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Autore	Bertolotti Ivan Cibrario
Titolo	Real-time embedded systems : open-source operating systems perspective / / Ivan Cibrario Bertolotti, Gabriele Manduchi
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Edizione	[1st edition]
Descrizione fisica	1 online resource (522 p.)
Collana	Embedded systems
Altri autori (Persone)	ManduchiGabriele
Disciplina	006.22
Soggetti	Embedded computer systems Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front Cover; Foreword; The Authors; Acknowledgments; Dedication; List of Figures; List of Tables; Contents; 1. Introduction; I. Concurrent Programming Concepts; 2. A Case Study: Vision Control; 3. Real-Time Concurrent Programming Principles; 4. Deadlock; 5. Interprocess Communication Based on Shared Variables; 6. Interprocess Communication Based on Message Passing; 7. Interprocess Communication Primitives in POSIX/Linux; 8. Interprocess Communication Primitives in FreeRTOS; 9. Network Communication; 10. Lock and Wait-Free Communication; II. Real-Time Scheduling Analysis 11. Real-Time Scheduling Based on the Cyclic Executive12. Real-Time, Task-Based Scheduling; 13. Schedulability Analysis Based on Utilization; 14. Schedulability Analysis Based on Response Time Analysis; 15. Task Interactions and Blocking; 16. Self-Suspension and Schedulability Analysis; III. Advanced Topics; 17. Internal Structure of FreeRTOS; 18. Internal Structures and Operating Principles of Linux Real-Time Extensions; 19. OS Abstraction Layer; 20. Control Theory and Digital Signal Processing Primer; Bibliography

Sommario/riassunto	From the Foreword: ""...the presentation of real-time scheduling is probably the best in terms of clarity I have ever read in the professional literature. Easy to understand, which is important for busy professionals keen to acquire (or refresh) new knowledge without being bogged down in a convoluted narrative and an excessive detail overload. The authors managed to largely avoid theoretical-only presentation of the subject, which frequently affects books on operating systems. ... an indispensable [resource] to gain a t

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Record Nr.	UNINA9910830712303321
Autore	Cook Gerald <1937->
Titolo	Mobile robots : navigation, control and remote sensing / / by Gerald Cook
Pubbl/distr/stampa	Oxford : , : IEEE, , c2011 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2011]
ISBN	1-283-29457-5 9786613294579 1-118-02904-6 1-118-02640-3 1-118-02719-1
Descrizione fisica	1 online resource (325 p.)
Classificazione	TEC036000
Disciplina	629.8/932 629.8932
Soggetti	Mobile robots
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Kinematic Models for Mobile Robots -- Mobile Robot Control -- Robot Attitude -- Robot Navigation -- Application of Kalman Filtering -- Remote Sensing -- Target Tracking Including Multiple Targets with Multiple Sensors -- Obstacle Mapping and its Application to Robot Navigation -- Operating a Robotic Manipulator -- Remote Sensing via UAVS --

Sommario/riassunto

A unique, accessible guide on mobile robot applicationsThe use of mobile robots to sense objects of interest plays a vital role in our society, from its value in military maneuvers to the exploration of natural resources to search and rescue operations. Written by an expert in the field, this book is the only resource to explain all the major areas of mobile robot applications-control, navigation, and remote sensing-which are essential to not only detecting desired objects but also providing accurate information on their precise locations. The material can be readily applied to any type of ground vehicle.In the controls area, both linear and nonlinear models of robot steering are presented. Through these applications, the reader is introduced to linearization and use of linear control design methods for control about a reference trajectory; use of Lyapunov stability theory for nonlinear control design; derivation of optimal control strategies via Pontryagin's maximum principle; and derivation of a local coordinate system. In navigation, the global positioning system (GPS) is described in detail, as are inertial navigation systems (INS), which are treated in terms of their ability to provide vehicle position as well as altitude. In remote sensing methods, the author addresses the problem of ground registration of detected objects of interest, which provides essential information for any future actions (such as inspection or retrieval).The book covers control of a robotic manipulator as well as airborne sensing and detection of objects on the ground. It also explains the use of optimal processing via the Kalman Filter when there are multiple detections of the same object, and the decision process of associating detections with the proper objects when tracking multiple objects.The book's clear presentation, numerous examples in each chapter, and references combine to make Mobile Robots a textbook for a one-semester electrical engineering graduate course on the same subject area. Since the topics covered in this volume cut across traditional curricular boundaries and bring together material from several engineering disciplines, this book also serves as a text for courses taught in mechanical or aerospace engineering, as well as a valuable resource for practicing engineers working in related areas.Cover Images: (top circle) U.S. Air Force Global Hawk, an unmanned reconnaissance aircraft, photograph reproduced with permission of Airforce Link; (bottom circle) autonomous underwater vehicle, photo taken by an employee of Bluefin Robotics Corporation during U.S. Navy exercise from the HSV Swift; (lower panel) artist's rendition of Mars Exploration Rover, image by Maas Digital LLC for Cornell University and NASA/JPL.