

# Making Things Move DIY Mechanisms for Inventors, Hobbyists, and Artists (Electronics)

By Dustyn Roberts



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## A unique guide to practical mechanical design principles and their applications

In *Making Things Move*, you'll learn how to build moving mechanisms through non-technical explanations, examples, and do-it-yourself projects--from art installations to toys to labor-saving devices. The projects include a drawing machine, a mini wind turbine, a mousetrap powered car, and more, but the applications of the examples are limited only by your imagination. A breadth of topics is covered ranging from how to attach couplers and shafts to a motor, to converting between rotary and linear motion.

Each chapter features photographs, drawings, and screenshots of the components and systems involved. Emphasis is placed on using off-the-shelf components whenever possible, and most projects also use readily available metals, plastics, wood, and cardboard, as well as accessible fabrication techniques such as laser cutting. Small projects in each chapter are designed to engage you in applying the material in the chapter at hand. Later in the book, more involved projects incorporate material from several chapters.

#### Making Things Move:

- Focuses on practical applications and results, not abstract engineering theories
- Contains more than a dozen topic-focused projects and three large-scale projects incorporating lessons from the whole book
- Features shopping lists and guides to off-the-shelf components for the projects
- Incorporates discussions of new fabrication techniques such as laser cutting and 3D printing, and how you can gain access
- Includes online component for continuing education with the book's companion website and blog (makingthingsmove.com)

#### Hands-on coverage of moving mechanisms

Introduction to Mechanisms and Machines; Materials and Where to Find Them; Screwed or Glued? On Fastening and Joining Parts; Forces, Friction and Torque (Oh My); Mechanical and Electrical Power, Work, and Energy; Eeny, Meeny, Miny, Motor? - Creating and Controlling Motion; The Guts: Bearings, Bushings.

Couplers, and Gears; Rotary vs. Linear Motion; Automatons and Mechanical Toys; Making Things and Getting Them Made; Projects

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#### **Editorial Review**

About the Author

**Dustyn Roberts** is a traditionally trained engineer with non-traditional ideas about how engineering can be taught. She started her career at Honeybee Robotics as an engineer on the Sample Manipulation System project for NASA's Mars Science Laboratory mission, scheduled for launch in 2011. In 2006 she founded Dustyn Robots after consulting for two artists during their residency at Eyebeam Art + Technology Center in NYC. She continued consulting projects for students and artists while working full time at Honeybee, and eventually moved to consulting full time on projects ranging from gait analysis to designing guided parachute systems. In 2007, she developed a course for NYU's Interactive Telecommunications Program called *Mechanisms and Things That Move* that led to the book you see here. She also participated in the pilot of Battle of the Geeks where her team designed and launched a rocket across a canyon in Africa, and has attracted media attention by Time Out New York, IEEE Spectrum, and local organizations.

Dustyn holds a BS in Mechanical and Biomedical Engineering from Carnegie Mellon University with minors in Robotics and Business, an MS in Biomechanics & Movement Science from the University of Delaware, and is currently working on a PhD in Mechanical Engineering at the Polytechnic Institute of New York University. She currently lives in New York City with her partner, Lorena, and cat, Simba.

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