



# 11 THINGS YOU SHOULD KNOW

WHEN PLANNING YOUR SMART HOME SYSTEM

Control 

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# WHY HOME AUTOMATION?

Think back. Can you remember what it was like to change the channels of your TV manually? When channel surfing and volume tweaking meant bouncing back and forth between your couch and console? Although the generation that remembers these antiquated modes of control may not have realized it then, this was highly inconvenient. Now fast forward to the era of the handheld remote, where we find all the necessary buttons for finding and enjoying a TV program right at our fingertips.

A home automation system offers that same kind of convenience, but on a much broader scale, and often without any button pressing required. In addition to firing off commands to video equipment, an automation system can control lights, thermostats, security devices, lawn sprinklers, motorized window treatments and more. In seconds, your house is exactly the way you like it and all you had to do was tap a button on your smartphone.

Needless to say, using an automation system to simultaneously adjust the lights, temperature, and other elements of your house for your arrival, departure, bedtime and other occasions is a huge convenience and time saver. But there are a host of other benefits you'll realize by installing an automation system.

## ENHANCED SAFETY & SECURITY

Nothing against residential security systems—they may do a great job of protecting your home and family. But when working hand-in-hand with a home automation system, home security systems can provide an even higher level of safety. For example, typically when an alarm trips, the security system will notify the provider (sometimes after 30 seconds or even a minute) who will then need to contact you. When tied to your automation system, you can receive a text message the instant that there is unauthorized access to your home. The automation system can also zero in on the breach by linking the nearest surveillance camera to your smartphone. From your smartphone, you can then view the situation and react accordingly.

## INSTANT STATUS

Did the kids leave the lights on in the game room downstairs? Are there any windows open in the master bedroom? Did your teenager remember to close the garage door? A home automation system keeps tabs on happenings in and around your house and can share that information with you, both while you're at home and when you're miles away on a vacation or business trip. Real-time status reports can be viewed on a variety of user interfaces, including the screen of a smartphone, tablet, TV, or touch screen. Using this information, you'll be able to respond appropriately. For example, an



automation system can be programmed so that touching one button on the kitchen tablet will turn off every light and entertainment component left on in the game room.

### **COMFORT & EFFICIENCY**

Keeping a home at its most comfortable state while still being mindful of energy use can be a challenge when you're forced to adjust thermostats, position draperies, and turn on and off lights manually. Based on parameters that are pre-programmed into a smart home automation system by a professional, the thermostats can lower at night and all lights can turn off right before bedtime to save energy. An hour before you wake up the thermostat can adjust so that the house is comfortable the second you step out of bed. Meanwhile, the lights in the kitchen can turn on, the shades in the living room can open, all while your bedroom music slowly wakes you up, raising in volume over a 10 minute span of time.

### **OVERALL ENJOYMENT**

Home automation applications allow you to be in control of how you want your home to function; whether you want added relaxation or to transform your home into an entertainment oasis—or somewhere in between—it's entirely up to you. For example, from the smartphone, tablet, keypad or touchscreen you use to monitor and operate the lights, thermostats and other electronic gear, you can tell your home's music system to deliver songs from your favorite Internet radio station to speakers in the family room and kitchen. Later, you and your guests might convene in the media room where with one tap of a button the lights fade, the shades lower, and the A/V system sets up to present a movie on a big projection screen.



# A STEP-BY-STEP APPROACH TO HOME AUTOMATION

These guidelines will help ensure a positive result when having a home automation system installed.

When most people think about having a home automation system installed, the incorporation of scads of high-tech equipment naturally

springs to mind. While the installation of the gear is certainly an important part of the process, there are many other

steps that should be followed to ensure that the system suits all of your needs. A home automation Dealer should be able to lead you through the procedure, but it never hurts to know what to expect along the way. If you spend some time thinking about the steps below, you'll be better prepared and able to contribute more to the project and end up with a system that is customized to your needs.

## STEP 1: FIND YOUR HOT BUTTON(S)

In most households, an automation system can make a huge positive impact, but only if you first determine which areas of your life could benefit the most from the technology. Do you envision it as a solution to your family's exorbitant use of electricity? Or perhaps you see it as a way to better manage your busy household? Or maybe it's simply the ability to incorporate music into every room of your house. Think about the areas of your home and life that could use improving or added enjoyment. Having a well-defined focus can help when it comes time to select and design an automation system for your home.

## STEP 2: GATHER IDEAS

If you're unsure of what you really want out of an automation system, or even if you

already have a fairly good idea, be sure to visit the showroom of a home automation Dealer, and if possible, a model home that has been outfitted with technology. Here you'll be able to experience the technology first hand, get the full picture of its capabilities, see how it enhances the look and feel of a room, and try out the controls for yourself. These demos—whether in a real home or simulated—will make it easier to envision a system in your own home and will likely introduce you to new features and functions you may have not have previously considered. You'll also gather a sense of how the technology can be integrated in a way that complements your home's design and décor.

## STEP 3: AUDITION DEALERS

Once you have good idea of what you might like to accomplish in your automated home, it's time to find an automation Dealer to implement it. You may have already met a few qualified Dealer during your visits to showrooms and showhomes. If your initial meetings with these Dealers were informal, you may want to learn more about the companies. What do they specialize in? Are they well practiced with installing systems in both new homes and older (retrofit) houses? How many years have they been in business? And so on. At this point, a good Dealer will likely pose several questions to you as well. Be sure to visit a few and gauge not only their business acumen, but also their personalities. Remember, depending on the scope of your project, this company will be working closely with you and your family for some time, and even in the future if you choose to add on to your system down the road, so you'll want to feel comfortable with the designers and integrators on a Dealer's team.

## **STEP 4: INITIAL HOUSE CALL**

After your first visit, your Dealer may have a pretty good idea of the type of system and products he/she would recommend for your house; however, it's only after a visit to your home that the Dealer will be certain of the best course of action. The size, structure and design of your home, whether it's being built or already finished, and the devices and systems that you may already have, will all impact the decision on which types of technology to incorporate; for example, hardwired or wireless, types of subsystems, special features, etc. During this first visit to your home the Dealer should walk through the entire residence and inspect areas like basements, attics and closets for locations to stow equipment and run cabling. Before or after the tour of your home, expect very direct questions about the sorts of features you'd like to incorporate.

## **STEP 5: SEEK BIDS**

After touring the home and gathering more information about the needs of you and your family, a Dealer will be able to recommend systems and provide a quote for materials and labor. Be sure to get a few quotes from different Dealers. Understandably, you might be tempted to base your decision simply on who offers you the lowest bid, and while price is very important, it's critical to understand exactly what that bid includes. Some integrators charge separately for their design time and installation labor; others roll both into the total cost. Maintenance might be included in one quote, but treated as a separate charge in another. Make sure you understand how the integrator handles maintenance and follow-up once your system is designed. Also, as you would with any contractor, ask for references and check them before agreeing to work with a Dealer/integration firm.

## **STEP 6: DESIGN & PRE-WIRE**

Believe it or not, a big part of an automation project can be handled right at the Dealer's office. Based on the conversations you've had with your Dealer, he/she might be able to program some of the settings of your system off-site. At the same time, other integrators on the Dealer's team will run the necessary cabling. This can take a day or a few weeks depending on the scope of the project and the types of products being installed. Often during the design and pre-wire phase, the Dealer may also be "racking" your system. This involves placing all of the various controllers, amplifiers, switchers and other gear within the shelves of a specialty equipment rack. Depending on the size of the project, some Dealers may choose to dress the rack at their office where they can test the system before installing it in your home.

## **STEP 7: EQUIPMENT INSTALLATION**

After the system has been designed and configured and the necessary cabling fished behind the walls, the Dealer should be ready to install the automation components. This will likely include an equipment rack, as well as keypads, touch screens, speakers, TVs ... basically anything attached to the walls, ceilings or floors. If the Dealer has done a good job designing and pre-wiring the system, the actual installation shouldn't take long. At this point, it's just a matter of hooking everything up and trimming it out by patching drywall, applying fascias to flat-panel TVs and painting over built-in speakers.

## **STEP 8: TRAINING**

Again, if the design of the automation system is solid, learning to use it should be a cinch. Still, your Dealer will likely walk you through the process of using your phone, touch screen or some other device to control the different parts of your home. Not only will this help familiarize you with the system, but will also give you a chance to voice any concerns. Maybe the lights in the "Good Morning" scene seem too bright or the music in the den sounds a little harsh. Be sure to mention these issues at the time of the initial walk through; your Dealer may be able to fix many issues on the fly with minor programming modifications to the software.

## **STEP 9: FOLLOW-UP**

As you use your system, you will likely discover parts of the system you'd like to change. This is fairly typical, and shouldn't be an issue. Your Dealer should provide routine maintenance of your system, including minor modifications and additions. Even larger additions, like the integration of a swimming pool or the distribution of audio to a new wing of your house can usually be handled by the same firm that installed your system initially.



# THE BENEFITS OF PROFESSIONAL INSTALLATION

Home automation has been inching slowly into the mainstream, and with new do-it-yourself focused systems hitting the marketplace hard and heavy, consumers are faced with the decision of whether to tackle the setup of a home

Despite improvements in the ease of setup, most home automation systems work best when designed and installed by a trained professional.

automation system themselves or to hire a professional to do the job. While you may save money in the short run by handling the task yourself, don't underestimate the value that professional installation can add when making your decision. There are many good

reasons to pay for a professional, and the good news is that most manufacturers have implemented technology into their systems that can streamline the programming and installation process significantly. Here are five reasons that will make you think seriously about hiring a professional home automation Dealer.

## 1. PROFESSIONAL DEALER/INSTALLERS KEEP UP WITH TRENDS

Technology moves at a fast pace. What's new today is often old tomorrow. Professional home automation installers make a point to stay on top of and ahead of the curve when it comes to technology for the home. They know what's fresh and relevant, and what new developments are on the horizon. This insight is crucial when selecting systems for your home. You'll want to be able to rest assured that your automation investment is sound and will stand the test of time.

## 2. PROFESSIONAL DEALER/INSTALLERS UNDERSTAND TECHNOLOGY

Almost everyone has experienced the frustration of a home improvement project gone wrong. Whether it's a shoddy paint job or an afternoon kitchen update that turned into a month-long project, moments like these are when most people wish they would have handed over the paintbrush and drill to a pro. The installation of a home automation system is no different. Rarely is setup as easy as the instructions make it seem. Many times the problems have nothing to do with you or the system, but rather unforeseen obstacles like a weak wireless home network or poor structural integrity. A professional automation installer should be able to work around the specific challenges your project presents and implement solutions to ensure your system works reliably.

## 3. PROFESSIONAL DEALER/INSTALLERS CUSTOMIZE

The functionality of a home automation system often hinges on the programming



of its software, which should be handled by a professional. Through training and ongoing education, they can perfect the skill of software programming so that they can tailor a home automation system to meet your precise needs and expectations. These programming skills also come into play when integrating products with a home automation system. For example, if there's a particular product that's incompatible with your home automation system, a professional home automation installer is usually able to troubleshoot and get the two communicating freely. He/she is also able to personalize the system's user interface (the menu of commands that is displayed on the screens of tablets, smartphones and touch screens) to be easy and intuitive for everyone in your family to understand and navigate.

#### **4. PROFESSIONAL DEALER/ INSTALLERS MANAGE**

The integration of electronics into your home will often involve professionals besides the home automation Dealer/installer. A professional can ensure that people like your interior designer, contractor and electrician all understand the goals for your home automation system and are communicating and working together to achieve that goal.

#### **5. PROFESSIONAL DEALER/ INSTALLERS PROVIDE PEACE OF MIND**

System snafus are bound to happen when there's technology in your house. A professional installer can remedy the problem—whether the fix is a simple reboot which can be issued remotely or whether it requires some on-site sleuthing to resolve. Do-it-yourselfers, on the other hand, may be left scratching their heads.

# WORKING WITH A HOME AUTOMATION DEALER

A realtor wouldn't dream of selling you a house without understanding your needs and wants (or "must-haves" as they're known these days).

10 tips on teaming up with your home automation professional to ensure complete system satisfaction.

The same goes for the professional who designs and installs automation systems.

In order to provide

a customer with technology that will truly enhance the convenience, comfort and entertainment value of a home, the Dealer needs to learn about how you live in your house today, what you would like to improve, and how you envision life in an automated residence, among other tidbits. You'll need to build a solid relationship and communicate openly with your home automation Dealer. Here are 10 tips on how to effectively work with a home automation professional.

## 1. OPEN HOUSE POLICY

A home automation Dealer needs to know whether you plan to automate an existing house, are planning a large remodel, or if you would like to put a system into a new house that has yet to be built. This may give the Dealer a good starting point, but to gauge the complexity of the job, the professional will need to see the house and/or blueprints. Provide the Dealer's employees with ample time to visit your home and poke around the property. If you're building a new home, hand over the blueprints.

## 2. AIR THE DIRTY LAUNDRY

Everybody can rattle off a few items they find annoying or inconvenient about their home. Maybe it's the closet and bathroom lights that

nobody bothers to turn off, or the tedium of locking up and shutting things down before bedtime. A home automation Dealer wants to hear your pet peeves so the system is designed specifically to take care of those trouble spots. Don't hold back, and make sure every member of the family has a say.

## 3. FINANCIAL SITUATION

Having a budget in mind helps a home automation Dealer tremendously. Budget transparency will allow the Dealer to be able to choose products and systems that will fit your budget. And when the Dealer presents you with his budget-minded plan, understand exactly what you're paying for and when before proceeding. And remember, a great automation system gives you the opportunity to add on in the future as your budget allows.

## 4. ON THE CLOCK

Is there an upcoming special event by which you'd like the project to be finished? Relay this information to your home automation Dealer immediately. Based on the information you've shared, your home automation Dealer is probably already visualizing a system. However, if you want it done in three weeks, the Dealer may need to rethink the plan, subcontract out some of the work or even recommend you go with someone else if it is impossible for a particular Dealer to meet a firm deadline. Be clear with your timeframe; be flexible if you can, and above all, be transparent with your expectations—it's far better to work out timing issues well in advance rather than to be stressed out at the last minute.

## 5. SPECIAL ASSISTANCE

Speaking of subcontractors, depending

on the scope of your home automation project, it's possible that your Dealer may subcontract certain aspects of the job. For example, an electrician may be required to help craft the automated lighting scenes or an A/V specialist may be needed to weave a whole-house music system into the automation routines. Naturally, you'll want to know about these extra people on the job. Be sure to ask your home automation Dealer if subcontractors are part of the plan.

## 6. COMFORT LEVEL

How do you use technology in your home now? For example, are you a fan of streaming music and video services or do you prefer discs? Do your kids do much of their homework online? What about mobile devices? Are they loaded with apps? A home automation Dealer can tell a lot by your current use of and familiarity with technology. For example, if everyone in the family is an avid user of an iPad, your integrator may design a system that lets you use this device to manage and monitor your smart home.

## 7. LIFESTYLE

Lifestyle is a big buzzword in the home technology industry, and for good reason. A candid discussion of your way of life will likely reveal the most important pieces of information a Dealer needs to design and implement a system that is so in sync with you and your family that you'll wonder how you ever managed without it. At the very least, expect to divulge information about your household status (single, married, kids, elderly parents), your family's schedule (work, school, travel), your social life (do you entertain frequently?), and your hobbies (sports, exercise, photography, art collecting, etc.). If your daily

routine involves a half hour on the treadmill, perhaps you'd like to have some music piped in over in-ceiling speakers rather than be tethered to an iPod; or if you are an art connoisseur, you may want to consider creating the proper lighting environment for displaying artwork.

## 8. ON- AND OFF-SITE ACCESS

Naturally, a home automation Dealer and his team will need to frequent your house to run wire and install equipment. Do you feel comfortable having them in your house while you're at work? Discuss your concerns up front and try to be accommodating. Remember, a good portion of the work that needs to be done can often be handled remotely.

## 9. AESTHETIC PREFERENCES

Do you want to show off your home electronics investment or keep it under wraps? For example, divulging your aesthetic preferences will help a home automation Dealer determine whether speakers should recess into the walls or should stand out in the open. If you like the idea of having all of the automation and A/V equipment hidden completely from view, by all means tell your home automation professional. There are lots of clever ways to hide technology.

## 10. ACTIVE PARTICIPATION

Believe it or not, most Dealers relish clients who actively participate in projects. Your input throughout the process is valuable, so don't be shy. If an idea strikes you in the middle of the night, share it with your Dealer the next morning. Chances are, your Dealer will be happy to have you involved. And who knows, the Dealer and his team may even let you program some of your automation system yourself.

# ESSENTIAL FEATURES

Look for these key characteristics when choosing an automation system.

You wouldn't typically book a hotel room without first investigating the amenities offered: Is there room service and a gym? Do they cater

to business travelers by offering free Wi-Fi? Can you expect a free continental breakfast

in the morning? The same should be true when looking for a system to automate the electronic components of your home. Granted, the criteria by which you judge a system will be vastly different than the factors that influence your choice of lodging, but they are probably even more important to your overall satisfaction. Unlike a temporary hotel stay, this is a decision that will impact your life every day for as long as you live in your home.

Although the performance of a home automation system will hinge largely on how well it's been engineered, programmed and installed by a home automation Dealer, there are some inherent features of a system's design that are important to consider.

## PLAYS WELL WITH OTHERS

One of the biggest benefits of a home automation system is its ability to unify the operation of many different types of electronic components. By wrapping multiple products together, it allows you to control the lights, thermostats, A/V gear from a single user interface—tablet, smartphone, touch screen, keypad, or computer. A good example of this capability is having the lights turn off, the thermostats set back and the motorized window shades close when you press a "Goodbye" button on a keypad or when a motion sensor notices that you have exited a room.

Getting the disparate devices to work cohesively can be simple or complex, depending on the "openness" of the automation system. Basically, the more open a home automation system is, the easier it will be for a home automation Dealer to place all the components under its supervision and have those components operate seamlessly with each other.

To support interoperability between products, Control4, for example, has an open platform and works with over 8,000 devices and 60 other companies to ensure that its line of automation products can communicate openly with a wide variety of other systems.

Another way manufacturers are fostering interoperability is by adhering to particular technology standards. For example, many manufacturers have embedded ZigBee, Z-Wave or Wi-Fi wireless communications technology to ensure that their products can network with other ZigBee, Z-Wave or Wi-Fi products.

## MODULARITY

To automate every piece of technology in your home in one shot can be a bit overwhelming, not to mention expensive. Thanks to innovative designs by manufacturers, you don't have to do everything at once. Instead, you can automate your home room by room, feature by feature, piece by piece, updating gradually as your needs and budget permit. A system that's been manufactured to be modular will allow you to incorporate a few basic features first, and then add complexity when you're good and ready. Upgrades should occur without any major disruptions to your household. Make sure your automation system can be easily expanded both vertically to incorporate additional products and horizontally to support additional rooms.



*You can have the best automation system available, but without someone qualified to install it into your home and tailor it to your lifestyle, you won't be happy with your investment.*

One way manufacturers support modularity and expandability is by designing their systems to speak a common networking language, like IP (Internet Protocol), and by offering wireless retrofittable products that can communicate via a home's existing network of wireless products.

### **EASY UPDATES**

Software updates are what keep the computers, cable and satellite boxes, e-readers and other pieces of technology in your home fresh and relevant. The same is true for home automation systems. Software is the driving force of a home automation system—it's like the brains for your home. As new products are added to your system, and as manufacturers release new, improved versions of their automation software, your system's original software will need to be updated to keep pace. Before you buy an automation system, be sure the manufacturer and home automation Dealer will be able to unlock and download software updates.

### **FRIENDLY USER INTERFACES**

Automation systems, by their definition, are supposed to make things happen automatically. While such systems are able to do this based on conditions like the time of day or season of the year, most people prefer greater spontaneity in the operation of their home's electronic systems. This is the role of the "user interface." There are numerous types of interfaces, so be sure the manufacturer of your chosen home automation system offers the models you are most comfortable using. If you'd like to use an assortment of interfaces—a solution preferred by many families—again, make sure your automation system supports the types of interfaces you need.

### **STRONG DEALER NETWORK**

You can have the best automation system available, but without someone qualified to install it into your home and tailor it to your individual lifestyle, you won't be happy with your investment.

# WHAT'S IN A HOME AUTOMATION SYSTEM

## THE HOME AUTOMATION SYSTEM

Think about the following generic definition of a “System.”

System: A set or arrangement of things so related or connected as to form a unity or organic whole.

A home automation system consists of several different components; here are the pieces that'll make your home smart.

The definition applies perfectly to the design principles behind any type of home automation system. No

matter where you buy it from, what brand it is, or who installs it, a home automation system will consist of several basic parts. Together, these individual parts all contribute to the functionality, convenience and efficiency of your home, so even though a trained home automation Dealer will install your system, it helps to understand the role each component plays in the management and control of your home's electronic products and systems. Below is a brief description of the most important components in a well designed home automation system:

## THE CONTROLLER

Referred to as the “brain” of a home automation system, the core controller receives signals from devices like handheld remotes, keypads, occupancy sensors, and timers. It then translates those signals into commands and relays those commands to the appropriate equipment. All of this happens in less than a second. For example, upon receiving a signal

from a timer at 6 p.m., a home controller could instruct certain lights to activate, the thermostat to adjust to a prescribed setting and the audio system in the den to start playing for your return home from work. Or say you touch a button labeled “Good Night” on a keypad by your bed—the processor could initiate a house-wide sweep that turns off all the lights and A/V equipment, locks the doors and sets back the thermostat.

Although it holds the intelligence that makes your home perform how you want it to, a home controller is able to maintain a very low profile in your house. The non-descript, unassuming box is typically tucked away inside a closet or utility room where it's rarely touched or seen. It runs in the background, doing its job with little fanfare. And that's the whole idea. A home automation processor should be so seamlessly integrated into your home and lifestyle that you often forget it's there.

## THE SOFTWARE

No controller can do its job without software. The software embedded in a controller tells the products and systems in your home what to do and when to do it. The software basically provides a set of rules for your home to follow. The beauty of a software-driven system is that these rules can be easily changed, altered and modified, often remotely, due to the fact that most automation systems can connect to the Internet. Say you'd like to add new dimmer switches to your home's automation routines. A few simple tweaks of the software and your new switches can be fully integrated. And just as you would with any software-driven product—like your home computer and cable box—expect software updates to come from the home automation manufacturer

as they continually refine and expand the capabilities and functionality of their systems.

## THE SUBSYSTEMS

On its own, a software-driven home automation system is like a car left parked in the garage. The power and the performance are there ready to be unleashed, but that home automation “vehicle” needs somewhere to drive. This “somewhere” in a home automation scenario is the various “subsystems” that can be connected (either by wire or wireless communications protocols) to the core controller. Common subsystems to link include lighting, heating and cooling, whole-home audio and video, motorized shades and security. Once integrated with the automation system—a process that involves programming the automation software and adding the necessary hardware and wiring—these subsystems are able to seamlessly communicate with each other and operate as one cohesive unit. When the lights dim in preparation for a movie, for example, the shades can close and the thermostat can adjust to make the room more comfortable. Likewise, when an “Away” command is issued, every subsystem can react accordingly.

## THE USER INTERFACES

Through its built-in timer and intelligence, an automation system is able to launch commands to prescribed subsystems based on the time of day, occupancy in a room and other conditions. In this case, your home is operating completely automatically. While some level of automation is beneficial, for the most part, you’ll want

to stay in charge of the situation and issue these commands yourself. This is where user interfaces come into play. Functioning as a dashboard to your home automation system, a user interface provides valuable information about every subsystem on your automation network and lets you control them easily and conveniently with just a few taps of a finger. A user interface can come in many forms, including wall-mounted keypads and touch screens, smartphones and tablets, and handheld remotes and computers. No one type is better than another; which kind you choose really boils down to your personal preference and the design of your home. Some people can’t bear the thought of mounting technology to the walls of their new home, so they’ll often opt for portable user interfaces like tablets, smartphones and wireless touch screens. Other people prefer the tactile feel of hard buttons, so they’ll stick mainly with handheld remotes. Regardless of which combination of interfaces you choose, it’s important that they be intuitive for everyone in your family to use.

## YOU AND YOUR FAMILY

The last, and most important link in a home automation chain, are those who rely on the system to make their lives easier and more enjoyable. In other words: you and your family. Your input is critical to the usefulness of a home automation system. Think about areas of your life and home that could benefit from being more easily managed and controlled, and apply that to the setup of your automation system. Also, keep in mind that even when your family dynamic changes, an automation system can change, too.



# THE LINKS IN THE HOME AUTOMATION CHAIN

Subsystems provide balance and harmony to an automation system.

On its own, a home automation system has the dexterity to juggle a variety of different tasks. Meticulously engineered and designed by the

manufacturer and a home automation installer, it's able to dim and brighten lights, adjust the settings

of thermostats, provide status reports of household electricity usage and choreograph the operation of home entertainment systems. These and a wide assortment of other types of controllable devices are what the home automation industry refers to as "subsystems." Without subsystems, a home automation controller's many talents go sorely underutilized.

To realize the full benefit of living in an automated home, it's essential that at least a few subsystems be integrated with a home automation system. After receiving a signal from a handheld remote, touch screen, smartphone, tablet, motion sensor or some other trigger device, a home automation system communicates its instructions, like "turn foyer and kitchen lights on at 6 p.m." to the controller of the subsystem, which in turn carries out the command. In other cases, light switches, thermostats and other individual devices may contain the smarts to be controlled directly from the automation system without any help from a subsystem controller. The communication between an automation system and subsystems can happen over cabling or wirelessly via standards like Z-Wave, ZigBee or Wi-Fi.

Regardless of the signal path or communications protocol, subsystems are

an essential component of an automation system. Take the time to consider what types of products and devices you'd like to be able to actively monitor, control and automate. Maybe you're interested in automating only the motorized window shades and lights; perhaps you'd like to weave in the control of the swimming pool and electronic door locks. This will help determine the type of home automation system you should use, as they vary in their level of integration capabilities. You'll want to know which subsystems a home automation system has been designed and engineered to handle out of the box, and what upgrade options are available.

It's also important to understand that most home automation systems are very brand specific when it comes to the types of subsystems they can control. Just because an automation system has been crafted to work with heating and cooling systems, for example, it may not be able to control all makes and models of heating and cooling systems.

The following list explains the different types of subsystems commonly integrated with home automation systems. If you have any questions or concerns about a system's integration capabilities, manufacturers should be able to share this information with you and your home automation integrator up front.

## ARCHITECTURAL LIGHTING CONTROL SYSTEM

Probably the most popular and practical of all automation subsystems, an architectural lighting control system enables all types of light sources, including incandescent, compact fluorescent, halogen and LED to be dimmed



and brightened to prescribed levels to achieve greater energy savings, provide visual interest, enhance security, and set the mood for certain occasions. When managed by a home automation system, the operation of a home's lights can be synchronized with other subsystems. This provides even greater benefits, as the lights can turn on and off according to the settings of a security system or the position of motorized draperies, for instance.

### **SECURITY SYSTEM**

Protection of your home and family can be enhanced by a residential security system, and many security systems can now also control lights and thermostats to some degree. Still, there are good reasons to integrate security with a home automation system. Convenience is one major benefit. From the same device you use to control various other electronic subsystems in your house, you'll be able to view the status of the security system, arm and disarm sensors and even view real-time images captured by surveillance cameras. Another benefit is increased functionality. The same security sensors that monitor your house can also be used to enact certain automation routines. For example, sensors that are intended to trigger an alarm when they detect motion, can—during prescribed times—trigger a pathway of lights to turn on.

### **HEATING AND COOLING SYSTEM**

Manufacturers of thermostats have improved the usability of their products over the years, making them vastly easier to program so that the house temperature adjusts automatically, in sync with your daily routine. It's even easier to schedule thermostat adjustments, though, by integrating your heating and cooling system with an automation system. This is

particularly true for homes with multiple thermostats. Rather than program each thermostat individually, a home automation system lets you set them all up from the screen of a tablet, touch screen or some other user interface. Once they're programmed, you can monitor the temperature of each heating and cooling zone and adjust as necessary from this single control device. Another perk of using an integrated home automation system is that the temperature can adjust automatically based on certain conditions. For example, your thermostat can adjust along with the sunrise or sunset, when the home theater system activates, when the motorized window shades close, and in response to various other programmed events.

## **AUDIO AND VIDEO SYSTEM**

Imagine having your favorite playlist greet you as you enter the house after work or waking up to see the morning news displayed on your bathroom TV. It's possible when a home's audio and video components are managed and controlled by a home automation system. On cue from an automation system, music can travel from equipment in a media room to speakers throughout the house. Same goes for video to TVs. If they're programmed via the automation system to do so, your home's lights can adjust in concert with the music. One touch of a button can create the perfect ambiance for a dinner party, a romantic evening at home or a festive gathering of friends on

the back patio. And you'll have no trouble finding the music or video you want to enjoy when your A/V equipment is managed by a home automation system. You'll be able to peruse your entire library of media conveniently from the screen of the same tablet, phone or touch screen that is used to operate the other electronic subsystems in your house. A few taps of a finger activates the audio or video and instructs it where to play. If there's a particular room where you often watch movies, an automation system can set up the equipment and the room environment in one fell swoop. On command, the room lights dim, the shades close and the appropriate equipment revs up. All you need to do is sit back and enjoy.

## **OTHER SUBSYSTEMS WORTH AUTOMATING**

The aforementioned subsystems are the most popular to place under the aegis of an automation system, but just about any product or system that is run on electrical power can be integrated. When working with a home automation professional to design and install a smart home system, also consider these integration-worthy components: swimming pools and spas, motorized gates, electronic door locks, garage doors, motorized equipment (for drapes, TVs, home theater screens and video projectors), irrigation system or decorative fountains. The options are virtually limitless.



# USER INTERFACES THE HUMAN LINK TO A HOME AUTOMATION SYSTEM

Automation occurs when the state of a device, product or system changes without any human interaction. It happens when your home

Available in many forms, a user interface gives you the power to easily interact with and control your home's electronic systems.

environment is able to adapt to your needs all by itself—no tap of a button or a flip of a switch is required. While home automation systems are

perfectly capable of running a household in this hands-off fashion, many homeowners feel more comfortable being able to actively operate the various products and systems under the backing of an automation system. Rather than relying completely on a system to tell the lights, thermostats, A/V equipment and other devices how and when to adjust, they like having the power to make these changes manually as well, and any tool they use to control their systems so is referred to as a “user interface.” A user interface should enable a person to easily monitor the status of the every product that has been tied to a home automation system and to control these products on the fly. So even though an automation system may have been programmed to adjust the settings of the lights, thermostats, motorized shades and A/V equipment at a certain time of day, thanks to a user interface, homeowners are free to bend the rules and make changes however and whenever they want. For this reason, a user interface is one of the most important parts of an automation system. It's the piece of technology that you'll see and touch multiple times every single day. You'll rely on it to dispense useful real-time

information about your system and to provide a quick and easy way to control multiple devices from one main point of contact.

This point of contact can come in many different forms, and since the preferred types of user interface varies according to individual users' preferences and desired functionality, it helps to understand the key benefits and applications of each. In most cases, home automation Dealers will specify a combination of user interfaces so that homeowners can benefit from each device's unique capabilities and features. Here's a rundown of the various user interfaces available today, along with advice on the types of tasks for which each is best suited.

## TABLETS AND SMARTPHONES

The trendiest types of user interfaces are control apps that manufacturers offer to download onto your iOS and/or Android smartphone or tablet. You might already be familiar with the type of app that can control a specific individual device, and while this is a handy way to operate an electronic door lock, for example, the apps offered by home automation manufacturers are designed to facilitate the control of multiple devices—door locks, thermostats, lights, A/V equipment and more. From a single app on a smartphone or tablet, you can command every electronic device in your home. It's a highly convenient mode of control for people who carry a mobile device with them at all times. It's also an ideal type of interface for monitoring and managing a home automation system remotely while you're at work or traveling. You can activate the app from anywhere you are able connect to the internet to manage

your home's environment as easily as if you were seated on the sofa in your living room..

## **DEDICATED TOUCH SCREENS**

In addition to mobile apps, most manufacturers of home automation systems offer user interfaces in the form of dedicated touch screens. Available in a variety of sizes and price ranges, from small, wireless, portable units that can rest on a coffee table or nightstand to super-size models meant to be mounted permanently to the wall, touch screens are highly customizable and can suit a variety of control applications.

Because the screen is usually larger than that of a tablet or smartphone, a touch screen is able to present information in a way that many people find easier to read and navigate. Moreover, while the design of a control app is fairly static, the control menus and icons displayed on the screen of a dedicated home automation touch screen are flexible, meaning a home automation professional can customize the layout, color scheme and other features to suit your preferences.

Due to its ability to be customized and its comfortable screen size, a touch screen is an ideal user interface for automation systems that are large in scope. By scrolling through "pages" on the panel, a user can view the status of and command buttons for lighting, move on to the heating and cooling page, the audio/video page, and so on. When designed appropriately, touch screens are able to dramatically simplify the control of very complex automation systems; therefore, they are often assigned the role of "command central" in a home,

and are located in an area, such as a kitchen, where a family might spend most of their time. As a bonus, some touch screens are able to display video from surveillance cameras, pull entertainment content (music and video) from a whole-house A/V system and function as an intercom station.

## **KEYPADS AND HANDHELD REMOTES**

Employing hard buttons instead of screen-based graphics to zip commands to electronic systems and products may be best suited for certain functions. Wall-mounted keypads and handheld remotes may not have the sizzle of mobile apps and touch screens, yet they are still widely used in automated homes. For starters, they're simple and straightforward—a good type of interface to use when you just want to quickly turn on a group of lights, open wall of drapes or activate the A/V gear in a home theater, for example.

Like other types of interfaces, keypads and automation-friendly remotes can be customized to perform to your specifications. Buttons can be labeled to say what you want and to do what you want. For example, when pressed, a button labeled "Snack" on a keypad by the bed could illuminate a pathway from the bedroom to the kitchen. A "Showtime" command issued from a remote, meanwhile, could prepare the lights, shades and A/V equipment in the living room for family movie night. Because they're the type of interface that stays in one spot, they are ideal for controlling the environment within a particular room. on-screen display (OSD) that's presented on the your home's TVs, and decorator-style keypads that are able to blend in room design.

# INNOVATIVE SMART HOME APPLICATIONS

The primary function of any home automation system is, well, to automate the electronic systems in your house and to let you control

A Control4® automation system offers a host of clever capabilities, so let your imagination soar.

them easily and succinctly through devices like smartphones, tablets and touch screens. For example, you can have

your system programmed so that first thing in the morning or when you swipe an icon on your tablet, the automation system will turn lights and A/V equipment on, raise motorized window shades and regulate the thermostats. But there's more to an automation system than its ability to put your home on autopilot. When programmed by a home automation integrator, it can help you remember important dates, tell you when your teenage daughter has returned home, give you a bird's eye view of what's happening in every corner of your house, and much more. A Control4 system can support and facilitate a host of innovative control applications. Be sure to ask your integrator about the following functionality:

## AUDIBLE AND VISUAL REMINDERS

It's Wednesday, which means someone should have taken the trash to the curb. Or did they forget, again? Like your smartphone, an automation system can be programmed to issue reminders of trash pickup, your anniversary, dentist appointments, anything at all. The system can play a pre-recorded message through the speakers in your house and/or display a visual cue on the screen of the TV, touch screen or other device.

## ACTIVITY LOG

Did your teenage daughter make curfew? Even if you're not home, you can still be notified the second she walks through the door with the help of your ever-diligent home automation system. Your home automation integrator can set up the system to maintain an activity log in your absence and to text you whenever someone walks into the house. Tie in a security camera or a smart door lock with personalized codes, and you can further confirm that it's your daughter who entered.

## "MOCKUPANCY" SCENES

During family vacations a home automation system can make your empty house look occupied. Sure, timers can instruct lights and other devices to turn on and off, but it doesn't take long for someone to recognize the pattern—a sure sign that the house is open game. A home automation system creates a more realistic simulation by adjusting the lights, window blinds, music and other features randomly throughout the day or evening.

## WAKE-UP CALL...AND A LULLABY

Imagine waking up to the smell of coffee, soft music and your bedroom gradually brightening to give your eyes time to adjust? It's a much more pleasant way to wake up than to the sound of a blaring alarm clock. With a home automation system, you can customize a "Wake-Up" scene to do anything you want. Ditto for when you turn in for the night. An automated lullaby, where soothing music plays and lights dim gradually, can be a blessing to parents of young children.



## A FEW OF YOUR FAVORITE THINGS

Let's face it, you're never going to watch or listen to half of the cable or Internet radio stations available through your home entertainment system. A home automation integrator can streamline the process of finding your preferred channels by creating a "Favorites" menu, which presents a half-dozen or so of your most liked stations on the screen of your smartphone, tablet, TV or touch screen. And of course, you can always drill down and find a non-favorite when you're in the mood for something different.

## DAYLIGHT HARVESTING

Why use the lights to illuminate a space when the sun is available? A home automation system can harvest this natural resource by opening the window shades and turning off the lamps on sunny days. At the same time, the sun can help heat a home, and your home automation system can automatically adjust the thermostat to save energy.

## AN OPEN AND SHUT CASE

It's difficult to remember which lights you used and where, which windows you may have opened and which doors you may have forgotten to lock. With a home automation system, you can see in an instant by peering at the screen of a touch screen or your mobile device the status of every electronic product in your house, including the sensors that track the position of the doors and windows. And what's more, you can have one button programmed to shut everything down all at once as you leave the house.





# FIVE OF THE BIGGEST HOME AUTOMATION MYTHS—BUSTED!

Here are five common misconceptions  
of home automation systems.

## **MYTH: AUTOMATION IS TOO EXPENSIVE**

Because the sky is the limit with home automation, it is entirely possible to invest a significant amount of money. But is a large initial investment required? Not at all. Control4 offers options that can get you up and running with an automation solution for what it would cost to install a new HDTV. You can then enhance your system as your needs and budget allow.

## **MYTH: AUTOMATION IS TOO COMPLICATED**

Like any technology, home automation systems have become increasingly easier to use as they've matured. Additionally, manufacturers now provide home automation Dealers with pre-configured templates to ensure that control menus are simple and straightforward for consumers to navigate and that the user interface looks and performs consistently across all platforms (touch screens, mobile devices, keypads, etc.).

## **MYTH: AUTOMATION SYSTEMS BECOME OUTDATED**

No matter what type of technology you're using—smartphone, cable box, computer—it doesn't take long before its operating

system is outdated. The same is true for home automation systems, but don't let that discourage you from investing in one. Like other technologies, updates are a natural part of its lifecycle. As manufacturers continue to upgrade and refine the features and capabilities of their systems, firmware can usually be easily updated remotely via an Internet connection, ensuring the automation system you buy today will be fresh and relevant for years to come.

## **MYTH: AUTOMATION IS OVERBEARING**

Some people worry that an automation system is, well, too automated—that the system rules the house rather than the people who live in it. While an automation system has the smarts and power to dictate the operation of nearly every electronic device and system in your house, most are designed to put the power of control in the hands of the homeowner. With an automation system you are in total control of what happens in and around your home.

## **MYTH: AUTOMATION IS UNRELIABLE**

What happens when a home automation system locks up or goes down? Will you be unable to work the lights and thermostats? Thanks to failsafe measures implemented by manufacturers and home automation Dealers, the devices in your home remain operational even if the automation system experiences a glitch. Usually, automation problems are minor, requiring a reboot of the system, which many integrators can handle remotely from their offices.

# THE CONTROL4 ADVANTAGE

When designed and installed properly by a trained, knowledgeable home automation Dealer, an automation system is able to

Features that make Control4's automation offerings stand out from the competition.

perform some amazing feats. This goes for systems offered by Control4, as well

as many other home automation products on the market. However there are some differences between systems, significantly in the engineering of their control platforms. For example, some systems may have the ability to control just about anything, but actually getting the system to do so may require extensive—and expensive—programming. Or, there may be a system that comes with a huge assortment of stunning user interfaces. This is always helpful, but if the layout and design of the control menus differ among these interfaces, you and your family may have a difficult time mastering them. To preclude issues like these, and to make automation as simple, straightforward and affordable as possible for homeowners, Control4 has implemented several innovative technologies into its systems. Together, they position Control4 as a leader in the home automation market, and offer owners of its systems several unique performance advantages. Here are some of the top reasons to consider Control4 as the system to automate your home.

## A HUGE, EVER-EXPANDING ECOSYSTEM

The ease by which products are able to be integrated into the Control4 automation platform is one of the system's biggest selling features. Thanks to Control4's commitment to the development of integration "drivers,"

more than 7,500 individual products from hundreds of different manufacturers are able to join the Control4 ecosystem, with minimal programming and engineering required of the home automation Dealer. "No matter what type of electronic systems or products you have in your home, chances are we have a driver for it," says Control4 Vice President of Lighting and Comfort, Paul Williams. This goes for everything from programmable thermostats and dimmer switches to pool and spa systems and energy monitoring devices. "In essence, a Control4 system becomes a simple addition to your home, rather than a complete technology overhaul." You can stick with the products and systems you've grown to love, and incorporate a wide variety of new products that can be automated via Control4.

## CONSISTENCY OF CONTROL

Some of the "home automation" systems that have popped up on the market these days are very limited on what you are able to control. Homeowners find themselves needing to purchase multiple products and use multiple apps to control multiple devices within the home. With Control4, you can have one app that controls and integrates various subsystems. And that app is the same across all user interfaces. The ability for homeowners to interact with a home automation system through these different types of user interfaces (touchscreens, iOS and Android mobile devices, keypads, on-screen displays, handheld remotes) is only useful if the layout and navigation of the control menus are consistent across all interfaces. In other words, the location of the button used to engage an "Away" scene should be the same whether the homeowner picks up his smartphone or portable touchscreen, and regardless of whether he is home or away.



This consistency of control leads to quicker mastery of the system by its users, and is another perk of owning a Control4 automation system. The company's user interface looks and performs the same on each and every type of control device, and is intuitive and simple to use whether you're 5 years old or 99.

### **EASE OF INTEGRATION**

The sheer number of products that can join a Control4 network offers homeowner amazing integration options. And with the recent development of the Control4 Simple Device Discovery Protocol (SDDP) technology, the complexity of placing these products under the command of a Control4 system has been minimized significantly. SDDP is a piece of code which Control4 licenses to manufacturers around the world to embed into their various products. Any device with SDDP is instantly recognized, identified, and authenticated by the Control4 system as being part of its network. No drivers need to be downloaded, no complicated programming or configuration of the Control4 software is required. The union is quick, easy, and as a result minimizes the labor involved in setting up a system. Already, more than 500 home electronics products feature Control4's SDDP technology, including those from major home electronics manufacturers including names like Dish Network, Sony, TiVo and Yamaha. Many other manufacturers of flat-panel TVs, video projectors, audio/video receivers, security cameras, alarms panels and other products are expected to incorporate SDDP in the near future.

To start on the path to building your own smart home, visit our Project Planner or find a Dealer near you.

