Build Your Own Teams of Robots with LEGO® Mindstorms® NXT and Bluetooth® (Electronics)

By Cameron Hughes, Tracey Hughes, Trevor Watkins, Bob Kramer

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CREATE YOUR OWN SYNCHRONIZED ROBOT ARMY!

PLAN, DESIGN, ASSEMBLE, AND PROGRAM ROBOT SQUADS THAT COMMUNICATE and cooperate with each other to accomplish together what they can't do individually. *Build Your Own Teams of Robots with LEGO MINDSTORMS NXT and Bluetooth* shows you how to construct a team capability matrix (TCM) and use the Bluetooth Robotic-Oriented Network (BRON) so your robot teams can share sensors, actuators, end effectors, motor power, and programs.

Find out how the Bluetooth communications protocol works and how to program Bluetooth in NXT-G, NXC, LabVIEW, and Java. Learn how to send and receive Bluetooth messages, data, and commands among robots, between a robot and a computer, and between an Android smart phone and a robot. Through teamwork, your robots will be able to accomplish amazing feats!

THE STEP-BY-STEP ROBOT TEAM PROJECTS IN THE BOOK INCLUDE:
* Crime Scene Investigation Robot Team * Robot Convoy * Rubik's Cube Solver

LEARN HOW TO:

- Coordinate multiple robots to work together as a team to perform tasks
- Combine two or more microcontrollers to make a single, multicontroller/multi-agent robot
- Take advantage of sensor and actuator capabilities in a team environment
- Establish goals and teamwork strategies for your robots
- Control your robot teams with NXT-G Bluetooth bricks and LabVIEW for NXT Bluetooth VI
- Activate your team using a smart phone
- Give your team of robots Java power with leJOS
- Use Java on the Linux and Darwin operating systems

Watch video demonstrations of the projects and download code and examples in multiple languages (NXT-G, Java, LabVIEW, and NXC) from the book's companion website at www.robotteams.org.

Downloads are also available at mhprofessional.com/robotteams.

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Editorial Review

About the Author

Cameron Hughes is a professional software developer with over fifteen years of experience. He is a staff programmer/analyst at Youngstown State University and a software epistemologist for Ctest Laboratories. **Tracey Hughes** is a senior software and graphics programmer at Ctest Laboratories where she develops information and epistemic visualization software. Both Cameron and Tracey Hughes are long time robot enthusiasts with a collection of over 100 robots. They have sponsored and participated in local robot competitions and robot programming workshops for the Lego NXT and RS Media platforms through their local ACM chapter. Cameron and Tracey are the authors of seven books on software development, multithreaded programming, and parallel programming in C++.

Bob Kramer has been a full-time Computer Science Professor at Youngstown State University. Bob's research interests include using Lego robotics as a tool to teach computer science concepts, as well as the development and extension of programming tools for Lego robots. He has helped extend the nxtOSEK environment to enable C++ programs to execute on the NXT platform, and has developed an interface for a third-party sensor in the LeJOS environment. Bob Kramer has used Lego robotics to teach basic programming concepts in summer enrichment programs for high school students. He has spoken at numerous workshops about robot design and pedagogical uses of robots.

Trevor Watkins is a network communications and system integrations specialist. He is currently the Technology Manager at the Wadsworth Public Library, where he designs, integrates, and administers all aspects of the library's network and information systems. Trevor is an adjunct professor in the Computer Science and Information Systems Department at Youngstown State University, where he teaches high level programing languages and computer networks. He has been a robot hobbyist for over 20 years with the past 5 years dedicated to NXT-Mindstorms, Vex and Arduino-based robot kits, and consults with local high school robotics teams.

Users Review

From reader reviews:

Randall Yang:

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Debra Ruff:

Build Your Own Teams of Robots with LEGO® Mindstorms® NXT and Bluetooth® (Electronics) can be one of your beginner books that are good idea. Many of us recommend that straight away because this e-book has good vocabulary that can increase your knowledge in language, easy to understand, bit entertaining but delivering the information. The article author giving his/her effort to put every word into delight arrangement in writing Build Your Own Teams of Robots with LEGO® Mindstorms® NXT and Bluetooth® (Electronics) yet doesn't forget the main point, giving the reader the hottest and based confirm resource info that maybe you can be among it. This great information can drawn you into brand-new stage of crucial considering.

Rana Jensen:

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