\ and\ J.\ Wu$	3
BIBLIOTHEQUE	2.	Scalable Multicast Routing in Mobile Ad Hoc Networks  R. Menchaca-Mendez and J. J. Garcia-Luna-Aceves	23
	3.	TCP, Congestion and Admission Control Protocols in Ad Hoc Networks  A. Mishra, B. Awerbuch and R. Cole	47
	4.	Wireless Ad Hoc Networks with Directional Antennas B. Alawieh, C. Assi and H. Mouftah	73
	5.	Peer-to-Peer and Content Sharing in Vehicular Ad Hoc Networks  M. Abuelela and S. Olariu	101
	6.	Properties of the Vehicle-to-Vehicle Channel for Dedicated Short Range Communications  L. Cheng, B. E. Henty, D. D. Stancil and F. Bai	119

x Contents

7.	Radio Resource Management in Cellular Relay Networks  KD. Lee and V. C. M. Leung	139
8.	Game Theoretic Tools Applied to Wireless Networks H. Liu, B. Krishnamachari and S. Kapadia	181
Part 2: Wireless Sensor Networks		
9.	Wireless Sensor Networks — Routing Protocols  A. Jamalipour and M. A. Azim	219
10.	Handling QoS Traffic in Wireless Sensor Networks M. Younis, K. Akkaya and M. Youssef	257
11.	Mobility in Wireless Sensor Networks  A. Asok, K. M. Sivalingam and P. Agrawal	281
12.	Delay-Tolerant Mobile Sensor Networks Y. Wang and H. Wu	303
13.	Integration of RFID and Wireless Sensor Networks H. Liu, M. Bolic, A. Nayak and I. Stojmenovi	319
14.	Integrating Sensor Networks with the Semantic Web Y. Pei and B. Wang	349
15.	Effective Multi-User Broadcast Authentication in Wireless Sensor Networks  K. Ren, W. Lou and Y. Zhang	373
16.	Security Attacks and Challenges in Wireless Sensor Networks  AS. K. Pathan and C. S. Hong	397
17.	Information Security in Wireless Sensor Networks  A. Ouadjaout, M. Bagaa, A. Bachir, Y. Challal, N. Lasla and L. Khelladi	427

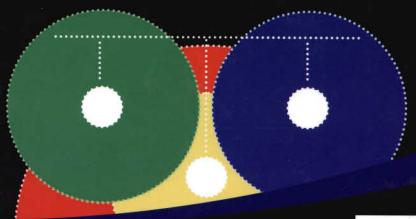
Part 3: Wireless Mesh Networks			
18.	Network Architecture and Flow Control in Multi-Hop Wireless Mesh Networks  D. Nandiraju, N. Nandiraju and D. P. Agrawal	475	
19.	Multi-hop MAC: IEEE 802.11s Wireless Mesh Networks R. C. Carrano, D. C. M. Saade, M. E. M. Campista, I. M. Moraes, C. V. N. de Albuquerque, L. C. S. Magalhães, M. G. Rubinstein, L. H. M. K. Costa and O. C. M. B. Duarte	501	
S <sub>20</sub> .	Channel Assignment in Wireless Mesh Networks  W. Fu, B. Xie and D. P. Agrawal	533	
	Multi-hop, Multi-path and Load Balanced Routing in Wireless Mesh Networks  S. Mishra and N. Shenoy	565	
	Mobility Management in Wireless Mesh Networks P. Wu, B. Landfeldt and A. Y. Zomaya	587	
English Solution of the Soluti	Selfishness and Security Schemes for Wireless Mesh Network  L. Santhanam, B. Xie and D. P. Agrawal	601	
$\bigcirc_{Solu}$	tions	631	
$\overline{\overline{\mathbf{m}}}_{Biog}$	graphy	675	

## encyclopedia on ad hoc and ubiquitous computing

theory and design of wireless ad hoc, sensor, and mesh networks

Ad hoc and ubiquitous computing technologies have received extensive attention in both the academia and industry with the explosive growth of wireless communication devices. These technologies are beneficial for many applications, such as offering futuristic high bandwidth access for users, and are expected to offer more exciting and efficient services, anytime and anywhere. In order to satisfy these diverse applications, the design issues of various wireless networks such as ad hoc, sensor, and mesh networks are extremely complicated and there are a number of technique challenges that need to be explored, involving every layer of the OSI protocol stack.

This book aims to provide a complete understanding of these networks by investigating the evolution of ad hoc, sensor, and mesh networking technologies from theoretic concept to implementation protocols, from fundamentals to real applications. It provides the necessary background material needed to go deeper into the subject and explore the research literature. The explanation in the book is therefore sufficiently detailed to serve as a comprehensive reference for students, instructors, researchers, engineers, and other professionals, building their understanding of these networks.



World Scientific www.worldscientific.com 6960 nc ISBN-13 978-981-283-348-8 ISBN-10 981-283-348-X