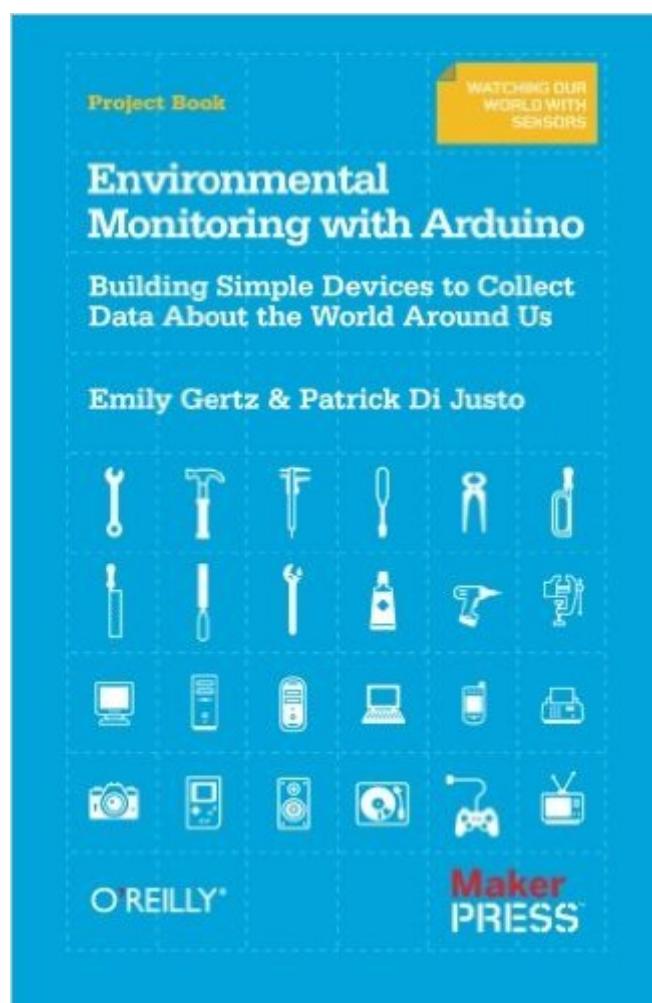


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# Environmental Monitoring With Arduino: Building Simple Devices To Collect Data About The World Around Us



## Synopsis

After the devastating tsunami in 2011, DYIers in Japan built their own devices to detect radiation levels, then posted their finding on the Internet. Right now, thousands of people worldwide are tracking environmental conditions with monitoring devices they've built themselves. You can do it too! This inspiring guide shows you how to use Arduino to create gadgets for measuring noise, weather, electromagnetic interference (EMI), water purity, and more. You'll also learn how to collect and share your own data, and you can experiment by creating your own variations of the gadgets covered in the book. If you're new to DIY electronics, the first chapter offers a primer on electronic circuits and Arduino programming. Use a special microphone and amplifier to build a reliable noise monitor. Create a gadget to detect energy vampires: devices that use electricity when they're off. Examine water purity with a water conductivity device. Measure weather basics such as temperature, humidity, and dew point. Build your own Geiger counter to gauge background radiation. Extend Arduino with an Ethernet shield and put your data on the Internet. Share your weather and radiation data online through Pachube.

## Book Information

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## Customer Reviews

I am an electronics hobbyist and have been one for years. Bought this book with the hopes of teaching some basic uses of Arduino to some high school students. I was totally disappointed. There's very little to recommend this book other than it has a cool title. If the book hadn't been so inexpensive to begin with, I'd have asked for my money back. Here are my main objections. 1. There

are no projects here that have a "gee whiz" factor. The first few chapters don't cover any more than any book about Arduino would.<sup>2</sup> The title is somewhat misleading. It's not really about "environmental monitoring." Yes, there is a chapter on how to hook up a temperature/humidity probe, and one chapter on hooking up a Geiger counter to the Arduino. The other chapters are on how to hook up an ethernet shield, how to measure conductivity in water (stick two wires in it), and how to measure sound (use a microphone).<sup>3</sup> The projects do not appear to have been designed by people who do electronics or Arduino on a regular basis. There's a chapter on using a "4 character LED display" and then it's never used again. Worse yet, WHO would use a 4 character LED display when a 16 character 2 row LCD display can be purchased for the same price and provide a very nice display? It's no more complicated than the LED display they advocate and has much more functionality.<sup>4</sup> There's no explanation on why ANY of the circuits work. It's basically a cookbook that says "hook up these wires, download this code, and run it." So do not expect to understand why the circuits work or why the program is written the way it is.<sup>5</sup> I would find it hard to get anyone excited about these projects.

This is a sophisticated and intelligent book describing interesting projects in a way that even newcomers to Arduino, electronics, and programming should be able to create and get running without problems.

**PROS**  
No need to have a lot of skill with electronics - the book uses prebuilt modules  
No need to know programming - the book provides working code  
Up to date - written to use the recent Arduino 1.0 update

**CONS**  
None that I have found

"Environmental Monitoring with Arduino" explains how to use the Arduino to detect or monitor various physical conditions in the environment around you. It is an inexpensive, short, focused, project-oriented book that has a variety of interesting projects, some of which you may find useful as a permanent device. Unlike a certain project-oriented book I reviewed recently, there is no fluff. Some aspects are explained in a modular approach, allowing you to use ideas from the book for other projects you think of, but obviously it does not have as many "recipes" as a book like Arduino Cookbook, Second Edition. I think this book is reasonably well suited to someone with little or now experience with Arduino, programming, or electronics. It builds up the reader's understanding of various components, starting very simply and moving to an implementation of radiation monitoring and sharing data on the Internet (all with Arduino) that was inspired by the work of individuals in Japan after the 2011 earthquake and resulting nuclear power plant problems.

**CONTENTS**  
1. The World's Shortest Electronics Primer  
2. Project: Noise Monitor / LED Bar Output  
3. New Component: 4Char Display  
4. Detecting Electromagnetic Interference (and making bad music)  
5.

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