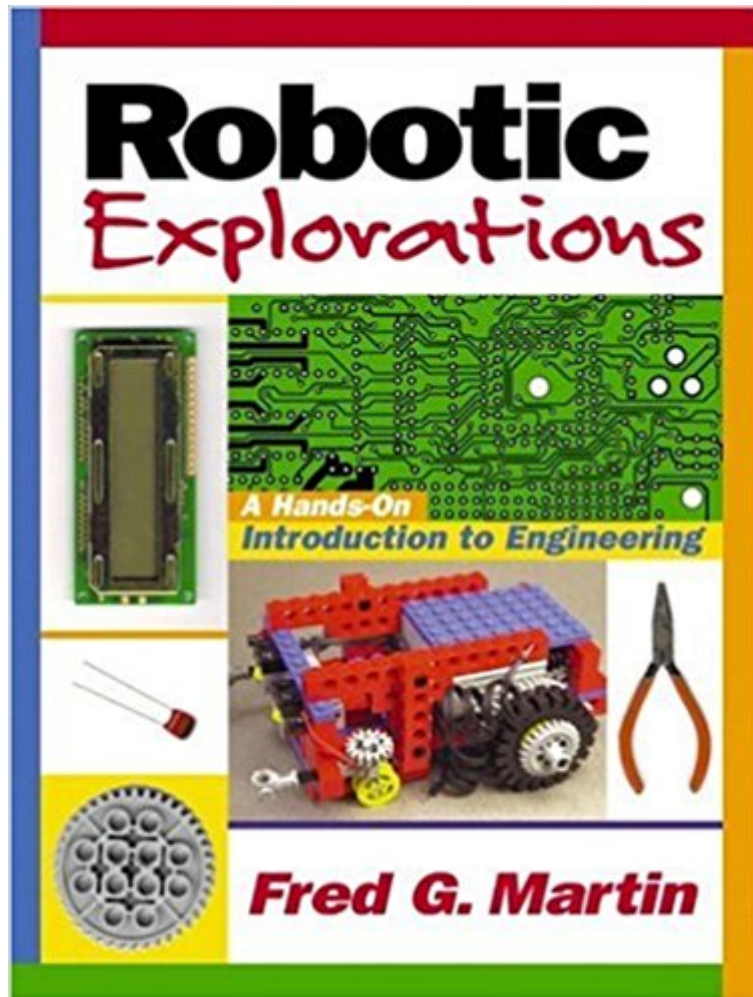# Robotic Explorations: A Hands-On Introduction To Engineering

Synopsis

This hands-on, introductory book is based on widely available, custom robotics materials (Handy Board, Interactive C, LEGO Technic).   Covers sensors; motors, gears, and mechanism; control; handy board design; construction techniques; DC Motor; and more.   Ideal as an introduction to electrical engineering or capstone design. Also appropriate for readers interested in electrical technology robotics.

Book Information

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Best Sellers Rank: #215,082 in Books (See Top 100 in Books)   #19 in Books > Engineering & Transportation > Engineering > Design   #54 in Books > Textbooks > Computer Science > Artificial Intelligence   #120 in Books > Computers & Technology > Computer Science > Robotics

Customer Reviews

The basic content of this book is excellent. It provides a readily accessible introduction to the principles of engineering. This book could easily be used as the text for a first year course in a unified engineering curriculum including Computer Science. The one flaw with this book is that it appears to have been rushed out by the publisher. Many of the page references are to the wrong pages and some of the pictures are rather blurry. Finally, the instructions for creating and downloading ICB files to incorporate assembly language modules for interrupt side programming and similar purposes needs to be reworked in a future edition. I hope that a future edition will also have a chapter on electrical design and construction techniques to compliment the chapter on mechanical techniques. I also look forward to a third chapter on sensing and possibly a second chapter on control theory. Regardless, this is overall an excellent book and should be acquired by anyone interested in small robots.

I just finished participating in the MIT 6.270 Autonomous Robot Competition. This book really pulls

together everything you need to understand how to build a robot from Lego parts, and interface it to the real world using a variety of sensors and actuators (aka motors). There is so much to be learned by actually BUILDING a robot - this is a great book to help you dig into your own project. You can order the same hardware and software used in the MIT class off the internet as well.

This book presents an introduction to various aspects of robot building and planning. It is written as an undergraduate textbook, and contains numerous exercises throughout the text. The book assumes that students and other readers will have access to Handyboards and LEGO Technic equipment, as well as a desktop PC and hobbyist-level soldering equipment. The book walks the reader through analyzing a Handyboard, how to use it, how to build custom sensors and motors, and how to write programs in assembly language. All of this information would be very useful to first-year engineering students as it would help them put theory from many of their other classes into practice. Nevertheless, most of the tasks and programs described in the book could actually be built with a standard LEGO RCX brick. On the other hand, a person who masters the material in this book would be able to take advantage of the extra sensors and motors that the Handyboard supports and build far more sophisticated robots than would be possible with LEGO Mindstorms equipment. Anyone who builds robots using LEGO equipment, whether with a Handyboard or an RCX, will find information in this book about Braitenberg vehicles, LEGO design, control theory, and robotics contests quite useful. The introduction to Assembly language in Appendix A is also presented in an easily accessible style.

I found this to be an excellent introduction to how to build a fully functional, autonomous robot. This book covers everything you need to build robots using LEGO Technics (think LEGO blocks plus gears, motors, etc.) and a Handyboard, a robot brain developed to get the hard digital electronics out of the way so you can concentrate on putting together a good design with motors and sensors and software intelligence.As someone looking for how to break into robotics without first getting bachelors in Electrical Engineering or Mechanical Engineering, this book was for me. I got the basics of the two topics covered and was able to dive right into the interesting "what can I do with my robot" scenarios.This book also goes into some detail on inexpensive sensor components out in the electronics market and how to use them in robots. I found this to be a great source of ideas and instructions even when not creating robots using the Handyboard brain.For those looking to dabble, be aware that this is a book best used in conjunction with real, live robot parts. (...)

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