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Home Automation

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Learn to:

- Install and set up popular products in your home
- Control home appliances from your smartphone or tablet
- Make changes while out of the house or abroad
- Control your home from one platform

Dwight Spivey

by Dwight Spivey

FOR
DUMMIES
A Wiley Brand

Home Automation For Dummies®

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Home Automation For Dummies®

Visit www.dummies.com/cheatsheet/homeautomation to view this book's cheat sheet.

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Introduction

Flying was a pleasure meant only for birds or for fools jumping off a cliff with homemade wings. The stuff of fancy and fantastical tales. In 1903, a couple of brothers put that kind of talk to rest with the first flights of their Flyer in North Carolina.

Computers in the home was something only seen in science-fiction films until a few kids got together in one of their parents' garage and created a little thing they called the Apple I. According to Forrest Gump, that little "fruit company" has done quite well since those days.

Staying on that theme, folks used to think that teleportation was only possible in *Star Trek,* but just yesterday I was beamed from my local transporter to our secret moon base in no time flat! It was really — uh oh! I'm not supposed to talk about that yet . . . just forget you read that last paragraph, please.

Nothing to see here. Moving on.

The point is that when it comes to technology, fiction can often become reality. The fiction of being able to automate our homes became a reality a few decades ago, but it was something only the very (and I do mean *very*) well-heeled could afford. Since the advent of the smartphone (there's that "fruit company" again) and the proliferation of cellular networks, we have had greater access to each other and our world than we've ever dreamed. As smartphones and apps have grown in popularity, so has the need to use them in ways many of us couldn't have conceived of before. Today we not only can make calls and send texts, but we also use our smartphones (and tablets) for watching movies, catching up on the news, checking weather forecasts, viewing live

sporting events, listening to our favorite music, and many more tasks that Isaac Asimov couldn't have thought of.

Wi-Fi networks and the Internet have also opened the door (in some cases literally) to a whole new level of home accessibility: using our smart devices and apps with our home's Wi-Fi network to remotely control and automate tasks in our home. You can use your iOS or Android device to adjust the temperature, set the mood with customized lighting schemes, preheat the oven so you can cook your meal the moment you walk in the door, and even tell your lawn mower to start cutting your grass. That's just scratching the surface of what you can do with today's smart home automation technology — and in this book, I happily tackle the subject with you.

About This Book

This book introduces you to the smart home revolution, which is today's way of automating and/or remotely controlling common, everyday tasks via your smartphone or tablet (and in some cases, your computer), your home's Wi-Fi network, and the Internet. My aim throughout the tome is to explain why you want to automate, how you can do so, and just what you can accomplish with it. This book also shows you a multitude of the aforementioned tasks that you can accomplish using automation and/or remote control, and how to go about the process of automating those tasks. I discuss not only tasks and the technologies, but also the companies that are the major players in today's emerging smart home market.

The *For Dummies* series of books has been helping folks (like me) make the most of technology and other things that enhance our lives when we are properly taught how

to utilize them, and I've written this book using those wonderful time-tested methods. The organization of this series is stuff of legend, and I've made sure not to deviate from them. Feel free to jump around as you like, or follow along in exact page order — whatever suits your needs. After all, this book is for you to learn about smart home automation, and it's designed to help folks at various levels learn as they see fit.

Some items in the book, such as sidebars and Technical Stuff, are simply there because I thought they were neat. Don't get me wrong, they do contain helpful information, but feel free to skip them if you like.

You'll find this book is absolutely chock-full of URLs (otherwise known as webpage addresses) that you can use to check out the products I discuss. All of them were functional at the time of this writing, but trust me when I say that URLs can — and do — change often.

While reading this book, you may notice that some web addresses break across two lines of text. If you're reading this book in print and want to visit one of these webpages, simply key in the web address exactly as it's noted in the text, pretending as though the line break doesn't exist (this might be hard for some English majors, but give it a try anyway). If you're reading this as an e-book, you've got it easy — just click the web address to go directly to the webpage.

Foolish Assumptions

Dear reader, you assume a certain amount of knowledge and expertise from me as the author of this book. I, too, have certain expectations of you, my audience, when it comes to your ability to put the information contained herein to good use.

I assume that you are familiar with the Internet, and have at least a cursory knowledge of your home's Wi-Fi network (which I also naturally assume you have). If you don't know diddly about either of these things, you'll definitely want to bone up on the subjects before delving into this tome too deeply. I don't expect you to know how to create a website, how to run Ethernet cable throughout your home, or how to set up a network that even the federal government couldn't crack into. However, you should at least know how to surf the web and how to successfully connect to and use your computer and smart devices, like phones and tablets, with your Wi-Fi network.

If at this point you're wondering what all this talk is about computers and smart devices, my advice to you is to immediately put this book down after completing this paragraph. Next, peruse your local bookstore (I'm safely assuming you're not reading this book's introduction on Amazon.com) for other *For Dummies* titles that will catch you up to the rest of the world in those subjects of interest. When you're ready, I'll be here waiting to guide you on into the wonderful world of the smart home.

I do not assume that you have any clue about how to rewire your home's electrical system or network cabling. For the record, neither is required to perform any of the tasks in this book.

Icons Used in This Book

Throughout this book I highlight items that I think deserve your attention just slightly outside of what I discuss in the primary material, or maybe I expand on a topic. I use the following icons to accomplish this:

Give close attention to items beside this icon. They generally will help you achieve results being covered more easily, or may help you avoid pratfalls in the process. Tips also may point you in a different direction entirely.

I know folks who use anything from reminders on their smartphones to writing notes on their hands with Sharpies to make sure they don't forget important goings-on. The Remember icon is the *For Dummies* way of doing something along those lines, helping you to remember important things relevant to the topic at hand.

When you see this icon, watch out! There's something here that I really want to alert you to regarding the current topic of discussion. An example would be if a certain home automation protocol would conflict with other protocols in your current home automation setup, I would certainly make you privy to that knowledge in a Warning icon.

Geeks rejoice! This icon alerts you to items that may be of interest to you in your quest for home automation. Topics featured with this icon may or may not be exactly relevant to the one being discussed in the chapter, or may be something pertaining to topical trivialities. I just couldn't help myself and thought you might be interested in them, so there.

Beyond the Book

I've put a ton of information between the covers of this book, but there's even more information that you can access on www.dummies.com, such as

- I provide you with a Cheat Sheet at www.dummies.com/cheatsheet/homeautomation that lists the following:
  - The best home lighting devices
  - The top smart thermostats
  - Wi-Fi routers to use with your smart home automation system
- You also will find extra helpful online articles at www.dummies.com/extras/homeautomation that discuss
  - The best smartphones and tablets
  - Streaming media providers
  - Ten top whole-home automation companies (they do all the work for you, in other words)
  - A list of links to all the outdoor home automation products I mention in Chapters 11 and 12

Where to Go from Here

I wrote *Home Automation For Dummies* with the idea in mind that you, dear reader, would be able to tackle the subject either in the order that it's written or in bits and bites as you desire. In other words, there is no one way in which you must read this book. I will say, however, that if you're a complete newbie at this whole smart home thing, you'll be best served to start at Part I; from

there you'll have enough of a frame of reference to understand the subjects in the other four parts.

Congratulations on automating and remotely controlling your home. Ain't technology great? I guarantee you'll think so when you're enjoying a nice evening on the town with a loved one and you receive a text from your robotic lawn mower letting you know the mowing has been finished.

Part I
Introducing Home Automation

Visit www.dummies.com for great Dummies content online.

In this part . . .

- Discover the “smart” way to automate your home with Wi-Fi and smart devices.
- Understand the benefits of automating your home.
- Know what you'll need to get started with smart home automation.
- Determine what tasks in the home you want to automate.

Chapter 1

Home Automation 101

In This Chapter

- Examining changes in home automation over the years
- Benefitting from automating your home
- Understanding home automation technology

"How do we make life better?"

"How do we make more time for what really matters?"

"Why can't television commercials for technology companies incorporate music that doesn't involve finger snaps, hand claps, xylophones, and ukuleles?"

Those three questions haunt me every day, as I'm sure they do you, gentle reader. However, only the first two issues are ones that I think mankind will actually be able to do anything about in the near future. That said, I concentrate on those in this book.

People have always had to work, and we've always tried to find ways to make that work easier, whether by developing better tools and technologies to do the work or by making other folks or things do the work for us. Sick of digging up dirt with your bare hands to plant seeds? Let's invent the plow and make our cattle do the heavy lifting. No longer want to beat your clothes with a rock in the nearest creek? We'll invent the washing machine, then. Don't want to carry ten jugs with you to the river to gather water? By George, I think aqueducts and plumbing might be a good idea. We are always on

the lookout for ways to do tasks better or shirk them altogether — and that's a good thing, if you ask me.

Home automation is yet another step in this struggle for making life better. Some folks may scoff at the idea that automation means life is better, but I'll bet those same folks don't mind using a gas or electric mower when it comes time to cut the lawn. I'll wager a pretty penny that they really appreciate their automatic dishwashers and their refrigerators, too. Time marches on — and so does technology.

Defining Home Automation

Let's see . . . if I were to give my own definition of what home automation is, I'd first look at the definitions for each of the two words that make up the phrase. For that task, I consult the *Merriam-Webster* website (www.merriam-webster.com):

- **home (noun):** the place (such as house or apartment) where a person lives
- **automation (noun):** automatically controlled operation of an apparatus, process, or system by mechanical or electronic devices that take the place of human labor

Combining the two definitions, I initially conclude that home automation is the act of automatically controlling tasks within the home that are normally performed through an act of human labor. While this sounds neat and orderly, it actually isn't so (but it's getting there, and quickly). Home automation has been around for a long

time, but it’s beginning to really take off for consumers at all price points in this Internet age.

That said, and before I get too far ahead of myself, let’s take a brief look at how home automation has been achieved in the past and how it's getting done these days.

Doing it the old-fashioned way

“Is there an old-fashioned way of doing home automation?” you ask. My reply: “Yes, indeed.”

Before I get too far afield, allow me to define what I mean by “old-fashioned” in terms of home automation: spending thousands (and sometimes tens of thousands) of dollars to implement customized automation solutions within a section of your home (such as the entertainment room seen in Figure 1-1) or throughout the entire space.

Image courtesy of Home Entertainment, Inc.

Figure 1-1: This entertainment room is fantastic, fun, beautiful, and by no means inexpensive.

Home automation has been around for quite a while, but some of its technology tended to be available primarily for folks with fat bank accounts. Why? Glad you asked.

- Home automation used to be a specialty premium service, requiring a great deal of money to manufacture.
- Installing a home automation system often required extensive rewiring and other electrical work.
- Ongoing support and maintenance of a customized home automation solution was (and in some cases, still is) expensive by nature.
- Systems were truly customized to the individual home, creating higher costs.

These are just some of the reasons for the super-high cost of past systems, and for the still-high costs of similar comprehensive home automation solutions today. Controlling your entire home's lighting just wasn't something that most of the housing market was doing until recently. Also, old-fashioned home automation was something you did within the confines of your home; rarely were you able to handle tasks remotely. Some home automation technologies, such as intercoms and garage door openers, were never as expensive as others to implement, and therefore more prevalent in homes. However, they were the exception rather than the rule.

Before I finish this section, I want to make it understood that I see nothing wrong with whole-home, customized automation, and many companies today excel at it (and bully for you if you have the moola to do it!).

If you are interested in this particular type of home automation, by all means, visit the websites for these wonderful companies that are more than capable of helping you make your home automation dreams come to life:

- Home Entertainment, Inc.: www.homeentertainmentinc.com
- Crestron: www.crestron.com
- Savant: www.savant.com
- Control4: www.control4.com

Self-installing a home automation system

I'm certain some of you handier folks reading this book (for which I humbly thank you, by the way) are thinking about implementing the type of whole-home system I just described yourself, and that's certainly a possibility. However, depending on the extent you want to automate your home, the time needed will be great, the work involved will be monumental, and the cost will still be up there a bit. I'm not trying to discourage do-it-yourselfers at all, if that's truly what you want to do, but if you think you might be even the slightest bit concerned about my earlier caveats, either let companies that specialize in these kinds of installations handle it for you, or please do read on with an expectation that you can learn how to automate your home without tremendous headaches and hassles.

Automating homes today

I don't know about you, but most people would jump at the chance to automate more things in their lives if doing so were affordable and could be achieved with reasonably minimal effort. Well, you're in luck. Most of us are able to automate at least certain aspects of home life today because they don't cost an arm or a leg, and they aren't difficult to install.

Home Automation For Dummies focuses on how you can simply and relatively inexpensively control many of your

daily tasks. Not only that, most of what I cover can be handled remotely, meaning you don’t even have to be at home to do this awesome stuff.

Today, all you need to implement a home automation system is an Internet connection and (in some cases, but not all) a device to control it, such as a smartphone, table, or computer. Of course, you have to purchase a system or appliances, but many of them that utilize your Wi-Fi network (or even your home’s power lines) are inexpensive. Another bonus with today’s home automation technology is that you can start as small as you like and build up to as large as you like. For example, with a kit such as the WeMo Switch + Motion kit from Belkin (see Figure 1-2), you can begin with just a smart wall outlet and a motion detector, but can add more and more WeMo devices to your heart’s content.

Image courtesy of Belkin.

Figure 1-2: Starting with a beginner’s kit, like this one from Belkin, you can start small with home automation and work your way up.

Benefitting from Home Automation

The idea of home automation is really cool and futuristic, but if that's your only motivation to automate the things in your home, you just might be missing the forest for the trees. Sure, you can impress friends by turning on your fireplace with a tap of your iPhone, but benefits of home automation go way beyond bragging rights.

Convenience is key!

Convenience is indeed the key; otherwise, what's truly the point? The words "home" and "automation" fit together perfectly to describe how to get things done easier, better, and faster than ever before, which equates to convenience.

Want a few examples of how today's home automation is convenient? Okay, here you go:

- Your teenage son calls from a friend's cellphone and tells you he's locked his keys and everything else he owns in the car you let him borrow. This kid is 30 minutes away — not good. Suddenly you remember you had installed a device in your car that enables you to unlock it (and even start it) from a million miles away with your smartphone. A few taps and swipes on your phone, and your son is back in the car. Convenience.
- The lawn needs mowing before company arrives this weekend, but you've been in meetings all week on the other side of the country, and now you're stuck in the airport. Whip out your Android phone, open your robotic lawn mower's app, and tell it to get to work.

The lawn's done before your plane even lands. Convenience.

- You and the family are singing "Let It Go" of *Frozen* fame for the 100th time on your road trip to Disney World when it dawns on you (three hours away from home) that you left the lights on and an electric heater running in the bathroom. You calmly fire up your iOS tablet, open the app for your home automation system, and turn off the lights and the outlet the heater is plugged in to. Dare I use the "C" word again? You bet I do. Convenience.

Here are a few other things you can do conveniently *from anywhere* with today's home automation:

- Adjust your home's thermostat.
- Control your sprinkler system.
- Preheat your oven from anywhere, with an app like GE's Brillion (along with supported appliances, of course), seen in Figure 1-3.
- Unlock or lock your front door.
- Raise or lower the window shades.
- Change the schedule of your coffee pot.
- Initiate a washing or drying cycle.
- Clean your aquarium.
- Control how much television your kids watch.
- Keep tabs on how much electricity you're using.
- Be alerted to a water leak in your bathroom.
- Find out if someone enters your home unannounced.
- Clean your cat's kitty litter.

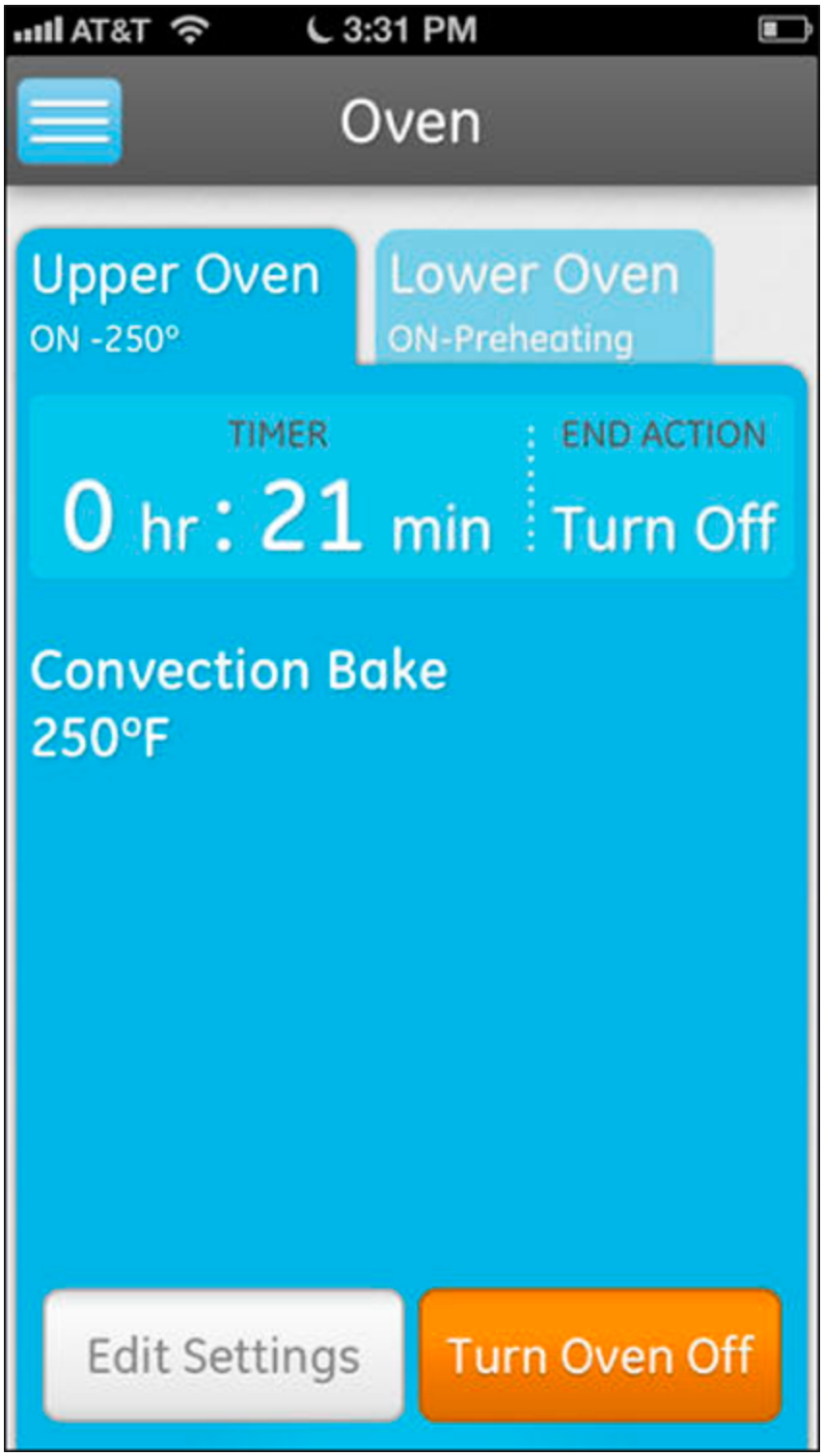

Image courtesy of General Electric.

Figure 1-3: Controlling your GE oven's temperature with the Brillion app.

I’m sure things are starting to click for you when I say that remotely controlled home automation affords a level of convenience that most people have not yet experienced. And that list just scratches the surface!

S-E-C-U-R-I-T-Y

Fewer things in life are more appreciated than security — in this case, knowing (or at least feeling) that you’re more safe doing things a certain way or using certain devices. Today’s Internet-based home automation technology gives one just that kind of security.

Sure, home security companies have been in existence for decades now, and they are great at what they do. People also have had personal means of protection that usually work as intended, provided they’re used properly. Security cameras have also been providing more home security for some time, although they typically were expensive to install. With today’s tech, however, you can secure your home in myriad ways you never were able to before:

- Wi-Fi cameras provide a look into your home from anywhere you have an Internet connection.
- Motion detectors keep you privy to any activity in your home.
- Smart locks and security apps, such as the one from alarm.com shown in Figure 1-4, allow you to lock and unlock your doors, no matter whether you’re home or visiting family halfway around the globe.
- When coupled with the use of door and window sensors, apps can alert you via text or email when someone enters your home uninvited.
- You can control lighting within your home from anywhere you have a connection to the Internet,

making it appear to folks outside that someone is home.

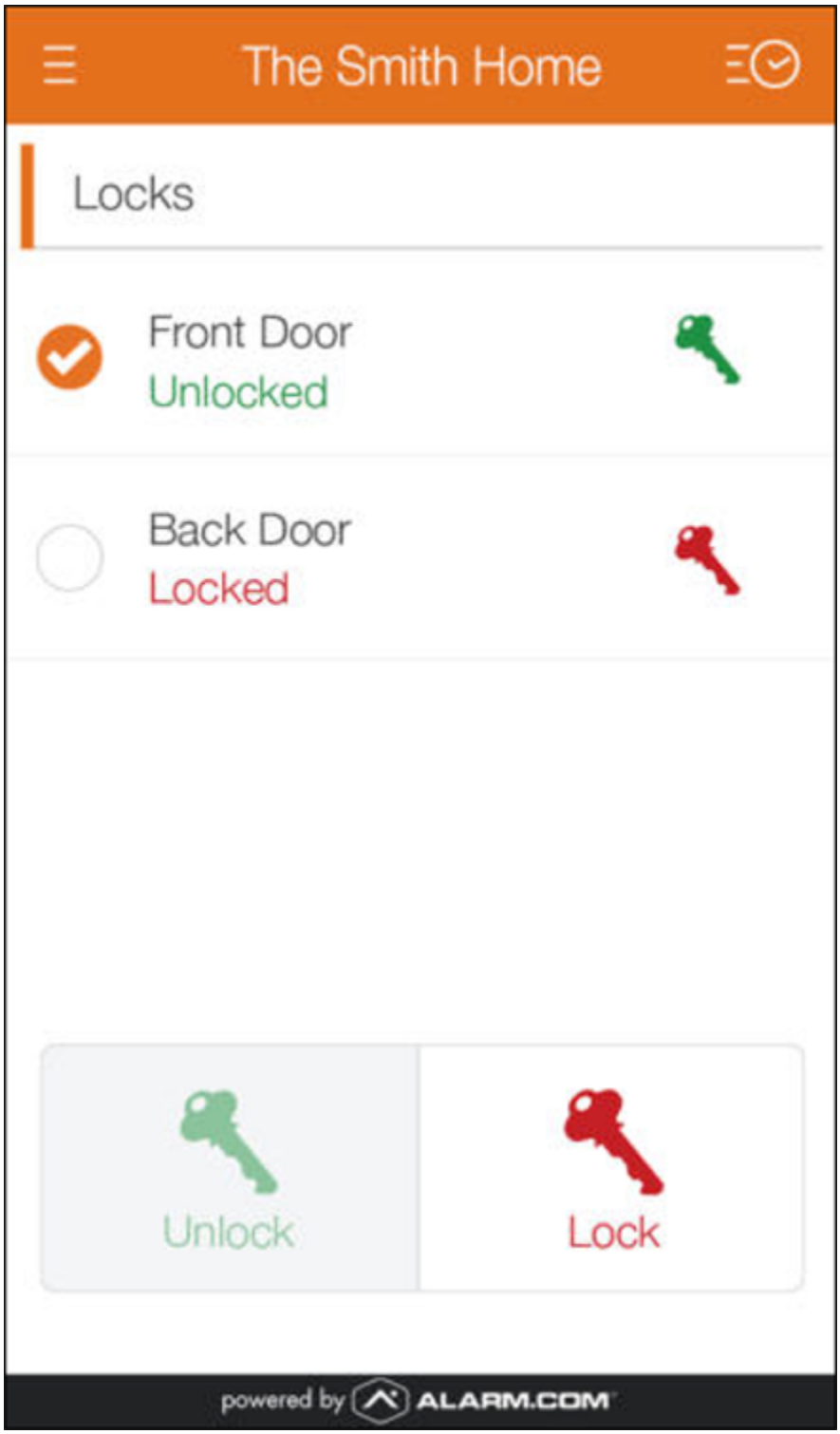

Image courtesy of Alarm.com.