United States Patent Application Publication	20250265665
Kind Code	A1
Publication Date	August 21, 2025
Inventor(s)	Kosanam; Sri Sivanagaraju et al.

METHOD TO OPERATE THE DEVICES FOR REAL ESTATE SHOWINGS

Abstract

A method of staging a listed property for a scheduled real-estate showing includes receiving authorization information to access and control one or more devices at the listed property; receiving showing settings and timing settings for the one or more devices; adjusting the one or more devices for the scheduled real-estate showing in response to the showing settings and the timing settings; and readjusting the one or more devices for the scheduled real-estate showing in response to the showing settings and the timing settings.

Inventors: **Kosanam; Sri Sivanagaraju (Hyderabad, IN), Pentareddy; Vidyasagar Reddy (Hyderabad, IN), Lingala; Ramesh (Hyderabad, IN), Kuenzi; Adam (Silverton, OR), Hill; Matthew S. (Sublimity, OR), Sinn; Dean (Silverton, OR), Nguyen; Victor (Vancouver, WA), Gopavaram; Subhash Reddy (Hyderabad, IN)**

Applicant: **Honeywell International Inc.** (Charlotte, NC)

Family ID: **1000008589703**

Appl. No.: **19/203698**

Filed: **May 09, 2025**

Related U.S. Application Data

parent US continuation 18149417 20230103 PENDING child US 19203698
us-provisional-application US 63296460 20220104

Publication Classification

Int. Cl.: **G06Q50/163** (20240101)

U.S. Cl.:

CPC **G06Q50/163** (20130101);

Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application is a continuation of U.S. patent application Ser. No. 18/149,417, filed Jan. 3, 2023, the entire contents of which are incorporated herein by reference, which claims the benefit of U.S. Provisional Application No. 63/296,460 filed Jan. 4, 2022, all of which are incorporated herein by reference in their entirety.

BACKGROUND
[0002] The embodiments herein generally relate to real-estate showing scheduling and more specifically, a method and apparatus to operate devices for real estate showings.
[0003] Real estate showings often require licensed realtors to arrive early and stay late to ensure that the house is staged properly for the showing.
BRIEF DESCRIPTION
[0004] According to one embodiment, a method of staging a listed property for a real-estate showing is provided. The method including: receiving authorization information to access and control one or more internet of things (IoT) connected devices at the listed property from a first person via a first computer application accessed through a seller computing device; receiving showing settings and timing settings for each of the one or more IoT connected devices; and adjusting each of one or more IoT connected devices for the real-estate showing in accordance with the showing settings and the timing settings.
[0005] In addition to one or more of the features described above, or as an alternative, further embodiments of may include detecting a location of a showing computing device that is in possession of a second person assigned to show the listed property to a potential buyer; and determining an arrival time of the second person at the listed property, wherein at least one of the one or more IoT devices is adjusted before the arrival time.
[0006] In addition to one or more of the features described above, or as an alternative, further embodiments of may include determining when the real-estate showing has ended; and readjusting each of one or more the one or more IoT connected devices in accordance with the showing settings and the timing settings when the real-estate showing has ended.
[0007] In addition to one or more of the features described above, or as an alternative, further embodiments of may include locking a smart lock at the listed property for a duration of the real-estate showing.
[0008] In addition to one or more of the features described above, or as an alternative, further embodiments of may include unlocking a smart lock at the listed property when the real-estate showing has ended.
[0009] In addition to one or more of the features described above, or as an alternative, further embodiments of may include receiving a note for the showing computing device from a smart lock indicating why the smart lock is locked.
[0010] In addition to one or more of the features described above, or as an alternative, further embodiments of may include that it is determined that the real-estate showing has ended by: detecting when a lockbox has been closed.
[0011] In addition to one or more of the features described above, or as an alternative, further embodiments of may include that it is determined that the real-estate showing has ended by: detecting a location of a showing computing device that is in possession of a second person assigned to show the listed property to a potential buyer; and detecting when the location of the showing computing device is outside of a selected radius of the listed property.
[0012] In addition to one or more of the features described above, or as an alternative, further

embodiments of may include detecting a location of a showing computing device that is in possession of a second person assigned to show the listed property to a potential buyer, wherein at least one of the one or more IoT connected devices adjusts based on the location of the showing computing device at the listed property.

[0013] In addition to one or more of the features described above, or as an alternative, further embodiments of may include turning on a smart light at the listed property for the real-estate showing prior to a start time of the real-estate showing.

[0014] In addition to one or more of the features described above, or as an alternative, further embodiments of may include determining when the real-estate showing has ended; and shutting off the smart light when the real-estate showing has ended.

[0015] In addition to one or more of the features described above, or as an alternative, further embodiments of may include activating an air refresher at the listed property for the real-estate showing prior to a start time of the real-estate showing.

[0016] In addition to one or more of the features described above, or as an alternative, further embodiments of may include determining when the real-estate showing has ended; and shutting off the air refresher when the real-estate showing has ended.

[0017] In addition to one or more of the features described above, or as an alternative, further embodiments of may include activating a heating, ventilation, and air conditioning (HVAC) system at the listed property for the real-estate showing prior to a start time of the real-estate showing.

[0018] In addition to one or more of the features described above, or as an alternative, further embodiments of may include determining when the real-estate showing has ended; and adjusting the HVAC system for energy savings when the real-estate showing has ended.

[0019] According to another embodiment, a computer program product tangibly embodied on a non-transitory computer readable medium is provided. The computer program product including instructions that, when executed by a processor, cause the processor to perform operations including: receiving authorization information to access and control one or more internet of things (IoT) connected devices at the listed property from a first person via a first computer application accessed through a seller computing device; receiving showing settings and timing settings for each of the one or more IoT connected devices; and adjusting each of one or more IoT connected devices for the real-estate showing in accordance with the showing settings and the timing settings.

[0020] In addition to one or more of the features described above, or as an alternative, further embodiments of may include the operations further includes: detecting a location of a showing computing device that is in possession of a second person assigned to show the listed property to a potential buyer; and determining an arrival time of the second person at the listed property, wherein at least one of the one or more IoT devices is adjusted before the arrival time.

[0021] In addition to one or more of the features described above, or as an alternative, further embodiments of may include the operations further includes: determining when the real-estate showing has ended; and readjusting each of one or more the one or more IoT connected devices for in accordance with the showing settings and the timing settings when the real-estate showing has ended.

[0022] In addition to one or more of the features described above, or as an alternative, further embodiments of may include the operations further includes: locking a smart lock at the listed property for a duration of the real-estate showing.

[0023] In addition to one or more of the features described above, or as an alternative, further embodiments of may include the operations further includes: unlocking a smart lock at the listed property when the real-estate showing has ended.

[0024] Technical effects of embodiments of the present disclosure include an automated system to activate devices in the house to prep the house for showings prior to the real-estate agent arriving and then automatically deactivating the devices upon the realtor leaving.

[0025] The foregoing features and elements may be combined in various combinations without

exclusivity, unless expressly indicated otherwise. These features and elements as well as the operation thereof will become more apparent in light of the following description and the accompanying drawings. It should be understood, however, that the following description and drawings are intended to be illustrative and explanatory in nature and non-limiting.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] The following descriptions should not be considered limiting in any way. With reference to the accompanying drawings, like elements are numbered alike:

[0027] FIG. **1** is a schematic illustration of a lockbox and access device, which also shows a remote authorization entity that may be linked to the lockbox and/or the access device, according to an embodiment of the present disclosure;

[0028] FIG. **2** is a schematic view of a lockbox showing a storage area suitable for holding one or more keys, access cards, or other access aids, according to an embodiment of the present disclosure;

[0029] FIG. **3** is a schematic diagram of a real-estate showing assistance system, according to an embodiment of the present disclosure; and

[0030] FIG. **4** is a flow process illustrating a method of staging a listed property for a real-estate showing is illustrated, according to an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0031] A detailed description of one or more embodiments of the disclosed apparatus and method are presented herein by way of exemplification and not limitation with reference to the Figures.

[0032] Real estate showings often require licensed realtors to arrive early and stay late to ensure that the house is staged properly for the showing. This is conventionally a manual effort with realtors being required to turn on lights in the house, set thermostats properly, and perform other manual tasks to ensure that the house looks as best as possible. Following the showing, the opposite process occurs, and the realtor shuts off all the lights, re-adjusts the thermostats, locks the doors, and performs other manual tasks to properly close the house up. The embodiments disclosed herein seek to utilize internet of things (IoT) connected devices to help reduce the manual effort that is involved in real-estate showings by activating or adjusting IoT devices for the real-estate showings then deactivating or readjusting IoT devices following the showing.

[0033] Referring now to FIGS. **1** and **2**, a schematic view of a representative restricted range lockbox and access key system **100** is illustrated, in accordance with embodiments of the present disclosure. A lockbox **200** with wireless communications capability is shown in relation to an access device, which in this example is a cellular telephone **120**. The restricted range of the lockbox is shown schematically at **130**. Thus, the cellular telephone as shown in FIG. **1** is outside of the lockbox's operating range **130**, and would need to be moved within the range **130** to communicate with the lockbox **200**. It is understood that while a cellular telephone **120** is illustrated as a device for transmitting an access request to the lockbox **200**, that the embodiments disclosed herein are also applicable to any other electronic access device that can be capable of connecting to the lock box **200** over radio-frequency identification (RFID), Bluetooth, Ultra-wide band (UWB), or any similar wireless technology. In one example, the cellular telephone **120** may be replaced by an RFID card.

[0034] Communications between the lockbox **200** and the cellular telephone **120** may be two-way, as indicated by the two-way arrow representing a communications link **115**. The communications link **115** may be infrared, Bluetooth, Low-Energy Bluetooth, Near Field Communication (NFC), UWB, or any other similar communication method known to one of skill in the art. In some cases, one-way communication from the cellular telephone **120** to the lockbox **200** may be sufficient.

[0035] All of the conventional lockbox functions are supported. Thus, the communications from the cellular telephone **120** to the lockbox **200** would include the ability for the user of the cellular telephone **120** to make an access request directed to the lockbox **200**. This access request would include communication of a credential indicating that the user is authorized for access.
[0036] In response, the lockbox **200** may communicate a message, either via a display on the lockbox **200**, via an LED screen on the lockbox **200** via a message transmitted to the cellular telephone **120**, or via an audible sound emitted from a speaker attached to the lockbox **200** or near the lockbox **200**, denying access. Access may be denied, e.g., if the user is unauthorized, if the user's credentials have expired, or if the access privileges have been superseded (i.e., if the property owner has overridden access privileges or is invoking the call before showing feature).
[0037] If access is granted, the lockbox **200** allows the user to gain access to a key storage area **290** (FIG. **2**) in the lockbox **200** or open a shackle **210** for removing the lockbox **200** from an object to which it is attached (e.g., a door). In specific implementations, the lockbox has a circuit that controls a lock mechanism that secures the key storage area **290** and shackle **210** in a locked condition when in use. When an access request is granted, the circuit unlocks the lock mechanism to provide the user access to the storage area **290**, the shackle, or both. The internal components of the lockbox **200** and the key storage area **290** are protected from the external environment by an outer cover **202**. The outer cover **202** may be composed of a tough durable material to prevent someone from breaking into the lockbox **200** and removing the key or the access card in the key storage area **290**.
[0038] The lockbox **200** functions with power received from a battery or a backup battery in the lockbox **200**. The cellular telephone **120** may be any cellular telephone having restricted range wireless communications capability or other equivalent access device.
[0039] Optionally, the access key system **100** may also include an authorization authority **140**, which can be linked to the lockbox **200** (via a link **145**), or to the cellular telephone **120** (via the link **150**) or to both the lockbox **200** and the cellular telephone **120**. The authorization authority **140** may be located in a real-estate showings cloud database **340**. The authorization authority **140** can administer granting credentials to users, collect information on usage and activity and provide for updates to devices (lockboxes and access devices) in the access key system **100**. The lockbox **200** may be connected to the real-estate showings cloud database **340** through link **145**, which may be a cellular connection, a satellite connection, or a local Wi-Fi connection, such as, for example the Wi-Fi of the house where the lockbox **200** has been placed.
[0040] There are a number of possible ways to implement restricted range wireless communications by which the communicating devices are magnetically coupled. As only one example, the devices can be configured according to the Near Field Communication standards.
[0041] NFC is described as a standards based, short range wireless connectivity technology that enables simple and safe two-way interactions among appropriately configured electronic devices. Near Field Communication is based on inductive-coupling, where loosely coupled inductive circuits share power and data over a distance of a few centimeters. NFC devices share some similarities with proximity (13.56 MHz) RFID tags and contactless smartcards, but have a number of new features.
[0042] NFC is described as being fast, private, and easy as compared to other wireless standards. The NFC set-up time is less than 0.1 millisecond, which is much less than the Bluetooth set-up time of about 6 seconds and less than the IrD a set-up time of about 0.5 second. The NFC operating range is 10 cm or less, which is shorter and provides for more privacy than RFID (operating range up to 3 meters) and Bluetooth (up to 30 meters). At the same time, NFC is more convenient than IrDa which requires line of sight alignment for communication between devices, whereas NFC requires only that the devices be within the NFC operating range of each other. Thus, NFC is one communications technology ideally suited to implementing a restricted range lockbox. In addition, RFID is largely limited to item tracking, and Bluetooth is comparatively more difficult to use

because some configuration of the device is required.
[0043] NFC operates at 13.56 MHz and transfers data at up to 424 K bits/second (current data rates are 106 kbps, 212 kbps and 424 kbps). The 13.56 MHz band is not currently regulated, so no license is required. NFC is both a “read” and “write” technology. NFC devices are unique in that they can change their mode of operation to be in reader/writer mode, peer-to-peer mode, or card emulation mode. In reader/writer mode, an NFC device is capable of reading NFC tag types, such as in the scenario of reading an NFC Smartposter tag. The reader/writer mode is on the RF interface compliant with the ISO 14443 and FeliCa schemes. In Peer-to-Peer mode, two NFC devices can exchange data. For example, Bluetooth or Wi-Fi link set up parameters can be shared, and/or data such as virtual business cards or digital photos can be exchanged. Peer-to-Peer mode is standardized on the ISO/IEC 18092 standard. In Card Emulation mode, the NFC device itself acts as an NFC tag (which is a passive device that stores data), appearing to an external reader much the same as a traditional contactless smart card. This enables, for example, contactless payments and eticketing.
[0044] Communication between two NFC-compatible devices occurs when they are brought within operating range of each other: a simple wave or touch of a device can establish an NFC connection, which is then compatible with other known wireless technologies such as Bluetooth or Wi-Fi. Because the transmission range is so short, NFC-enabled transactions are inherently secure. Also, the required physical proximity of one device to another is intuitive and gives users the reassurance of being in control of the process.
[0045] The underlying layers of NFC technology follow ISO/IEC (International Organization for Standardization/International Electrotechnical Commission, ECMA (European Telecommunications Standards Institute), and ETSI (European Telecommunications Standards Institute) standards. NFC compliant devices in the NFC Reader/Writer mode must support the RF requirements for ISO/IEC 14443A, ISO/IEC 14443 B and FeliCa as outlined in the relevant parts in the ISO 18092. As of this time, there are five published NFC specifications: Smart Poster Record Type Definition (RTD); Data Exchange Format; Record Type Definition; Text RTD and URI RTD. NFC devices are naturally interoperable, as NFC is based on pre-existing contactless payment and ticketing standards that are used on a daily basis by millions of people and devices worldwide. These standards determine not only the “contactless” operating environment, such as the physical requirements of the antennas, but also the format of the data to be transferred and the data rates for that transfer.
[0046] Because NFC components are generally smaller, the size of the access device can be kept small, which increases convenience. Also, the size of the lockbox can be reduced.
[0047] It is understood that embodiments described herein are not limited to the communication link **115** between the lockbox **200** and the cellular telephone **120** being NFC, and the embodiment described herein may be applicable to other communications links **115** between the lockbox **200** and the cellular telephone **120** including but not limitation to infrared, Bluetooth, Low-Energy Bluetooth, or any other similar communication method known to one of skill in the art.
[0048] Referring now to FIG. **3**, a schematic diagram of a real-estate showing assistance system **300** is illustrated, according to an embodiment of the present disclosure. It should be appreciated that, although particular systems are separately defined in the schematic block diagrams, each or any of the systems may be otherwise combined or separated via hardware and/or software.
[0049] The real-estate showing assistance system **300** includes the real-estate showings cloud database **340**, the lockbox **200**, a first computer application **550** installed or accessible on a seller computing device **500**, and a second computer application **650** installed or accessible on a showing computing device **600**. It is understood that the first computer application **550** and the second computer application **650** may be the same mobile application but just installed on two different devices **500**, **600** and/or accessible from the two different devices **500**, **600**. The first computer application **550** and the second computer application **650** may be accessible from two different

devices **500**, **600**, such as, for example, a software-as-as service or a website. The first computer application **550** and the second computer application **650** may be in communication with the cloud database via the internet **306**.
[0050] The lockbox **200** includes a controller **330** that is configured to communicate with the first application **550**, the second application **650**, and the real-estate showings cloud database **340**. The controller **330** may be an electronic controller including a processor **332** and an associated memory **334** comprising computer-executable instructions (i.e., computer program product) that, when executed by the processor **332**, cause the processor **332** to perform various operations. The processor **332** may be, but is not limited to, a single-processor or multi-processor system of any of a wide array of possible architectures, including field programmable gate array (FPGA), central processing unit (CPU), application specific integrated circuits (ASIC), digital signal processor (DSP) or graphics processing unit (GPU) hardware arranged homogenously or heterogeneously. The memory **334** may be but is not limited to a random access memory (RAM), read only memory (ROM), or other electronic, optical, magnetic or any other computer readable medium.
[0051] The controller **330** also includes a communication device **336**. The communication device **336** may be capable of wireless communication including but not limited to Wi-Fi, Bluetooth, Zigbee, Sub-GHz RF Channel, cellular, satellite, LoRa, UWB, or any other wireless signal known to one of skill in the art. The communication device **336** may be configured to communicate with the real-estate showings cloud database **340** through the internet **306**. Alternatively, or additionally, the communication device **336** may be configured to communicate directly with the real-estate showings cloud database **340**.
[0052] The real-estate showings cloud database **340** may be a remote computer server that includes a processor **342** and an associated memory **344** comprising computer-executable instructions (i.e., computer program product) that, when executed by the processor **342**, cause the processor **342** to perform various operations. The processor **342** may be, but is not limited to, a single-processor or multi-processor system of any of a wide array of possible architectures, including field programmable gate array (FPGA), central processing unit (CPU), application specific integrated circuits (ASIC), digital signal processor (DSP) or graphics processing unit (GPU) hardware arranged homogenously or heterogeneously. The memory **344** may be but is not limited to a random access memory (RAM), read only memory (ROM), or other electronic, optical, magnetic or any other computer readable medium.
[0053] The real-estate showings cloud database **340** also includes a communication device **346**. The communication device **346** may be capable of communication with the internet. The communication device **346** may be configured to communicate with the seller computing device **500** and the showing computing device **600** through the internet **306**. The communication device **346** may be a software module that handles communications to and from the computer applications **550**, **650**.
[0054] The seller computing device **500** may be a desktop computer, a laptop computer, or a mobile computing device that is typically carried by a person, such as, for example a phone, a smart phone, a PDA, a smart watch, a tablet, a laptop, or any other mobile computing device known to one of skill in the art.
[0055] The seller computing device **500** includes a controller **510** configured to control operations of the seller computing device **500**. The controller **510** may be an electronic controller including a processor **530** and an associated memory **520** comprising computer-executable instructions (i.e., computer program product) that, when executed by the processor **530**, cause the processor **530** to perform various operations. The processor **530** may be, but is not limited to, a single-processor or multi-processor system of any of a wide array of possible architectures, including field programmable gate array (FPGA), central processing unit (CPU), application specific integrated circuits (ASIC), digital signal processor (DSP) or graphics processing unit (GPU) hardware arranged homogenously or heterogeneously. The memory **520** may be but is not limited to a

random access memory (RAM), read only memory (ROM), or other electronic, optical, magnetic or any other computer readable medium.
[0056] The seller computing device **500** includes a communication device **540** configured to communicate with the internet **306** through one or more wireless signals. The one or more wireless signals may include Wi-Fi, Bluetooth, Zigbee, Sub-GHz RF Channel, cellular, satellite, or any other wireless signal known to one of skill in the art. Alternatively, the seller computing device **500** may be connected to the internet **306** through a hardwired connection. The seller computing device **500** is configured to communicate with the real-estate showings cloud database **340** through the internet **306**.
[0057] The seller computing device **500** may include a display device **580**, such as for example a computer display, an LCD display, an LED display, an OLED display, a touchscreen of a smart phone, tablet, or any other similar display device known to one of the skill in the art. A user operating the seller computing device **500** is able to view the first computer application **550** through the display device **580**.
[0058] The seller computing device **500** includes an input device **570** configured to receive a manual input from a user (e.g., human being) of computing device **500**. The input device **570** may be a keyboard, a touch screen, a joystick, a knob, a touchpad, one or more physical buttons, a microphone configured to receive a voice command, a camera or sensor configured to receive a gesture command, an inertial measurement unit configured to detect a shake of the seller computing device **500**, or any similar input device known to one of skill in the art. The user operating the seller computing device **500** is able to enter data into the first computer application **550** through the input device **570**. The input device **570** allows the user operating the seller computing device **500** to data into the first computer application **550** via a manual input to input device **570**. For example, the user may respond to a prompt on the display device **580** by entering a manual input via the input device **570**. In one example, the manual input may be a touch on the touchscreen. In an embodiment, the display device **580** and the input device **570** may be combined into a single device, such as, for example, a touchscreen.
[0059] The seller computing device **500** device may also include a feedback device **560**. The feedback device **560** may activate in response to a manual input via the input device **570**. The feedback device **560** may be a haptic feedback vibration device and/or a speaker emitting a sound. The feedback device **560** may activate to confirm that the manual input entered via the input device **570** was received via the first computer application **550**. For example, the feedback device **560** may activate by emitting an audible sound or vibrate the seller computing device **500** to confirm that the manual input entered via the input device **570** was received via the first computer application **550**.
[0060] The seller computing device **500** may also include a location determination device **590** that may be configured to determine a location of the seller computing device **500** using cellular signal triangulation, a global position satellite (GPS), or any location termination method known to one of skill in the art.
[0061] The showing computing device **600** may be a desktop computer, a laptop computer, or a mobile computing device that is typically carried by a person, such as, for example a phone, a smart phone, a PDA, a smart watch, a tablet, a laptop, or any other mobile computing device known to one of skill in the art.
[0062] The showing computing device **600** includes a controller **610** configured to control operations of the showing computing device **600**. The controller **610** may be an electronic controller including a processor **630** and an associated memory **620** comprising computer-executable instructions (i.e., computer program product) that, when executed by the processor **630**, cause the processor **630** to perform various operations. The processor **630** may be, but is not limited to, a single-processor or multi-processor system of any of a wide array of possible architectures, including field programmable gate array (FPGA), central processing unit (CPU), application specific integrated circuits (ASIC), digital signal processor (DSP) or graphics

processing unit (GPU) hardware arranged homogenously or heterogeneously. The memory **620** may be but is not limited to a random access memory (RAM), read only memory (ROM), or other electronic, optical, magnetic or any other computer readable medium.

[0063] The showing computing device **600** includes a communication device **640** configured to communicate with the internet **306** through one or more wireless signals. The one or more wireless signals may include Wi-Fi, Bluetooth, Zigbee, Sub-GHz RF Channel, cellular, satellite, or any other wireless signal known to one of skill in the art. Alternatively, the showing computing device **600** may be connected to the internet **306** through a hardwired connection. The showing computing device **600** is configured to communicate with the real-estate showings cloud database **340** through the internet **306**.

[0064] The showing computing device **600** may include a display device **680**, such as for example a computer display, an LCD display, an LED display, an OLED display, a touchscreen of a smart phone, tablet, or any other similar display device known to one of the skill in the art. A user operating the showing computing device **600** is able to view the second computer application **650** through the display device **680**.

[0065] The showing computing device **600** includes an input device **670** configured to receive a manual input from a user (e.g., human being) of computing device **600**. The input device **670** may be a keyboard, a touch screen, a joystick, a knob, a touchpad, one or more physical buttons, a microphone configured to receive a voice command, a camera or sensor configured to receive a gesture command, an inertial measurement unit configured to detect a shake of the showing computing device **600**, or any similar input device known to one of skill in the art. The user operating the showing computing device **600** is able to enter data into the second computer application **650** through the input device **670**. The input device **670** allows the user operating the showing computing device **600** to data into the second computer application **650** via a manual input to input device **670**. For example, the user may respond to a prompt on the display device **680** by entering a manual input via the input device **670**. In one example, the manual input may be a touch on the touchscreen. In an embodiment, the display device **680** and the input device **670** may be combined into a single device, such as, for example, a touchscreen.

[0066] The showing computing device **600** device may also include a feedback device **660**. The feedback device **660** may activate in response to a manual input via the input device **670**. The feedback device **660** may be a haptic feedback vibration device and/or a speaker emitting a sound. The feedback device **660** may activate to confirm that the manual input entered via the input device **670** was received via the second computer application **650**. For example, the feedback device **660** may activate by emitting an audible sound or vibrate the showing computing device **600** to confirm that the manual input entered via the input device **670** was received via the second computer application **650**.

[0067] The showing computing device **600** may also include a location determination device **690** that may be configured to determine a location of the showing computing device **600** using cellular signal triangulation, a global position satellite (GPS), or any location termination method known to one of skill in the art.

[0068] The seller computing device **500** may belong to or be in possession of a first person **402** that may be a seller/owner of a listed property **410** (i.e., listing) or a listing agent (i.e., seller's agent) of the listed property **410**. The listed property **410** is a home/property that has been listed for sale. The showing computing device **600** may belong to or be in possession of a second person **404** that may be a potential buyer of the listed property **410**, a buyer's agent of the potential buyer of the listed property **410**, the seller/owner of the listed property **410**, the listing agent (i.e., seller's agent) of the listed property **410**, or a non-member agent tasked to show the listed property **410**.

[0069] While the first person **402** and the second person **404** are typically different people there may be certain instances where the first person **402** and the second person **404** may be the same person. For example, in the case of a listed property **410** that is a “for sale” by owner the

seller/owner of the listed property **410** may be both the first person **402** and the second person **404**. In another example, in the case of dual representation of a real-estate agent, the seller's agent may also be the buyer's agent and thus may be both the first person **402** and the second person **404**.
[0070] Showings of the listed property **410** may be scheduled using the first application **550** and/or the second application **650**, then stored in the real-estate showings cloud database **340**. Alternatively, the showings may be scheduled using a different website and/or application and may be accessible by the real-estate showings cloud database **340**. The showings may each be scheduled with showing information **374**, which may include a date and time for the showing of the listed property **410** and also information regarding the second person **404** that will be showing the listed property **410** and the showing computing device **600** that is in possession of the second person **404**. This information will allow the showing computing device **600** to be able to unlock the lockbox **200** when necessary. This information will be used by the database **340** to generate credentials that get downloaded to the showing computing device **600** so that the computer application **650** can use those credentials to send over short range wireless to the lockbox **200** to unlock the lockbox **200**. Alternatively, the computer application **650** can collect the user intent to open based on GPS location and send a signal to the database **340** to open the lockbox **600** at the location.
[0071] The listed property **410** may include one or more IoT connected devices **420**. The IoT connected device **420** may include but are not limited to a heating, ventilation, and air conditioning (HVAC) system **420***a*, an air refresher **420***b*, a smart kitchen item **420***c*, smart lights **420***d*, and a smart lock **420***e*. Each of the IoT connected devices **420** are smart devices capable of connecting to the internet **306** through either Wi-Fi, Bluetooth, satellite, cellular, a home automation system, or any other connection method.
[0072] The first person **402** may enter authorization information **374** and showing settings **376** into the first computer application **550** for each IoT connected device **420** that the first person **402** wants to be controlled for a showing.
[0073] The authorization information **374** may include credentials, usernames, passcodes, serial number, item identifiers, or any other information needed to control the IoT connected device **420**. The showing settings **376** may be how the IoT connected device **420** should be operated during the showing of the listed property **410**. The showing settings **376** may set the ambience for the house so that it shows as best as possible for the buyer. For example, the showing settings **376** may be a temperature setting for the HVAC system **420***a*, purity or smell levels for the air refreshers **420***b*, a brightness or on/off for smart lights **420***d*, or an unlock/lock command for the smart lock **420***e*.
[0074] The showing setting **376** will also include a time setting **378** for when each showing setting **376** is to be implemented. The time setting **378** may be before the showing of the listed property **410**, during the showing of the listed property **410**, after the showing of the listed property **410**, or when the showing computing device **600** is within a prescribed distance from an IoT connected device **420**. For example, the smart lights **420***d* may turn on when the second person **404** with the showing computing device **600** gets to the listed property **410** or when they enter a specific room of the listed property **410**. Further, the smart lights **420***d* may turn off when the second person **404** with the showing computing device **600** is outside of a selected radius **412** around the listed property **410** or when they leave a specific room of the listed property **410**. Once the second person **404** is outside of the selected radius **412** around the listed property **410** it may be indicative that they are leaving the listed property **410** because the showing is over and not merely walking around the outside of the listed property **410**. Thus, the selected radius **412** may encompass some if not all of the land of the listed property **410** and may even stretch a selected distance outside of the land associated with the listed property **410**.
[0075] In another example, the smart lock **420***e* may be located on a room in the listed property **410** that the seller does not want the buyer to enter during a showing. This room may be a junk room. The showing setting **376** and the time setting **378** may dictate that the smart lock **420***e* is locked for showings of the listed property **410** and then unlocked after the showing of the listed property **410**

has ended.
[0076] The smart lock **420***e* may be configured to transmit a note to the showing computing device **600** to indicate that the smart lock **420***e* is locked, such as, for example, “dog locked in bedroom” or “don't go in there”.
[0077] The smart lock **420***e* includes a controller **730** that is configured to communicate with the first application **550**, the second application **650**, the real-estate showings cloud database **340**, and the lockbox **200**. The controller **730** may be an electronic controller including a processor **732** and an associated memory **734** comprising computer-executable instructions (i.e., computer program product) that, when executed by the processor **732**, cause the processor **732** to perform various operations. The processor **732** may be, but is not limited to, a single-processor or multi-processor system of any of a wide array of possible architectures, including field programmable gate array (FPGA), central processing unit (CPU), application specific integrated circuits (ASIC), digital signal processor (DSP) or graphics processing unit (GPU) hardware arranged homogenously or heterogeneously. The memory **734** may be but is not limited to a random access memory (RAM), read only memory (ROM), or other electronic, optical, magnetic or any other computer readable medium.
[0078] The controller **730** also includes a communication device **736**. The communication device **736** may be capable of wireless communication including but not limited to Wi-Fi, Bluetooth, Zigbee, Sub-GHz RF Channel, cellular, satellite, NFC, UWB, LoRA, or any other wireless signal known to one of skill in the art. The communication device **736** may be configured to communicate with the real-estate showings cloud database **340** through the internet **706**. Alternatively, or additionally, the communication device **736** may be configured to communicate directly with the real-estate showings cloud database **340**. The communication device **736** may be configured to communicate with the lockbox **200**.
[0079] While the smart lock **420***e* has been described herein as having a controller **730** it is understood that any IoT connected device **420** may have a similar controller.
[0080] The authorization information **374**, the showing setting **376**, and the time setting **378** may be entered into the first application **550** through a manual input via the input device **570** of the seller computing device **500**. Once authorization information **374**, the showing setting **376**, and the time setting **378** is received by the first computer application **550**, the first computer application **550** may transmit the authorization information **374**, the showing setting **376**, and the time setting **378** to the real-estate showings cloud database **340** where it may be grouped with the showing information **372** as showing details **370**. Thus, the showing details **370** may include the showing information **372**, authorization information **374**, the showing setting **376**, and the time setting **378**. The real-estate showing cloud database **340** may share the showing details **370** with the lockbox **200** and the showing details **370** may be stored in the memory **334** of the lockbox **200**. A data collator or internet router **414** may distribute the showing details from the real-estate showing cloud database **340** to the lockbox **20**.
[0081] The IoT connected device **420** may be commanded to activate at the time setting **378** and showing setting **376** by the lockbox **200**, the real-estate showings cloud database **340**, or by the second computer application **650**. The IoT connected device **420** may be commanded to activate at the time setting **378** and showing setting **376** based on the time of day, the location of the showing computing device **600**, and/or the actuation of the lockbox **200**.
[0082] The lockbox **200** or the seller computing device **600** can be connected make each IoT connected devices **420** during the showing to turn on and off each IoT connected device **420**. After verification of the credentials from the showing computing device **600** to unlock the lockbox **200**, the lockbox **200** can then begin to operate the IoT connected devices **420**. The operation of the IoT connected devices **420** may be based on movements of the showing computing device **600** through the listed property **410**.
[0083] Alternatively, after verification of the credentials from the showing computing device **600** to

unlock the lockbox **200**, the lockbox **200** can then trigger an event to showing computing device **600** to start operating the IoT connected devices **420** at the listed property **410** based on a position of showing computing device **600** relative to lockbox **200**. If the showing computing device **600** belongs to a buyer, then the buy may have access to controlling each IoT connected device **420** as they walk through the listed property using the computer application **640** of the showing computing device **600**. The IoT connected devices **420** may also be controlled virtually by the first person **402**.

[0084] Alternatively, after verification of the credentials from the showing computing device **600** to unlock the lockbox **200**, the lockbox **200** may communicate with other internal smart locks **420***e* at the listed property **410** to start controlling IoT connected devices **420**.

[0085] If the time of day says the showing will begin in a few minutes (or other designated period of time), then the IoT connected device **420**. For example, the smart lights **420***d* may turn on at a designated period of time prior to the start of the showing. In another example, the HVAC system **420** may adjust the temperature in the listed property **410** such that the requested temperature in the showing setting **376** is reached by the time the showing starts.

[0086] If the location of the showing computing device **600** indicates that the second person **404** in possession of the showing computing device **600** will arrive at the listed property in a specified period of time then the IoT connected device **420** will be activated to ensure that the showing settings **376** are achieved by that specified period of time. For example, the smart lights **420***d* may turn on by the specified period of time when the second person will be arriving at the listed property **410**. In another example, the HVAC system **420** may adjust the temperature in the listed property **410** such that the requested temperature in the showing setting **376** is reached by the specified period of time when the second person will be arriving at the listed property **410**.

[0087] Once the showing has ended, the IoT connected devices **420** may adjust on their own, or commanded to adjust from the real-estate showings cloud database **340**. The IoT connected devices will adjust their operation based upon the showing settings **376** for after the showing designated in the time setting **378**. For example, after the showing, the smart lights **420***d* may shut off, the HVAC system **420***a* may adjust the temperature of the listed property **410** for energy savings rather than comfort, and the smart lock **420***e* may unlock.

[0088] Alternatively, once the showing has been completed, the real-estate showings cloud database **340** may push notification to the smart lock **420***e* or lockbox **200** that will trigger an event to shut off the IoT connected devices **420**. The event may be transmitted through the router **414** or directly to the IoT connected devices **420**.

[0089] The showing will be determined to have ended based on the closing of the lockbox **200**, the showing computing device **600** moving outside of a selected radius **412** of the listed property **410**, or after an extended period of time.

[0090] Referring to FIG. **4**, within continued references to FIGS. **1-3**, a flow diagram illustrating a method **800** of staging a listed property **410** for a real-estate showing is illustrated, in accordance with an embodiment of the present disclosure.

[0091] At block **804**, authorization information **374** to access and control one or more IoT connected devices **420** at the listed property **410** is received from a first person **402** via a first computer application **540** accessed through a seller computing device **500**.

[0092] At block **806**, showing settings **376** and timing settings **378** are received for each of the one or more IoT connected devices **420**. The showing settings **376** and timing settings **378** may be received from the first person **402** via the first computer application **540** accessed through the seller computing device **500**.

[0093] At block **808**, each of one or more IoT connected devices **420** are adjusted for the real-estate showing in accordance with the showing settings **376** and the timing settings **378**. Block **808** may include that a smart lock **420***e* is locked at the listed property **410** for a duration of the real-estate showing.

[0094] Block **808** may include that a smart lock **420***e* is unlocked at the listed property **410** when

the real-estate showing has ended. Block **808** may include that a smart light **420***d* is turned on at the listed property **410** for the real-estate showing prior to a start time of the real-estate showing. Block **808** may include determining when the real-estate showing has ended and shutting off the smart light **420***d* when the real-estate showing has ended. Block **808** may include activating an air refresher **420***b* at the listed property **410** for the real-estate showing prior to a start time of the real-estate showing. Block **808** may include determining when the real-estate showing has ended and shutting off the air refresher **420***b* when the real-estate showing has ended. Block **808** may include activating a heating, ventilation, and air conditioning (HVAC) system **420***a* at the listed property **410** for the real-estate showing prior to a start time of the real-estate showing. Block **808** may include determining when the real-estate showing has ended and adjusting the HVAC system **420***a* for energy savings when the real-estate showing has ended.

[0095] The method **800** may further include that a location of a showing computing device **600** that is in possession of a second person **404** assigned to show the listed property **410** to a potential buyer is detected and an arrival time of the second person **404** at the listed property **410** is determined. The location may be detected using GPS or cellular triangulation. At least one of the one or more IoT connected devices **420** is adjusted before the arrival time.

[0096] The method **800** may also include determining when the real-estate showing has ended and then readjusting each of one or more the one or more IoT connected devices **420** in accordance with the showing settings **376** and the timing settings **378** when the real-estate showing has ended.

[0097] It may be determined that the real-estate showing has ended by detecting when a lockbox **200** has been closed. It may be determined that the real-estate showing has ended by detecting a location of a showing computing device **600** that is in possession of a second person **404** assigned to show the listed property **410** to a potential buyer and detecting when the location of the showing computing device **600** is outside of a selected radius of the listed property **410**.

[0098] The method may also include that a location of a showing computing device **600** that is in possession of a second person **404** assigned to show the listed property **410** to a potential buyer is detected. At least one of the one or more IoT connected devices **420** adjusts based on the location of the showing computing device **600** at the listed property **410**.

[0099] While the above description has described the flow process of FIG. **4** in a particular order, it should be appreciated that unless otherwise specifically required in the attached claims that the ordering of the steps may be varied.

[0100] The term “about” is intended to include the degree of error associated with measurement of the particular quantity based upon the equipment available at the time of filing the application. For example, “about” can include a range of ±8% or 5%, or 2% of a given value.

[0101] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the present disclosure. As used herein, the singular forms “a”, “an” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms “comprises” and/or “comprising,” when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, element components, and/or groups thereof.

[0102] While the present disclosure has been described with reference to an exemplary embodiment or embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope of the present disclosure. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the present disclosure without departing from the essential scope thereof. Therefore, it is intended that the present disclosure not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out this present disclosure, but that the present disclosure will include all embodiments falling within the scope of the claims.

Claims

1. A method of staging a listed property for a scheduled real-estate showing, the method comprising: receiving authorization information to access and control one or more devices at the listed property; receiving showing settings and timing settings for the one or more devices; adjusting the one or more devices for the scheduled real-estate showing in response to the showing settings and the timing settings; and readjusting the one or more devices for the scheduled real-estate showing in response to the showing settings and the timing settings.
2. The method of claim 1, wherein the adjusting is performed at a time prior to the scheduled real-estate showing.
3. The method of claim 1, wherein the adjusting is performed at a time determined based on a determined arrival time of a showing computing device at the listed property.
4. The method of claim 1, wherein the adjusting is performed at a time determined based on an actual arrival time of a showing computing device at the listed property.
5. The method of claim 1, wherein the adjusting is performed at a time determined based on actuation of a lockbox at the listed property.
6. The method of claim 1, wherein the readjusting is performed at a time after the scheduled real-estate showing.
7. The method of claim 1, wherein the readjusting is performed at a time when a lockbox at the listed property is closed.
8. The method of claim 1, wherein the readjusting is performed at a time determined based on a showing computing device being outside of a selected radius of the listed property.
9. The method of claim 1, wherein the one or more devices include one or more of a smart lock, a smart light, an air refresher and a heating, ventilation, and air conditioning (HVAC) system.
10. A computer program product tangibly embodied on a non-transitory computer readable medium, the computer program product including instructions that, when executed by a processor, cause the processor to perform operations comprising: receiving authorization information to access and control one or more devices at the listed property; receiving showing settings and timing settings for the one or more devices; adjusting the one or more devices for the scheduled real-estate showing in response to the showing settings and the timing settings; and readjusting the one or more devices for the scheduled real-estate showing in response to the showing settings and the timing settings.
11. The computer program product of claim 10, wherein the adjusting is performed at a time prior to the scheduled real-estate showing.
12. The computer program product of claim 10, wherein the adjusting is performed at a time determined based on a determined arrival time of a showing computing device at the listed property.
13. The computer program product of claim 10, wherein the adjusting is performed at a time determined based on an actual arrival time of a showing computing device at the listed property.
14. The computer program product of claim 10, wherein the adjusting is performed at a time determined based on actuation of a lockbox at the listed property.
15. The computer program product of claim 10, wherein the readjusting is performed at a time after the scheduled real-estate showing.
16. The computer program product of claim 10, wherein the readjusting is performed at a time when a lockbox at the listed property is closed.
17. The computer program product of claim 10, wherein the readjusting is performed at a time determined based on a showing computing device being outside of a selected radius of the listed property.
18. The computer program product of claim 10, wherein the one or more devices include one or

more of a smart lock, a smart light, an air refresher and a heating, ventilation, and air conditioning (HVAC) system.