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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	A ROS-based framework for simulation and benchmarking of multi-robot patrolling algorithms -- ROS: Developing a new generation of operator interfaces -- Autonomous Exploration and Inspection Path Planning for Aerial Robots using the Robot Operating System -- A generic ROS-based System for Rapid Development and Testing of Algorithms for Autonomous Ground and Aerial Vehicles -- A generic ROS-based System for Rapid Development and Testing of Algorithms for Autonomous Ground and Aerial Vehicles -- ROS-based Approach for Unmanned Vehicles in Civil Applications -- A quadcopter and mobile robot cooperative task using Augmented Reality Tags -- An Extensible Optimization Toolset for Motion Planning and Control Prototyping and Benchmarking -- Online Trajectory Optimization and Navigation for Dynamic Environments in ROS -- A Backstepping Non-smooth Controller for ROS-based Differential-Drive Mobile Robots --

University Rover Challenge: Tutorials and Control System Survey -- SROS: Using and Developing Secure ROS Systems -- GPU and ROS - The use of general parallel processing architecture for robot perception -- Connecting ROS and FIWARE: concepts and tutorial.

Sommario/riassunto

Building on the successful first and second volumes, this book is the third volume of the Springer book on the Robot Operating System (ROS): The Complete Reference. The Robot Operating System is evolving from year to year with a wealth of new contributed packages and enhanced capabilities. Further, the ROS is being integrated into various robots and systems and is becoming an embedded technology in emerging robotics platforms. The objective of this third volume is to provide readers with additional and comprehensive coverage of the ROS and an overview of the latest achievements, trends and packages developed with and for it. Combining tutorials, case studies, and research papers, the book consists of sixteen chapters and is divided into five parts. Part 1 presents multi-robot systems with the ROS. In Part 2, four chapters deal with the development of unmanned aerial systems and their applications. In turn, Part 3 highlights recent work related to navigation, motion planning and control. Part 4 discusses recently contributed ROS packages for security, ROS2, GPU usage, and real-time processing. Lastly, Part 5 deals with new interfaces allowing users to interact with robots. Taken together, the three volumes of this book offer a valuable reference guide for ROS users, researchers, learners and developers alike. Its breadth of coverage makes it a unique resource.