Mobile Ad Hoc Robots and Wireless Robotic Systems: Design and Implementation

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The emergence of wireless robotic systems has provided new perspectives on technology. With the combination of several disciplines such as robotic systems, ad hoc networking, telecommunications and more, mobile ad hoc robots have been essential towards the future possibilities of technology.

Mobile Ad Hoc Robots and Wireless Robotic Systems: Design and Implementation aims to introduce robotic theories, wireless technologies, and routing applications involved in the development of mobile ad hoc robots. This reference source brings together topics on the communication and control of network ad hoc robots, and how they working together to carry out coordinated functions.

Topics Covered:

- Ad Hoc Networking
- Artificial Intelligence
- Computer Networks
- Mobile Ad Hoc Robots
- Swarm Robotics
- Wireless Ad-Hoc Networks
- Wireless Robotic Systems
- Wireless Sensor Networks

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal for classroom use.

Raúl Aquino Santos graduated from the University of Colima with a BE in Electrical Engineering, received his MS degree in Telecommunications from the Centre for Scientific Research and Higher Education in Ensenada, Mexico in 1990. He holds a PhD from the Department of Electrical and Electronic Engineering of the University of Sheffield, England. Since 2005, he has been with the College of Telematics, at the University of Colima, where he is currently a Research-Professor in telecommunications networks. His current research interests include wireless and sensor networks.
Section 1: Robot Tracking Strategies

Chapter 1
Distributed Multi-Robot Localization
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Sciavicco Lorenzo (University Roma Tre, Italy)
Setola Roberto (University Campus Bio-Medico, Italy)

Chapter 2
Indoor Surveillance Application using Wireless Robots and Sensor Networks:
Ksouba Anis (Al-Imam Mohamed bin Saud University, Saudi Arabia & Polytechnic Institute of Porto (ISEP/IP), Portugal)
Trigui Sahar (National School of Engineering, Tunisia)
Charti Imen (National School of Engineering, Tunisia)

Chapter 3
Local Path-Tracking Strategies for Mobile Robots Using PID Controllers
Pacheco Lluis (University of Girona, Spain)
Luo Ninggu (University of Girona, Spain)

Chapter 4
Mobile/Wireless Robot Navigation
Waqar Amina (National University of Computing and Emerging Sciences, Pakistan)

Chapter 5
Control-Architecture Model in Mobile Robots for the Development of Navigation Routes in Structured Environments
Hossian Alejandro (Universidad Tecnológica Nacional, Argentina)
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Chapter 6
A Swarm Robotics Approach to Decontamination
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Chapter 7
Path Planning in a Mobile Robot
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Chapter 8
An Alternative for Trajectory Tracking in Mobile Robots Applying Differential Flatness
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Section 2: Wireless Robotic Applications

Chapter 9
A Hierarchically Structured Collective of Coordinating Mobile Robots Supervised by a Single Human
Wong Choon Yue (Nanyang Technological University, Singapore)
Seet Gerald (Nanyang Technological University, Singapore)
Sim Siang Kek (Nanyang Technological University, Singapore)
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