

# Smart Home Technology

Presented by Quinnipiac University  
Occupational Therapy Graduate Students

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# Smart Home Technology

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## Introduction

- Occupational therapy (OT) strives to improve clients' quality of life, independence, safety, and functionality of clients, and has a valuable role in using smart technology to support clients in successfully completing their daily occupations.
- OT's use a client-centered approach to work with each client to identify specific areas of occupation that could benefit from implementation of smart technology through the use of an occupational profile.
- The therapist may use occupational profile, in conjunction with the Human-Activity-Assistive Technology (HAAT) model, to identify client demographics, backgrounds, interests, and other meaningful client factors and performance patterns (AOTA, 2017).
- Smart technology can be beneficial to a variety of clients, despite differing ages, contexts or populations.

## Introduction

- The OT will support the client in identifying available technology options to trial in order to find the best fit, and then continue to support the use of the device, and building smart technology into existing routines.
- The focus is to encourage safety and independence, while allowing the client to engage in activities that are meaningful to them.
- Technology is always evolving and has ample opportunities for occupational therapists with mainstreamed options that can be easily accessible to clients.
- By using a client centered approach and analyzing the context, environment and activities the client participates in, occupational therapists can provide smart technology options to support safety, independence and participation in meaningful activities.

## Definitions

1. Complex Environmental Modifications – “alterations, modifications, or creations of new spaces to meet the needs of an individual, family, group, or community to preserve or facilitate optimal participation in daily life” (American Occupational Therapy Association, 2015).
2. Smart Home Technologies – technology that “denotes living environments in which automation is used to provide automatic functions including monitoring, communication, household functions, physiological measurements, or medication alerts” (Cook & Polger, 2015).
3. Virtual Assistant Technologies – application programs that understand natural language voice commands and complete tasks for the user (“Virtual Assistant (AI Assistant),” 2017). These virtual assistants include technology such as Amazon (Alexa), Apple (Siri), Google (Google Home), Microsoft (Cortana), and Samsung (Bixby) (Chabot et al., 2017).

## Ethical Considerations

- Promote usability through comprehensive evaluations in order to develop an understanding of the client's strengths and needs regarding the independent use of technology.
- Follow up and follow along to **assess current or changing needs** regarding the person and their device adapting technology to meet changing needs if necessary.
- Integrate **informed consent** as a tool to protect autonomy, dignity and well-being of our clients and allow informed decisions regarding technology use.
- Consider the environment, size, and type of technologies used to decrease obtrusiveness
- Uphold all **OT code of ethics** during the evaluation and intervention process.

Karen

## Ethical Considerations

- Educate and train to increase understanding, application and use of smart technology/where to find appropriate “help” information associated with the technology.
- Ensure the affordability of devices by providing options with various price ranges and offer resources that will help the client in applying for various grants, public programs, or service loaning programs.
- Ensure universal access of smart technology including consideration of price, cultural barriers, and environmental contexts.
- Maintain and protect the privacy of individuals with use of smart technologies while also meeting the needs of the individual by taking steps to protect the client's data.
- Consider the possible over-reliance on technology and educate clients and caregivers on maintaining a proper balance of technology to promote independence and empowerment.

## What is included?

- Smart Lights
- Smart Blinds
- Smart Doorbell
- Smart Locks
- Smart Thermostats
- Smart Microwave
- Smart TV
- Smart Garage Opener
- Smart Security System

## Smart Lights

**Product Description:** Philips Hue A19 60W Smart LED Light Bulb

***Light Bulb:*** Smart light bulb for inside the home. The light bulb can be controlled by Bluetooth and/or by a hue bridge which enables a variety of features including voice control, light scheduling, and dimmable white lights.

***Hue Bridge:*** This device allows you to connect lights within your home to a bluetooth pairing system, accessible from your smart device. The Hue Bridge can allow up to 50 lights to be connected either by the use of the smart bulb or a smart switch (allows any light in your home to be connected even without the smart bulb). The Hue Bridge also allows you to control the lights from a remote location from outside your home via the app.

**How to Use:** Control Lights- User-friendly organization of individual lights in rooms. Ability to turn lights on/off in different rooms and/or change the color/brightness.

1. Offers 16 million colors- Choose between a variety of colors.
2. Lighting for each part of the day- Four different preset light recipes to choose from: Energize, concentrate, read, and relax.

## Smart Lights

**How to Use Continued:**

- Control lights with one tap- Ability to transform your room into various scenes such as a sunset in Hawaii, nighttime in London, such as 28 other options.
- Bring pictures to life- Easy to use picture to light algorithm to transform your favorite picture into a light scene. The algorithm uses the relevant colors and applies them to the lights by creating an image.
- Lighting routines
  - Program your Hue lights to turn on or off, dim or brighten at specific times in the day.
- Home and Away
  - Set the system to recognize when you arrive home through the app's location awareness feature. The second you arrive at your front door, the specified lights will automatically turn on, and when you leave the home, they will turn off.
- Wake up and Sleep Cycles
  - Create personal sleep and wake schedules to automatically dim the lights for bedtime and lightly brighten them when you wake up in the morning.
- Voice Control
  - Turn lights on and off or brighten and dim using just your voice via Alexa or Google Assistant.
- Widgets & Apple Watch
  - Install the app on your Apple Watch and control the lights in your home via your watch.

## Smart Lights

**Cost and Installation:**

1. Starter Kits: Starting at \$69.99 (Light bulbs and Bridge both included)
2. Hue Bridge App: Free on the App store

**Who Can Use This Product?** Easy to use and set up takes approximately 15 minutes. Can be used by anyone. May be beneficial to those with decreased mobility, range of motion, visual impairments, or any other functional impairment.



## Smart Blinds

**Product Description:**

Tilt Automation System: Automated blind system that offers privacy, control of sunlight that comes into the home, helps block out heat in the summer and retain warmth in the winter. Home automation platforms like Alexa or Google Home are used to control this smart home technology.



**Watch this video for quick demonstration:** <https://www.youtube.com/watch?v=nBkhOWen5s4>

## Smart Blinds

**How to Use:** Use voice commands with Amazon Alexa or Google Home such as "Alexa, tell MySmartBlinds in the living room to close" or control through app on smart phone along with the Bridge to control each set of blinds individually. Control the blinds automatically with set schedules, enable sun-tracking, and get battery updates.

**Cost and Installation:** Tilt Automation Kit: \$150 for blinds \$200 for roller shades previously owned; My Smart Blinds if needed: \$270 per blind any size; My Smart Roller Shades: \$200 per blind any size; Smart Bridge \$89 (separate bridges necessary for roller shades and blinds).

Installation is simple and tool-free, designed to take only a few minutes. Video demonstrations are available on their website (<https://support.tiltsmarthome.com/hc/en-us>). However, Tilt does offer a network of installers that can take care of installation professionally.

**Who Can Use This Product?**

The U.S. Consumer Product Safety Commission (CPSC) considers window coverings with cords as one of the top five hazards in the home. Automated blinds do away with the need for traditional cords and chains. This makes them safer for all members of the home. These blinds offer privacy, comfort, and convenience in the home.

## Smart Doorbell

**Product Description:**

The Ring Doorbell alerts phone or Echo devices when visitors press your doorbell or triggers the built-in sensors. It includes an app that allows the user to see, hear, and speak to guests. The camera provides a 180° field of view, two-way audio, as well as night vision. Ring app is compatible with smartphones, tablets, or PC and is available to download via the iTunes App Store, Google Play Store, or Windows 10 App Store. It is weather resistant and is capable of performing in temperatures ranging from -5°F-120°. Internet connection required, recommending 1 Mbps for optimal performance and is able to connect to home Wifi.



## Smart Doorbell

**How to Use:**

Once installed, Ring Doorbell is simple to use. Push notifications will alert the phone, tablet, PC, or Amazon Echo when a motion sensor is triggered or when a person rings the bell. Selecting the notification will open access to the camera in order to view the activity. Users can also go on the app to view the camera throughout the day, looking at live feeds as well as previously recorded data.

**Cost and Installation:**

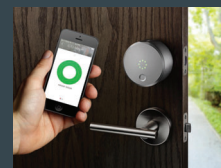
\$99.99. This is a one time purchase to own your Ring Doorbell and there are no additional fees required. However, there are recording plans that cost a monthly or yearly subscription fee. The cost for a Basic recording plan is \$3/month or \$30/year. A Protect recording plan allows for an unlimited amount of Ring devices to be used and offers a lifetime warranty for \$10/month or \$100/year.

**Who Can Use This Product?**

Ring is accessible to all populations who have access to WiFi and technology that supports the app.

## Smart Locks

**Product Description:** Smart locks are technology that help generate keyless entry into the home. This works by the device attaching to an existing deadbolt (or replacing a deadbolt) to control the locking/unlocking mechanism for your door. Smart locks are controlled using a smartphone app or through an apple watch connected through your home's wifi network.



**August Video Link:**

<https://www.youtube.com/watch?v=RjS9nPA1oil&t=5s>

# Smart Locks

**How to Use:**

In order to use the smart lock, the free August app needs to be installed onto an iOS or android smartphone device. The device also needs to be connected to home wifi with the wifi bridge connected for remote access of the door. The August Smart Lock Pro is controlled through the app with several features included. DoorSense Technology is a sensor included in the smart lock that lets you know if your door is open or closed. The Auto-Lock and Auto-Unlock features locks your door automatically when you leave the house and unlocks the door as you approach. The lock can be voice controlled through Siri, Alexa, or Google Assistant to lock and unlock the door. Another feature of this smart lock allows for guests to be granted access from anywhere for a designated amount of time. The app also provides activity history and 24/7 activity feed to see who has been coming and going.

Home Wifi is needed in the home in order to allow the device to work. A smart phone is also needed to control the device with the free August smart lock app installed. The device works with iOS or Android smartphone devices and can also be accessed on an apple watch. In order to have remote access to access the lock from anywhere, a wifi bridge is needed. A single cylinder deadbolt lock is also needed for proper installation of the smart lock. The August Smart Lock Pro+Connect works with the August Doorbell Cam and the August Smart Keypad to see and speak with visitors at the door and for code-based home entry. However, these two products are sold separately from the Smart lock.

# Smart Locks

**Cost and Installation:**

August Smart Lock Pro+Connect  
Amazon \$165.08 on Sale, Originally \$279.99 [https://www.amazon.com/dp/B0752VSDSD/ref=emc\\_b\\_6\\_t](https://www.amazon.com/dp/B0752VSDSD/ref=emc_b_6_t)  
Amazon has the option to provide an expert setup for an added \$98.26  
From the original website, the August Smart Lock Pro+Connect is \$279.99

**Who Can Use This Product?**

The smart lock could be used for someone who may have memory impairments, cognitive impairments, and someone with decreased fine motor skills. The smart lock could also be beneficial for caregivers to have access to their loved one's home and can check to see if the door is locked all from a smartphone. This promotes safety for the client and enables them to be able to participate in meaningful occupations.

# Smart Thermostats

**Product Description:** Smart Thermostats are designed to save energy, time, and money by adapting to your living space needs, personal preferences, and schedule. Examples of this product include: Google Nest Learning Thermostat, Ecobee Smart Thermostat with voice control, Emerson Sensi, Honeywell Lyric, and iDevices Thermostat.



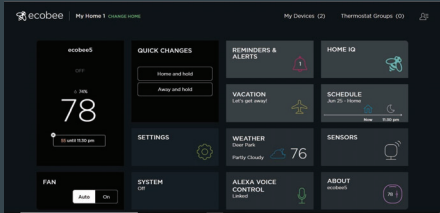
Google Nest Learning Thermostat



Ecobee Smart Thermostat with Voice Control

# Smart Thermostats

**How to Use:** In combination with the smart thermostat app and sensors, users can use smart thermostats to control their heat and air conditioning systems using features such as lock/unlock mode, energy saving, home and away, smart recovery, thermal protect, optimal humidity, and/or fan dissipation. These features allow users to save money as they adjust automatically for indoor humidity, time-of-use energy prices, and local demands for additional savings.



Ecobee Smart  
Thermometer with  
Voice Control App

## Smart Thermostats

**Cost and Installation:** Smart thermostats cost roughly \$250. Installation fees can vary from \$100-300; users can often install and use these products on their own, but electricians or Best Buy employees may also install them.

**Who Can Use This Product?** Anyone may use this product, however specific features may be especially beneficial for individuals with limitations in their motor and cognitive skills. The application on your phone is also easy to navigate, though it is important to note that the ease of use may vary based on the individual's ability to navigate technology. The thermostat in itself has the ability to accommodate automatically through sensors and scheduling, so the use of the device is minimal and simplistic.

## Smart Oven/Microwave

**Product Description:** Amazon's 4-in-1 Smart Oven offers four features which include a microwave, convection oven, air fryer, and food warmer. This smart oven has thirty built-in presets and is voice-controlled with Alexa through a compatible Amazon Echo Dot. In addition, Amazon added scan-to-cook technology to the multifunction microwave which enables consumers to cook food items ordered from the Amazon-owned Whole Foods Market and Amazon Pantry through scanning technology.

\*\*\*The Amazon Echo Dot is included with the purchase. The microwave also comes with accessories such as two wire racks, a nonstick cooking pan, and a temperature probe to help you make the most of each cooking mode.\*\*\*



## Smart Microwave

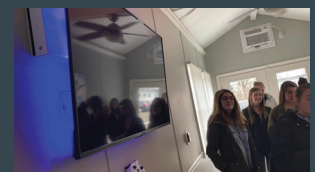
**How to Use:** The client will connect the Echo Dot to a standard electrical outlet. The client will need a smart device through which they can download the "Amazon Alexa" app and control the microwave oven. Once the Echo Dot is set up on the consumer's Wi-Fi network, the oven will automatically join the network and be discovered by the "Amazon Alexa" app on the smart device. The client can now ask Alexa to do things like preheat the oven or set the microwave to two minutes. The client will need to be within earshot of the connected Echo Dot in order for the requests to be processed efficiently. For control when the client is not at home, a remote start button can be used to turn on preheating and cooking features from any location. However, the remote start feature turns off after 24 hours.

**Cost and Installation:** Amazon is currently selling their "4-in-1 Smart oven" for \$250. Installation is simple and can be completed at home by the consumer. If the consumer requires assistance with installation, general cost of installing a microwave through professional services ranges from \$50-\$100.

**Who Can Use This Product?** This device can benefit a wide range of individuals. For example, it can promote independent functioning for clients with visual deficits, mobility and endurance deficits, and cognitive deficits.

## Smart TV

**Product Description:** A smart television is a traditional television set with the ability to use the home network internet and interactive web to stream music and videos, stream additional platforms such as Netflix and Hulu and search the internet and view photos. Smart TV's are a combination of television sets, computers and cable boxes. Smart TV's offer the option to sign into streaming platforms as well as watching cable tv or searching the internet with the ability to connect to smart devices such as an Amazon Alexa/Echo or Google Home/Nest. These smart devices are voice controlled. Each smart TV can only connect to one smart device (e.g. one Alexa with one TV).



## Smart TV

**How to Use:** In order to use either Alexa or Google Home with the given television, the user simply asks either device to do the task they would like. For instance, the use can say “hey Google, turn on the television” or “Alexa, play yoga videos on youtube”.

**Cost and Installation:**

- 1)Amazon: TCL TV: \$127.88 compatible with Amazon Alexa echo dot 3rd generation: \$29.99 or All-new Echo: \$74.99. There are different styles of the echo that range from \$24.99-\$349.99 based on the generation, color, and features. Features of amazon smart TV can be used with a firestick which starts at \$39.99 which plugs into the TV and has a remote access.
  - 2) Google: Google home mini and chromecast: \$45.00.
  - 3) Apple: Apple TV can be connected into any smart TV. The apple TV 4K plug-in costs \$179.00 for 32 GB and \$199.00 for 64GB. The Apple HomePod smart device costs \$299.00.
  - 4) Samsung: Smart TV's starting at \$149.00-\$70,000.00. Samsung Bixby is a virtual assistant on Samsung devices.
- Who Can Use This Product?** A smart TV with voice control via Alexa, Google home, or Homepod can be used by anyone who is able to speak clearly to the devices to activate them and give a command.

## Smart Garage Opener



**Product Description:** The ISmartGate Smart Garage Opener allows for keyless entry to your home through your garage door. The device controls your garage door through your smartphone, or smart home assistants such as Amazon Alexa for automatic opening and closing of your garage door, added security, home access and safe package deliveries.

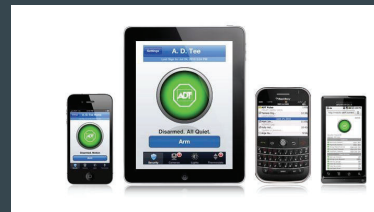
## Smart Garage Opener

**How to Use:** Launch the ismartgate app on a mobile device. Once the iSmartGate is installed, the device can be controlled through Alexa or a mobile device. The garage door will open by sliding the open button up. Slide the open button down to close. If using Alexa or a virtual assistant, speak the verbal command set on the device such as “Alexa, close garage door.”

**Cost and Installation:** Costs range from \$50.00 to \$200.00 for the product. Installation prices vary, and users in the State of Connecticut can receive a free quote or estimate from American Overhead Doors, Inc.

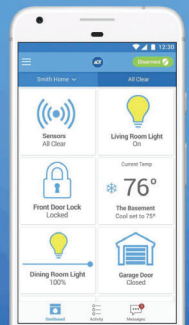
**Who Can Use This Product?** This product can be used to open your garage door from remote locations and assist individuals in accessing their home through the garage with smart technology and a mobile device. This device can also be used to securely deliver packages and promote security of your home.

## Smart Security System- ADT Pulse



[ADT Pulse® | FAQs | What is ADT Pulse?](#)

Make your home smart.  
Keep your family secure.



## Smart Security System

### How to Use:

This device is a security system that allows you to monitor your house remotely. It provides a camera, sensors and a digital keypad for police, fire and emergencies. You can specify alert criteria and also monitor the house from your smartphone, iPad, or web-enabled camera. You can remotely arm and disarm your home's security system, display video, monitoring, control temperature and lights, receive alerts and custom notifications, as well as lock and unlock doors.

### Cost and Installation:

The cost is \$99 for parts and installation. For a 36 month monitoring agreement, it costs \$36.99 per month for a total of \$1,332.64. 24 month monitoring agreements are available as well.

### Who Can Use This Product?

Total package includes 6 door/window sensors, and this product system requires a landline phone and internet connection. Electronic devices being used to control this system should have the latest software. It will be professionally installed.

- To set up ADT Pulse, go into the summary tab and find the "Modes" button under the word "Security". This will direct you to the System tab, where you can select up to 8 modes to control the system. Modes can include an alert, schedule or automation. For example, if you go on vacation and want the light to turn on at a particular time, this is a 'mode

## Questions or Comments?



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