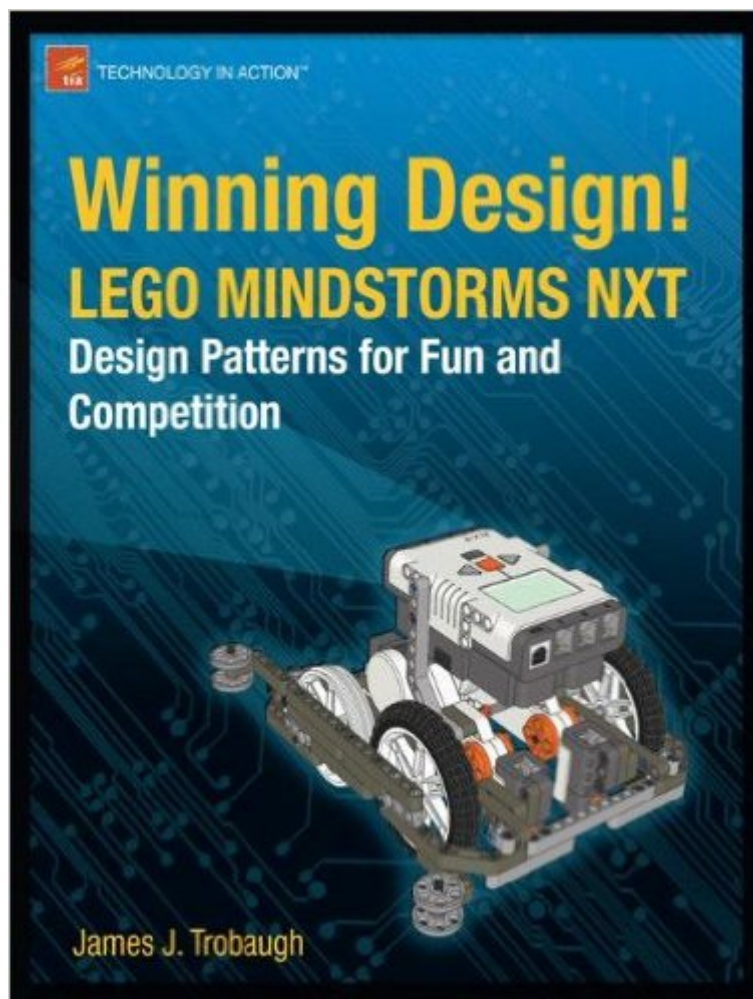


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# Winning Design!: LEGO MINDSTORMS NXT Design Patterns For Fun And Competition (Technology In Action)



## Synopsis

Winning Design! LEGO Mindstorms NXT Design Patterns for Fun and Competition is about design that works. It's about building with LEGO MINDSTORMS NXT for fun, for education, but especially for competition. Author James Trobaugh is an experienced coach and leader in the FIRST LEGO League. In this book, he shares his hard-won knowledge about design principles and techniques that contribute to success in robotics competitions. Winning Design! unlocks the secrets of reliable design using LEGO MINDSTORMS NXT. You'll learn proven design patterns that you can employ for common tasks such as turning, pushing, and pulling. You'll reduce and compensate for variation in performance from battery charge levels and motor calibration differences. You'll produce designs that won't frustrate you by not working, but that will delight you with their reliable performance in the heat of competition. Good design is about more than just the hardware. Software counts for a lot, and Winning Design! has you covered. You'll find chapters on program design and organization with tips on effective coding and documentation practices. You'll learn about master programs and the needed flexibility they provide. There's even a section on presenting your robot and software designs to the judges. Winning Design! is the book you need if you're involved in competitions such as FIRST LEGO League events. Whether coach, parent, or student, you'll find much in this book to make your design and competition experience fun and memorable, and educational. Please note: the print version of this title is black & white; the eBook is full color.

## Book Information

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## Customer Reviews

Unfortunately, the book preview is completely wrong for this book. The actual book uses very cheap B&W printing. As a result, the pictures of robots and the instructions for building models are completely illegible. As an adult, I was able to piece together the models with some guesswork. However, the target audience for the book is late elementary/middle school kids. My kids found it extremely frustrating to use the book. I ended up purchasing the PDF version of the book. The illustrations in the PDF are in color and are much higher quality than the printed book! I would recommend the PDF version for anyone considering this book. There are some good ideas and some basic designs to get started with. However, the material is very disorganized and wordy/repetitive. In addition, I think there is too much emphasis on "winning" rather than learning. So... 1 star for the printing and 2 stars for the content.

This book delivers what it promises: winning design. It's especially useful for teams or coaches for First Lego League (FLL). If read thoroughly, it covers just about every detail you'd need to know to get a novice team up and running. If this is your first FLL team, I'd suggest going through before the season starts, or as soon as you get started. It also will even help an experienced team to think in the way that judges are most impressed by when designing your robot. Does it cover every aspect and every possibility for robot design? No. Should it? No. If there were typos, they didn't distract me. I'd consider it high on my list of my reference books for FLL. Part of the process for FLL IS figuring out how to look at a situation and take an iterative approach to process improvement. This book more than gets you there, if you use the information as a sound jumping off point. FYI-- Here would be my list of other reference books, in order my frequency of use: The LEGO Technic Idea Books: Simple Machines, Fantastic Contraptions, and Wheeled Wonders all by Yoshihito Isogawa First Lego League, The Unofficial Guide by James Floyd Kelly and Jonathan Daudelin The Lego Mindstorms NXT 2.0 Discovery Book by Laurens Valk Building Robots with Lego Mindstorms NXT by Astolfo, Ferrari and Ferrari Forbidden Lego by Pilegaard and Dooley Lego Mindstorms NXT-G Programming Guide by James Floyd Kelly Benchmarks for Science Literacy, Project 2061, published by the American Association for the Advancement of Science

I've participated in many FLL tournaments as a technical judge, and I've seen many good robot designs hampered by a lack of understanding of some basic design principles. I've now completed

reading the book and I'm quite impressed with the author's decision to break the book into four sections, each focusing on a particular skill (or skills) and providing plenty of real world examples of HOW and WHY things are done... or should be done. The book is HEAVY on figures... and that's a good thing. Many of the concepts that the author writes about simply cannot be understood well without some hands-on explanations. That's why teams will be pleased to see diagrams and examples using real NXT parts to explain concepts such as turning, squaring up along a wall, and line following. And he didn't leave out some great discussion on attachments - one of the most important concepts for teams who wish to successfully accomplish multiple game table elements. Finally, the author provides some tips and suggestions for managing your programs as well as presenting them (and the robot) to the technical judging team. And you'll also find complete building instructions for the DemoBot... a real robot that the author uses to demonstrate techniques throughout the book... build it and THEN read the book! All in all, I'm very pleased with the book - I think new/rookie FLL teams will receive the most benefit from the book, but experienced teams are sure to find some stuff in here that will improve their scores and successes.

I want so much to write a good review for this book, especially since I found the information useful enough to purchase two more copies for my favorite FLL teams. But I have to vent my extreme disappointment in the demobot graphics. The print pictures are so terrible as to be almost useless. APRESS has an ebook version with decent graphics but you are required to purchase that for an additional cost. The graphics in the electronic version are color and very nice but in all honesty, Apress should be ashamed at making people have to make an additional purchase for this version even at \$5.00. Not the whole book, but IMHO the color building illustrations should be free to those who can prove they have the print version.

This book provides extremely useful information for preparing and getting ahead in the robotics competition. As a rookie coach, I wish I had access to this book prior to this year's FLL tournament. It can be very helpful to both rookie and experienced teams/coaches as it discusses many design and programming topics that teams will encounter so that teams can achieve consistent results with their robots. There are lots of typos but a small distraction for what this book has to offer. I highly recommend.

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