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Nota di contenuto	Contents ; Preface ; Acknowledgements ; Chapter 1 Introduction ; 1.1 Architectures for Planning and Perception ; 1.2 Range Sensing Technologies ; 1.3 Planning Demands ; Chapter 2 The Mapping and Localisation Problem ; 2.1 Simultaneous Localisation and Map Building Chapter 3 Perception at Millimetre Wavelengths 3.1 Sensor Operation ; 3.2 The Sensor ; 3.3 Antenna Properties ; 3.4 Altering Aperture Shape ; 3.5 Target Properties ; 3.6 Attenuation in the Transmission Medium ; 3.7 Summary Chapter 4 Advanced Sonar: Principles of Operation and Interpretation 4.1 Single Return Sonar ; 4.2 Advanced Sonar: The Sonar Signature ; 4.3 Acquiring the Sonar Signature ; 4.4 Summary ; Chapter 5 Smooth and Rough Target Modelling: Examples in Mapping and Texture Classification 5.1 Power Received by the Transducer 5.2

Smooth Surface Model ; 5.3 Rough Surface Planar  
Models ; 5.4 Mapping Heterogeneous  
Environments ; 5.5 Texture: Classifying  
Surfaces ; 5.6 Summary ; Chapter 6  
Sonar Systems: A Biological Perspective  
; 6.1 Introduction ; 6.2 Echo Formation  
6.3 Monaural Sensing 6.4 Multi-Aural Sensing  
; 6.5 Summary ; Chapter 7 Map Building from Range Data  
Using Mathematical Morphology  
; 7.1 Introduction ; 7.2 Basics of Sonar Sensing  
; 7.3 Processing of the Sonar Data ; 7.4  
Experimental Verification ; 7.5 Discussion and  
Conclusions  
Chapter 8 Millimetre Wave Radar for Robotics

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## Sommario/riassunto

This book describes recent work on active sensors for mobile robots. An active sensor interacts with its surroundings to supply data on demand for a particular function, gathering and abstracting information according to need rather than acting as a generic data gatherer. Details of the physical operation are hidden. The book deals mainly with active range sensors, which provide rapid information for local planning, describing extraction of two-dimensional features such as lines, corners and cylinders to reconstruct a plan of a building. It is structured according to the physical principles

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