

Smart Self Reliance

FREQUENTLY ASKED QUESTIONS

Source: The source of the frequently asked questions (FAQ) presented below is the Center for REALTOR Technology (CRT) Program at the National Association of REALTORS.

What is the Internet of Things?

The Internet of Things (**IoT**) is a broad term that refers to everyday devices like lights, thermostats, and locks that are able to connect to the Internet and to each other. These connected devices can exchange data and work together, automating tasks that used to be manually performed. By 2020, it is predicted that there will be anywhere between 26 billion to 200 billion devices connected to the Internet.

What is a smart home?

A smart home is more than a collection of smart devices, and it's more than a "connected" home. One could live in a house with many smart devices that are connected to the Internet, but that wouldn't make the home a smart home. If those devices are connected to each other and working together to automate a number of the home's processes, we're closer to a definition of smart home agreed upon by most people.

What are smart devices, and how much do they cost?

The lights, thermostats, and more that comprise the Internet of Things are called smart devices. A by-no-means complete list of smart devices includes:

- **Thermostats** - allow you to control your home's temperature remotely and see your usage for heating and cooling. Price range: approximately \$200-\$250.
- **Locks** - allow you to control who has access to your home and to see when they access your home, even if you're not on site. Price range: most sell for approximately \$200.
- **Lights** - can be adjusted from your smart phone for comfort and brightness, and can be set on a schedule. Price range: anywhere from \$50 to \$200.
- **Plugs** - allow you to control "dumb" objects, as well as monitor energy consumption of anything plugged into them. Price range: most are about \$50.
- **Cameras** - can alert you to intruders, record video, and set off a siren. Price range: between \$100 and \$200.
- **Smoke and CO Alarms** – can alert you from your smart phone to the presence of smoke or increased levels of carbon monoxide. Price range: about \$100.

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What Is a smart hub?

A smart hub is the central device that allows all of the different products (lights, locks, thermostats and more) to work together in a smart home. You do not need to have a hub in a home to use smart devices, but you need one if you want to truly automate the behavior of the various smart devices in your home.

What are the benefits of smart hubs?

Smart hubs simplify the setup and use of multiple smart devices, creating a unified experience throughout your home. A hub not only places all of your devices within one app, it can chain together events that keep the residents of your home happier, healthier, and safer. For instance, you can have your hub turn on the AC and certain lights when you're at home, and turn them off – and turn on other lights – when you're away.

How do smart hubs work?

Smart hubs work by incorporating several device protocols – such as Bluetooth, Wi-Fi, Zigbee, and others – into one product, so that these devices that usually cannot talk to each other have a place to communicate. From there, consumers can use one app, instead of many, to control multiple devices at once, without being constrained to one brand or protocol. Smart hubs are an extra investment outside of the devices themselves, and are not required for most products. However, they are inexpensive and often simplify the smart home experience.

What are the benefits of a smart home?

The top benefits of a smart home are convenience, energy efficiency, and security. According to a 2015 survey conducted by Coldwell Banker and CNET:

- 57 percent of smart device owners say their devices save them time
- 45 percent of smart device owners report their devices save them money, and
- 72 percent of smart device owners state their devices make them feel safer

Many consumers install these smart devices to be able to control their lighting with their voice, or to be able to adjust the temperature level of their home from an app on their phone. Some install devices that will open their garage door automatically as they pull onto their street, or unlock their front door as they approach their house.

The goal is to make to make common household tasks more streamlined or automated. Other consumers enjoy the energy savings of being able to automatically disable the costly heating and cooling of their homes when they are away. There is even an entire smart home device category for home energy monitors, which can show real-time energy usage.

Knowing your home's energy profile can help you identify ways to save money. Motion detectors, smoke and CO detectors, and security cameras can work in concert to alert homeowners that something is amiss in their home. From there, you have the option to alert safety officials in your area. This technology exists today and is continuing to be improved all the time.

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What are the financial benefits of using smart home technology?

- **Devices:** Smart thermostats can easily pay for themselves over time. In a 2015 white paper Nest claims that use of their smart thermostat results in average savings up to 10-12 percent on heating bills and 15 percent on cooling bills. Other manufacturers claim similar benefits.
- **Insurance:** Many insurance companies offer reduced rates for homes that have smart locks, smoke alarms, and security cameras. We've seen discounts of up to 15 percent.
- **Rebates:** Gas and electric companies often pay rebates to users of smart thermostats. These rebates can exceed \$100 and will cover almost half the price of a new smart thermostat.

Who owns the data, and how is smart home device data used?

The type of data collected will vary by device. For security devices, they may be collecting real-time video feeds; for door locks, it may be who arrives and when.

- **Who owns the data?** In general, you, the consumer will own the data. However, each vendor can vary, so it is up to the consumer to make sure they have ownership of their data.
- **How is smart device data used?** The data collected by vendors can be used in a multitude of ways, from simple analytics to advanced algorithm improvement. These results are generally used by smart device companies to improve product development and provide additional services to their customers. You should also read the vendor's privacy policy to see what they are legally allowed to do with the data. They may allow themselves to sell your data to 3rd parties, so read carefully.

What are the connectivity options for a smart home?

There are many options when it comes to device connectivity, but they can generally be put into 3 different categories:

- **Wi-Fi.** These devices connect directly to your router or gateway and have direct access to the Internet. This makes it really easy to control the device from anywhere in the world. Some drawbacks are limited battery life, and a greater risk of attack from hackers.
- **Bluetooth.** These devices will talk directly to your phone, this makes them ideal for creating a secure personal network. With the release of Bluetooth Low Energy (aka BLE), these devices can provide weeks and months of connectivity on a single battery charge. To connect these devices to the Internet for control or monitoring, it will require your phone to act as a gateway or a dedicated hub connected to the Internet.
- **IEEE 802.15.4, aka Zigbee.** This is a low energy, mesh networking protocol specifically built for device-to-device infrastructures. This protocol is the basis for Zigbee, Thread, and others. It is

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extremely low energy and can provide months and years of operation on a battery. Generally, the only way to talk to these devices over the Internet is to use a hub.

Can I Install Smart Home Devices Myself?

Like any other home improvement project, some smart home projects are quick and easy, while some are time-consuming and more difficult. In almost all cases, there are physical tasks (removing dead bolts and thermostats, and replacing them with their smart equivalents), as well as information technology and connection tasks (getting devices to talk to each other, setting up schedules, etc.).

What are some of the challenges of a smart home?

Today's smart home is not without its complications. Just like any emerging technology, smart home products are going through their fair share of growing pains. These problems range from occasional downtime to exposing your home network to cyber criminals. Since these new products directly affect the safety and security of your home, the bar needs to be set much higher. Current low-tech solutions (smoke alarm, light switches, deadbolts, and thermostat) in the home are already near 100% reliable.

In order to be successful, new smart home products need that level of reliability and convenience to be successful. The heavy reliance on cloud computing means these devices may only be as dependable as your home Internet connection. Lastly, there is heavy competition between large corporations for control of the smart home retail space, leading to a large fragmentation of the market. This leads to consumers needing separate apps to control their lights, locks, or thermostats.

Are there security risks associated with smart home devices?

Issues with security and privacy are to be considered as with anything connected to the Internet. As with any account you have, the first line of defense is a strong and regularly-changed password.

Do Smart Devices Affect the Selling Price of a Home?

Because smart home technology is fairly new, its effect on home prices is just beginning to be evaluated. What we do know, according to a 2016 Coldwell Banker smart home survey, is that homeowners are willing to invest fairly significantly in smart home technology. 72 percent of millennial homeowners say they would spend \$1,500 or more to make their home smart; 44 percent of them say they would pay \$3,000 or more to do so. Who might be willing to pay more for a home with smart technology? Parents with children, for one; 59 percent of them told Coldwell Banker they would pay more for a smart home.

What happens to a smart home & smart device when the power goes out?

Many but not all smart devices will stop working, just like the devices, appliances & systems in any other home during a power outage. However, a number of these devices operate on batteries, like smart door locks, allowing them to continue to function, although any remote-controlled features enabled by the Internet won't work until the power is restored. Batteries in smart thermostats will also maintain the memory of programmed schedules of operation so the user doesn't need to be concerned about re-programming when the power is restored. Similarly, batteries backing up some camera systems will continue to operate locally, although Internet-enabled remote monitoring won't be available.

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