

High Tech Diy Projects With Robotics Maker Kids

What can be created in 30 minutes or less? How about a robot? With clear step-by-step instructions and photos, these fun robotics projects with delight young makers and tech fans. What if you could use software to design hardware? Not just any hardware--imagine specifying the behavior of a complex parallel computer, sending it to a chip, and having it run on that chip--all without any manufacturing? With Field-Programmable Gate Arrays (FPGAs), you can design such a machine with your mouse and keyboard. When you deploy it to the FPGA, it immediately takes on the behavior that you defined. Want to create something that behaves like a display driver integrated circuit? How about a CPU with an instruction set you dreamed up? Or your very own Bitcoin miner You can do all this with FPGAs. Because you're not writing programs--rather, you're designing a chip whose sole purpose is to do what you tell it--it's faster than anything you can do in code. With Make: FPGAs, you'll learn how to break down problems into something that can be solved on an FPGA, design the logic that will run on your FPGA, and hook up electronic components to create finished projects.

Humans have been obsessed with conquering the skies for millennia. This book documents that journey from the earliest days of projectiles to modern-day rockets. Armed with this crucial background information, students will then be directed through a step-by-step project to make their own rocket. Additional high-tech projects will keep their hands busy and their imaginations soaring.

You've probably seen LED-decorated t-shirts and hats, and maybe even other electronic gadgets embedded in clothing, but with Arduino Wearables you can learn to make your own wearable electronic creations. This book is an introduction to wearable computing, prototyping, and smart materials using the Arduino platform. Every chapter takes you all the way from idea to finished project. Even if you have no experience with Arduino, this book will get you set up with all the materials, software, and hardware you need; you'll complete simple projects first, and then build on your growing expertise to make more complex projects. By the end of the book, you'll have learned: Electronics basics How to prototype successfully Arduino programming How to design and build your own wearable Arduino creations Along the way you'll create fun and inspiring wearables, such as: An LED bracelet: learn the basics of wearable electronics A synthesizer tie: accept user input and create output in response A solar-powered glow in the dark bag: create self-sufficient wearables A shape memory flower: store state and manipulate your wearables An EL wire dress: add designer touches to your wearables A beatbox hoodie: use a voice-activated sequencer and skin resistance to create the coolest of urban wearables Arduino Wearables is the complete guide to getting started with Arduino and wearable computing. The 10 inspiring projects to make, learn from, and build upon will equip you for creating your own projects; the only limit is your imagination.

Robert Goddard changed the face of air and space travel forever when he launched his invention—the first liquid-fueled rocket. This book introduces readers to Goddard's early days, from the moment he set his eyes to the vast sky and the space beyond, to his first explosive experiments. Readers will learn about the technology behind Goddard's first rockets and how they affected the design and use of later rockets. This is a high-interest approach to introducing important STEM topics, as well as history. Readers will love paging through the authentic photographs and exploring the information-rich text and timeline for a deeper understanding of this exciting biography.

The possibilities of what can be made with a 3D printer are endless. This guide presents the basics of 3D printing, beginner's projects, and additional resources to set young makers on their way to becoming masters. With up-to-the-minute information, simple language, and hands-on projects, this is the perfect launching point into the exciting world of 3D printing.

Electronic gadgets are fun to play with, but they're even more fun to build! Students will unlock the mysteries of electronics, sensors, and LEDs with this book as it provides both technical information and step-by-step projects. Clubs, online communities, and additional resources are also discussed to help ambitious makers progress to the next level in their newfound hobby.

This title is the go-to guide for students with interests in replication, cataloging, and archiving. In addition to covering the basics of 3D scanning, readers will learn in-depth details about these machines work, about the different kinds of 3D scanners that exist, how to operate them, and what differentiates various models from each other. There are many uses for 3D scanners in the world, and in this text, they all have their moment in the spotlight. Also included are relevant projects for beginner, intermediate, and advanced Fab Lab users, and how their learning applies to STEM courses and beyond.

"Have you ever seen lights turn on automatically when you step into a restroom? This curricular, STEM-focused title will explore how robotic sensors can help save energy, keep people safe, and make life more convenient."--

Feeling tech-savvy? Get ready to bust boredom with technology! Learn how to put together a digital photo album, create a blog, produce a stop-motion movie, and much more. With clear instructions and helpful photos, busting boredom with technology has never been more fun.

With LittleBits, you can build your own electronic devices using modules that snap together easily with magnets. With this book, students learn the art of innovation through detailed explanations and hands-on activities built to foster creativity and problem solving. Fun, engaging text introduces readers to new ideas and builds on maker-related concepts they may already know. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

3-D printing offers new alternatives to the way things are made. From the creation of everyday products, to surgeons' advances in prosthetics; 3-D printing may be the new way of manufacturing. Correlates with STEM instruction and Maker Space activities. Includes glossary, websites, and bibliography for further reading. Correlations available on publisher's website.

Music has been a powerful tool for self-expression for thousands of years. And while modern instruments are often very expensive, the truth is that anyone can make their own! With the information, projects, and resources found within these pages, young musicians will quickly be making and playing their own instruments.

Provides instructions for creating a variety of home accents, accessories, and toys that combine crafting and technology.

Learning the ins and outs of robotics can take a lifetime, but learning the basics just takes reading one book! Different types of robots and their components, functions, and purposes are explored in a way that students will find helpful and encouraging when they begin working on their own projects. More than just a beginner's guide, this may be the spark to ignite limitless possibility for kids who love to use their

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minds and hands.

Bicycle Utopias investigates the future of urban mobilities and post-car societies, arguing that the bicycle can become the nexus around which most human movement will revolve. Drawing on literature on post-car futures (Urry 2007; Dennis and Urry 2009), transition theory (Geels et al. 2012) and utopian studies (Levitas 2010, 2013), this book imagines a slow bicycle system as a necessary means to achieving more sustainable mobility futures. The imagination of a slow bicycle system is done in three ways: Scenario building to anticipate how cycling mobilities will look in the year 2050. A critique of the system of automobility and of fast cycling futures. An investigation of the cycling senses and sociabilities to describe the type of societies that such a slow bicycle system will enable. Bicycle Utopias will appeal to students and scholars in fields such as sociology, mobilities studies, human geography and urban and transport studies. This work may also be of interest to advocates, activists and professionals in the domains of cycling and sustainable mobilities.

This thorough treatment of collection development for school library educators, students, and practicing school librarians provides quick access to information. This seventh edition of The Collection Program in Schools is updated in several key areas. It provides an overview of key education trends affecting school library collections, such as digital textbooks, instructional improvement systems, STEM priorities, and open educational resources (OER) use and reuse. Topics of discussion include the new AASL standards as they relate to the collection; the idea of crowdsourcing in collection development; and current trends in the school library profession, such as Future Ready Librarians and new standards from the National Board for Professional Teaching Standards. Each chapter has been updated and revised with new material, and particular emphasis is placed on disaster preparedness and response as they pertain to policies, circulation, preservation, and moving or closing a collection. This edition also includes updates to review of curation and community analysis principles as they affect the development of the library collection. Serves as a complete guide to collection management for students as well as practitioners Addresses current educational initiatives and new AASL standards Provides creative strategies for working in a climate of change and uncertainty Looks in depth at disaster recovery policies and procedures needed for collection

A collection of 16 fascinating scientific and technical projects to build with parts from the LEGO MINDSTORMS EV3 robotics set and other components. A great addition to any STEM curriculum or home library. High Tech LEGO® hijacks the MINDSTORMS® EV3 revolution, showing you how to build creative technical inventions with practical applications. You'll learn to build a dynamic array of working devices for outdoor research, home security, spycraft, and more. Among the book's 16 fascinating projects you'll find a motion-activated animal cam, a Morse code transmitter, a laser security fence, a motion-sensing radar detector, an automated insect trapper, and a heat-seeking infrared cannon. Welcome to a whole new world of building! Every project brings together science, mechanics, electronics, optics, and software to create complex instruments for studying and measuring the world around you, all while maintaining the playfulness of LEGO. Each easy-to-follow model combines illustrated instructions with step-by-step guidance on the engineering methods at play. As you build, you'll learn: • "Illegal" modding techniques (that may include drilling, cutting and soldering -- Shh!) • Different ways to work with diode laser modules • Tricks for modifying EV3 sensors and motors • The joy of hacking LEGO light bricks to make a flickering fireplace • How to use MINDSTORMS to build your own contraptions! Experiment on your own, and expand on your finished creations. Make a few adjustments so the Critter Cam triggers an alarm to scare away pests, or modify the Doppler radar to detect flammable gases. The possibilities are endless! REQUIREMENTS: LEGO® MINDSTORMS® EV3 Home Edition Windows Vista or higher macOS 10.14 or earlier

With a bit of programming and some high-tech science, 3-D printers can use a wide variety of materials such as plastic or wood to create an infinite amount of different creations. This book explores the science behind this incredible technology, including the history of 3-D printing and what scientists hope to achieve with these unique tools. Whether used for art, medicine, or just to make something cool at home, 3-D printing is poised to have a remarkable impact on our lives, and this book chronicles the technology's journey from concept to reality.

Explores the fascinating world of 3D printing. With colorful spreads featuring fun facts, sidebars, and a "How It Works" feature, the book provides an inspiring look at this exciting technology. Microcontrollers are small computers embedded in many everyday devices. The average person interacts with several of them each day without even thinking about it. But why have microcontrollers become so ubiquitous, in what devices are they found, and—most importantly—how does one go about making one? All this and more is explained in the engaging text. It will turn even the technologically illiterate into budding tech wizards.

Luxury you can afford! A custom wine cellar with bistro seating; an elegant den with built-in library walls; an electric steam-room in the master bath; a billiards room with a fun, retro wet bar; a custom closet as big as a bedroom—homeowners dream of the special features that set a home apart and make it extraordinary. Much of the time, though, dreams of luxury go unfulfilled because the pocketbook is out of sync with aspirations. But in Black & Decker« The Complete Guide to DIY Projects for Luxurious Living, readers discover the bridge over the gap between dreams and reality -- their own labor. This book is a collection of high-end home improvement projects to give homeowners the satisfaction and pride of having features normally found only in luxury, designer homes. At a fraction of the cost, any homeowner can create the kind of features that friends and neighbors will envy, along with the satisfaction of achieving this through their own skills. Complete directions for more than 30 ôgotta haveö projects More than 600 color photos showing each process step-by-step Features unusual, designer projects not found in other DIY books

Have you heard a lot about Arduinos and wanted to get to know how they work and how to build on your own? Welcome to the wonderful wired world of Arduino - the flexible open-source electronics platform for creators. Become a coding superhero with this guide - the easiest step-by-step, project-based guide for beginners who want to learn the latest tips and tricks while taking their DIY programming skills to the next level. Plug into the book and get the following: Calling all coders - Explore these easy-to-follow programming sketches specifically designed for Arduino beginners. Ignite your imagination - You'll make wired wearables, crazy costumes, and even home gadgets using step-by-step Arduino projects that build your skills?and coding confidence. Full-color format - From start to finish, four-color sketch images will help guide you.

This source book of ideas and supplies for high-tech, a style that adapts commercial and industrial products and equipment for interior decorating, presents hundreds of photographs and lists suppliers and current prices

High-Tech DIY Projects with RoboticsThe Rosen Publishing Group, Inc

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Presents an introduction to the open-source electronics prototyping platform.

D_TEX presents itself as a starting point at a crossroads of ideas and debates around the complex universe of Textile Design in all its forms, manifestations and dimensions. The textile universe, allied to mankind since its beginnings, is increasingly far from being an area of exhausted possibilities, each moment proposing important innovations that need a presentation, discussion and maturation space that is comprehensive and above all inter- and transdisciplinary. Presently, the disciplinary areas where the textile area is present are increasing and important, such as fashion, home textiles, technical clothing and accessories, but also construction and health, among others, and can provide new possibilities and different disciplinary areas and allowing the production of new knowledge. D_TEX proposes to join the thinking of design, with technologies, tradition, techniques, and related areas, in a single space where ideas are combined with the technique and with the projectual and research capacity, thus providing for the creation of concepts, opinions, associations of ideas, links and connections that allow the conception of ideas, products and services. The interdisciplinary nature of design is a reality that fully reaches the textile material in its essence and its practical application, through the synergy and contamination by the different interventions that make up the multidisciplinary teams of research. The generic theme of D_TEX Textile Design Conference 2017, held at Lisbon School of Architecture of the University of Lisbon, Portugal on November 2-4, 2017, is Design the Future, starting from the crossroads of ideas and debates, a new starting point for the exploration of textile materials, their identities and innovations in all their dimensions.

3D printing was once only known through science fiction, such as Star Trek, the popular 1960s TV series. But inventors and engineers on Earth began experimenting in real life with 3D printing to find faster ways to develop and build prototypes, using computers, ultraviolet lasers, and printable materials. Now, there are many innovative uses for 3D printing. Yet 3D printing has drawbacks. Chemicals used in 3D printing can be toxic, and legal experts are not sure how to protect 3D printing inventions so that others do not steal ideas. Learn how 3D printing works and how we can keep up with the safety, health, and legal challenges that lie ahead.

The robots are coming! MAKE Volume 27 shows you how to build robots that walk, fly, swim, play music, dance, and even extinguish fires. Some of the buildable bots you'll meet include: Yellow Drum Machine, which roves around looking for things to drum on, then drums, records, and accompanies itself playing catchy rhythms Roomba Recon, Roomba robotic vacuum with a wireless router and webcam on its back, programmed so you can drive it around your house and see what it sees from a browser window anywhere Hamster-Powered Strandbeest, which walks around on eight legs, powered by a hamster inside its hamster globe "head" The winning project from MAKE's Most Entertaining Robot contest Tiny Robots made from common electronics components. The special Robots section will also include a roundup of hobby robotics highlights, and a Primer on using the EZ-Robot controller board to turn any animatronic toy into a fully controllable robot that recognizes faces and responds to voice commands.

Provides instructions for a variety of projects, including creating graffiti furniture, a notepad holder, a cardboard castle, customized shirts, and doll clothes.

You've created a STEAM program in your library, but how do you work literacy into the curriculum? With this collection of resource recommendations, direction for program development, and activities, you'll have students reading proficiently in no time. • Presents complementary annotated books and discussion questions to engage students in STEAM topics • Offers topical project and problem-solving activity ideas for students in the library makerspace • Provides research and additional resources for teachers and librarians to use in implementing successful STEAM programs

Technology and tools once available only in factories can now be found in classroom makerspaces. Maker culture uses 3D printers, laser cutters, and other manufacturing tools to provide invaluable learning experiences. Combining technology with more abstract ideas such as social justice, history, and civics can lead students to become more involved with the local community as well the global one. This interesting guide provides step-by-step instructions to help both educators and students experience social studies projects like never before. Learn how to implement STEM principles to make social studies hands-on and fun at the same time.

This ultimate guide for tech makers covers everything from hand tools to robots plus essential techniques for completing almost any DIY project. Makers, get ready: This is your must-have guide to taking your DIY projects to the next level. Legendary fabricator and alternative engineer Chris Hackett teams up with the editors of Popular Science to offer detailed instruction on everything from basic wood- and metalworking skills to 3D printing and laser-cutting wizardry. Hackett also explains the entrepreneurial and crowd-sourcing tactics needed to transform your back-of-the-envelope idea into a gleaming finished product. In The Big Book of Maker Skills, readers learn tried-and-true techniques from the shop classes of yore—how to use a metal lathe, or pick the perfect drill bit or saw—and get introduced to a whole new world of modern manufacturing technologies, like using CAD software, printing circuits, and more. Step-by-step illustrations, helpful diagrams, and exceptional photography make this book an easy-to-follow guide to getting your project done.

With the assistance of Kroski's guide, libraries everywhere can offer their own take on these exciting forms of entertainment, engagement, and education.

A valuable, one-stop guide to collection development and finding ideal subject-specific activities and projects for children and teens. • Provides an excellent resource for libraries considering creating makerspaces • Helps educators locate instructions for entertaining and educational program and curricular activities that range from cooking and e-drawing to performing magic tricks, solving puzzles, mask-making, and outdoor games • Utilizes a subject heading organization and indexes multi-topic titles by chapter for ease of use • Supplies plans targeted for distinct age ranges: lower elementary (K–3rd grade), elementary (3rd–6th grade), middle school (6th–9th grade), and high school (9th grade and above) • Includes an appendix containing additional online sources of information that augment the book's content

Microcontrollers are small computers embedded in many everyday devices. The average person interacts with several of them each day without even thinking about it. But why have microcontrollers become so ubiquitous, in what devices are they found, and--most

Fire up your soldering iron, charge up that drill, and get ready to hack! From a tiny theremin to a watermelon keg, from an automatic cat feeder to a glowing mousepad, the ingenious and hilarious projects in The Big Book of Hacks are perfect for aspiring makers. And it's all brought to you by the DIY masters at Popular Science magazine. Four comprehensive chapters help you create megafun games and toys for the amusement of all: GEEK TOYS Be the life of any party with rad gaming hacks, amazing pyrotechnics, quirky DIY robots, "wow"-inducing projectiles, and lots of ways to make beer even better. HOME IMPROVEMENTS Pimp out your pad with a laser-security system, an improvised sous-vide cooker, and a life-size cardboard display of anyone you want. GADGET UPGRADES Want to stash a flash drive in an old cassette? Use a DIY stylus on a touchscreen? Improvise a fisheye lens for your camera? With this book, you can. THINGS THAT GO Give your motorbike a Tron vibe, deck out your car with an action-figure hood ornament, and keep gadgets charged on the go with a solar-powered backpack.

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