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ISBN	1-4842-9645-1
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Descrizione fisica	1 online resource (579 pages)
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	Operating systems (Computers)
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Note generali	Includes index.
Nota di contenuto	Chapter 1: Introduction to Robotics Part I -- Chapter 2: Introduction to Robotics Part II -- Chapter 3: Setting Up Workstation for Simulation -- Chapter 4: ROS Framework -- Chapter 5: Robot Simulation & Visualization -- Chapter 6: Arduino and ROS -- Chapter 7: Simulating Bumblebot: A Simple Two-Wheeled Robot -- Chapter 8: Building Bumblebot in Hardware -- Chapter 9: Additional Sensors and Sensor Fusion in Bumblebot -- Chapter 10: Bonus Materials: Web Interface and Autonomous Docking Using Bumblebot.
Sommario/riassunto	"Start from scratch and build a variety of features for autonomous mobile robots both in simulation and hardware. This book will show you how to simulate an autonomous mobile robot using ROS and then develop its hardware implementation. You'll start by gaining an understanding of the basic theoretical concepts underlying the development of autonomous robots, including history, mathematics, electronics, mechanical aspects, 3D modelling, 3D printing, Linux, and programming. In subsequent chapters, you will learn how to describe kinematics, simulate and visualize the robot, how to interface Arduino with ROS, tele-operate the robot, perform mapping, autonomous navigation, add additional sensors, sensor fusion, laser scan matching, web interface, and more. Not only will you learn theoretical aspects, you'll also review the hardware realization of mobile robots. Projects

start with a very basic two-wheeled mobile robot and progress to complex features such as mapping, navigation, sensor fusion, autodocking, and web interface. Upon completing this book, you'll have incorporated important robot algorithms including SLAM, Path Finding, Localization, and Kalman Filters – and you will be ready to start designing and building your own autonomous robots. Complete beginners who want to build customized robots from scratch. No experience is expected, although basic programming knowledge could be handy." -- Publisher's description.