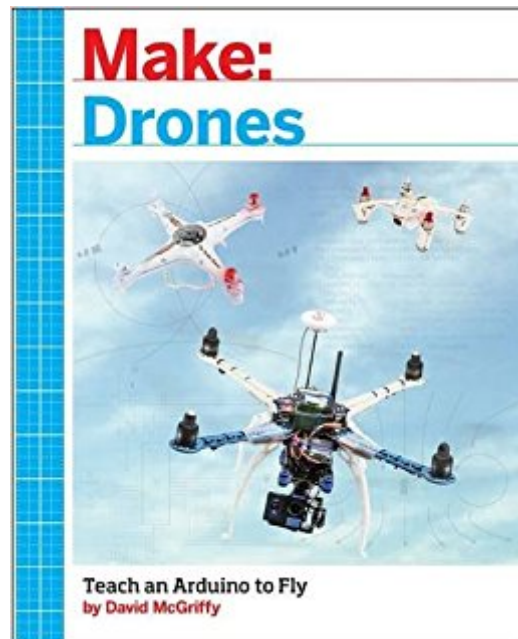




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Make: Drones: Teach An Arduino To Fly



Synopsis

Make: Drones will help the widest possible audience understand how drones work by providing several DIY drone projects based on the world's most popular robot controller--the Arduino. The information imparted in this book will show Makers how to build better drones and be better drone pilots, and incidentally it will have applications in almost any robotics project. Why Arduino? Makers know Arduinos and their accessories, they are widely available and inexpensive, and there is strong community support. Open source flight-control code is available for Arduino, and flying is the hook that makes it exciting, even magical, for so many people. Arduino is not only a powerful board in its own right, but it's used as the controller of most inexpensive 3d printers, many desktop CNCs, and the majority of open source drone platforms.

Book Information

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Customer Reviews

David McGriffy has been a programmer since the earliest days of the personal computer. He has piloted both radio-controlled and human-carrying aircraft, including gliders of both sorts. He worked on GPS systems before they had even finished launching all the satellites. He's written embedded systems code for top computer companies and for fun. He has traveled the world to do failure-mode analyses on the control systems of offshore oil rigs and is an inventor on a patent for a vibration analysis system. He is an expert on website performance and has been published by IEEE on the subject. David runs an audio software company, VVAudio, which produces plugins for surround

sound and virtual reality. He has a Ph.D. in Physics from the University of Texas at Austin.

Very straight forward

This is one of the most competently produced technical books I've ever read. I wouldn't hesitate to use Mr. McGriffy's book in a technical writing class as an example of "how to do it right." The target audience is going to be the more advanced maker. If you've never dabbled with an Arduino or you've never flown a radio controlled (RC) quadcopter or similar, this book might be entertaining, but you've got a longer way to go. If you only have experience with Arduinos or similar products (e.g., Raspberry Pi's, Lego Mindstorms) you're on the right track. If you only have a proficiency with RC quads, you're also on the right track. But this book is targeted for someone like me: extensive Rpi background, some dabbling with Arduinos, and I own a fleet of low end quads. Still, it's written well enough that even if you have no experience at all you're likely to be able to start and create your own rudimentary drone. And on the way you're going to learn a heck of a lot about the underlying technology including hardware and software. The clarity of the book, combined with some of the clearest and best diagrams and photos I've seen in a soft-cover maker book, means that if you're willing to put in the time, this is a resource that will get you to the end. The more you already know, the easier it will be. The less you know, the more you will learn along the way. MAKE: DRONES starts with an explanation of the overall technologies. It is then basically divided into three sets of chapters for small drones, medium drones, and big honking drones lugging cameras about with GPS capabilities. There's lots of deviation and side trips along the way. Explanations are clear, and lend themselves to further exploration. The index at the end is 8 pages of thoroughness. The hardware focus is on easily obtained over the counter kits and components. Same with the software: easily obtained and free (I didn't find anything you'd have to pay for). If you're willing to invest the time, this book is your guide.

This book was different than I expected. I expected a simple step-by-step make of a drone, like in an issue of Make. This goes a little deeper. It has quite a bit of the theory surrounding the control system. I was a little disappointed that I didn't see a 3d printed drone build (that's what I was expecting). The author modifies a few lower priced drones and does a make from a kit. I own a Syma X5C but the mod requires destroying it, more or less, so I really don't want to try that. I would rather have had a 3d printed option. They also modify a Husban X4, which I don't own. The main project is from an s500 kit. The drone you build with that kit seems pretty impressive, and I might try

it at some point. I do think if you are interested in drones, the book is useful because it does delve into controller programming and how a drone flies and receives signals, which I thought was interesting even without the build. The diagrams for the circuit boards and charts and graphs are excellent. The build seems pretty straightforward. I'll probably come back to the build, but I don't really feel like investing in the kit (which seems to be available on Ebay, but I can't find it anywhere else at the moment: that could change). The kit itself is around \$40. I did a quick calculation of the cost it would take to build the drone following their instructions and I came up with \$250-300 (again, quick calculation. I haven't built it myself. I don't have that kind of money right now to invest in a project). I'll probably come back to it because I would like to hook my GoPro up to a Drone.

DRONES: TEACH AN ARDUINO TO FLY is one of the best "Make" books ever! It contains complete instructions for building three different drones--small, medium, and large (large enough to require FAA registration). The drones are built from parts kits available online, supplemented with flight controllers (Hubsan X4Wii; Syma X5 with Arduino Teensy 3.2; S500 plus Pixhawk Lite controller and ArduCopter flight control software). The book explains in detail how drones fly, and includes an early chapter on testing a small drone to understand how changed batteries and propellers can affect performance. Later chapters deal with how changes in the flight controller affect performance, and with how a modular controller can further enhance performance. The book is profusely illustrated with circuit diagrams, important stages of actual drone construction showing wired connections, drone parts, key programming software screenshots, diagrams of aerodynamics principles, flowcharts, and more. The included code can be used in the builder's programs and documentation without the publisher's permission (unless the builder wants to reproduce significant amounts of the code for commercial purposes).

This is a somewhat technical book for one who is used to microcontrollers and peripheral devices. I have used arduino in various projects mostly involving biosensors, but my experience with drones is limited to toys and reading the Drones for Dummies Book. This Make Book has given me a real feeling for the issues of controller electronics, the accelerometers and gyroscope hardware used in drones as well as some of the advanced use and an incremental approach to building your own. I'd say this Make Book on Arduino-based drone control is an excellent buy for anyone who hopes to build or augment their own, or just understand more about the technology.

This book was a disappointment to me. The name of the book "Make: Drones: Teach an Arduino to

Fly" implies to me that it would instruct me to "teach" or code an Arduino board to fly as part of a drone. Instead this book is all about hardware with very few examples of coding. Maybe break apart the MultiWii program into digestible pieces and explain how each piece works. Only then you will this book "fly" with me.

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