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Make: Action: Movement, Light, And Sound With Arduino And Raspberry Pi



Synopsis

Beginning with the basics and moving gradually to greater challenges, this book takes you step-by-step through experiments and projects that show you how to make your Arduino or Raspberry Pi create and control movement, light, and sound. In other words: action! The Arduino is a simple microcontroller with an easy-to-learn programming environment, while the Raspberry Pi is a tiny Linux-based computer. This book clearly explains the differences between the Arduino and Raspberry Pi, when to use them, and to which purposes each are best suited. Using these widely available and inexpensive platforms, you'll learn to control LEDs, motors of various types, solenoids, AC (alternating current) devices, heaters, coolers, displays, and sound. You'll even discover how to monitor and control these devices over the Internet. Working with solderless breadboards, you'll get up and running quickly, learning how to make projects that are as fun as they are informative. In **Make: Action**, you'll learn to:

- Build a can crusher using a linear actuator with your Arduino
- Have an Arduino water your plants
- Build a personal traffic signal using LEDs
- Make a random balloon popper with Arduino
- Cool down your beverages with a thermostatic drink cooler you build yourself
- Understand and use the PID control algorithm
- Use Raspberry Pi to create a puppet dance party that moves to your tweets!

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Customer Reviews

Really excellent book! Many different examples of connecting Arduino and Raspberry Pi to lots of different devices; lights, motors, etc. Color photos of hook-ups, parts list and possible suppliers, programming for both computers. Clearly written.

This book can prove helpful whether you already have an Arduino or Raspberry Pi (or both!) or you are still trying to decide which one to get. The author notes: "One of the reasons this book explains how to connect electronics to both Arduino and Raspberry Pi is that some projects are better suited to a Raspberry Pi and some to an Arduino." He points out: "Although the Arduino and Raspberry Pi are both small, credit card-sized boards, they are actually quite different devices. "The Arduino is a very simple microcontroller board that does not run an operating system of any sort, whereas the Raspberry Pi is a tiny computer that runs Linux and also happens to be able to interface to external electronics" That being said, the book (well written and nicely illustrated) shows how to set up and wire up a number of electrical/electronic experiments using each board, and it includes Arduino "sketches" (programs), as well as the Linux code necessary to program a Raspberry Pi board. You learn how to monitor and control a number of devices, ranging from simple LEDs to stepper motors. And, among other experiments and projects, you are shown how to connect an Arduino to an audio amplifier for louder output and how to run sound files on a Raspberry Pi. The author emphasizes that the two boards have some similarities but also are quite different, overall. The Raspberry Pi costs more and runs on a lower voltage (3.3vdc) than the 5vdc Arduino. Still, they "both are great devices to base a project on, and to some extent, the choice of which device to use will also be a matter of personal preference." And the marketplace has created a number of boards that offer some of the features of both the Arduino and Raspberry Pi. If you have one of those boards, the author says, this book may provide you with useful information, as well. (My thanks to O'Reilly Media for providing a review copy.)

Great basics for control systems with lots of fun.

Lots of good info for the uninitiated like myself. Nice big format, well organized. Keep making these

books, Simon.

Very useful

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