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(54) **SYSTEM AND METHOD FOR PROPERTY MONITORING**

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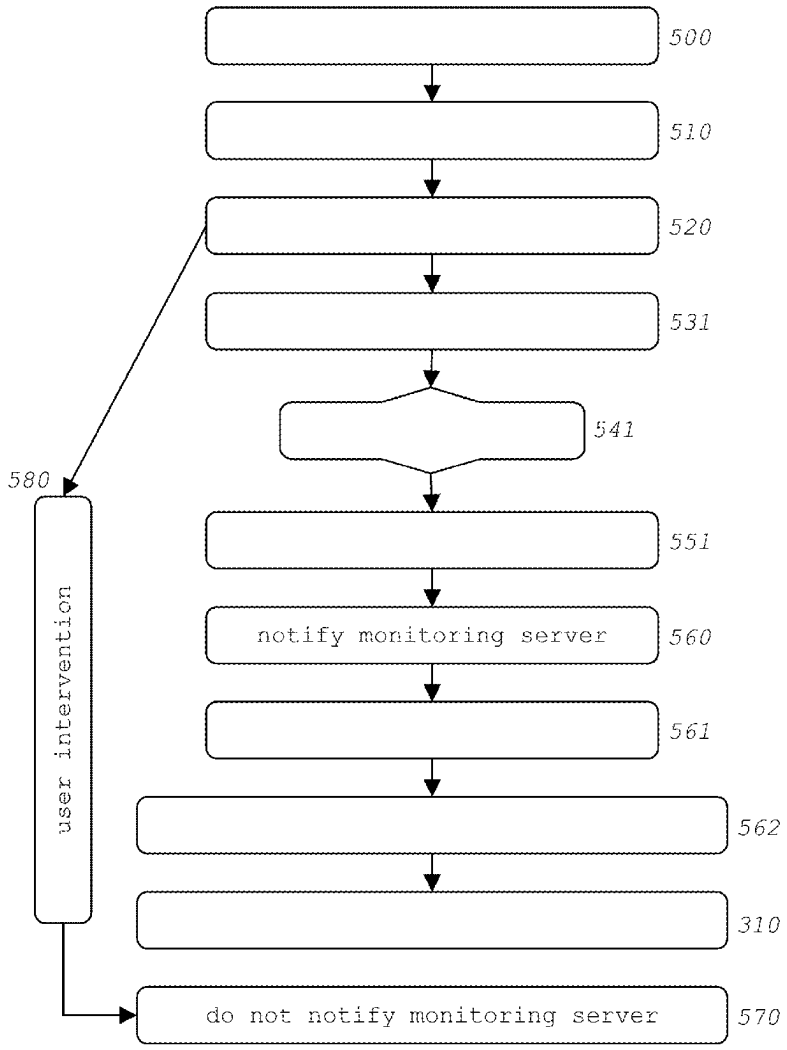
(57) **ABSTRACT**

An outdoor camera integrated into an alarm system for property monitoring, configured to monitor a property. The alarm system can have a base station that communicates with all the components of the alarm system, such as an outdoor camera, which can be equipped with an imaging sensor and software capabilities to conduct analysis on data collected by the outdoor camera to determine information about a human or non-human visitor at the property. The outdoor camera provides information about detected events at the property to the base station, where the data can be used to take appropriate action at the property and communicate with either the user or a monitoring service.



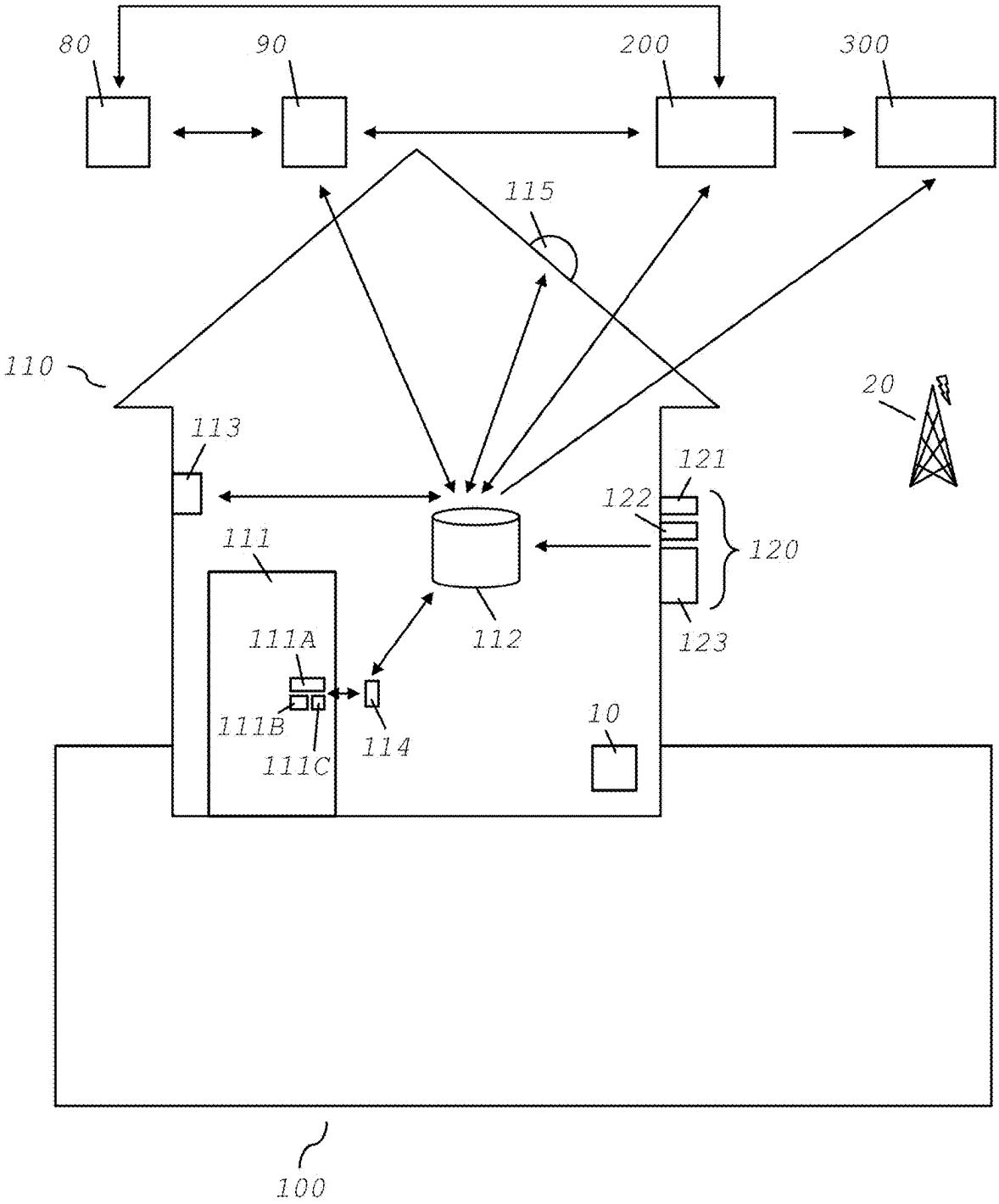

80
90
200
300
115
110
20
113
121
122
120
111
112
123
111A
111B
111C
114
10
100

FIG. 1

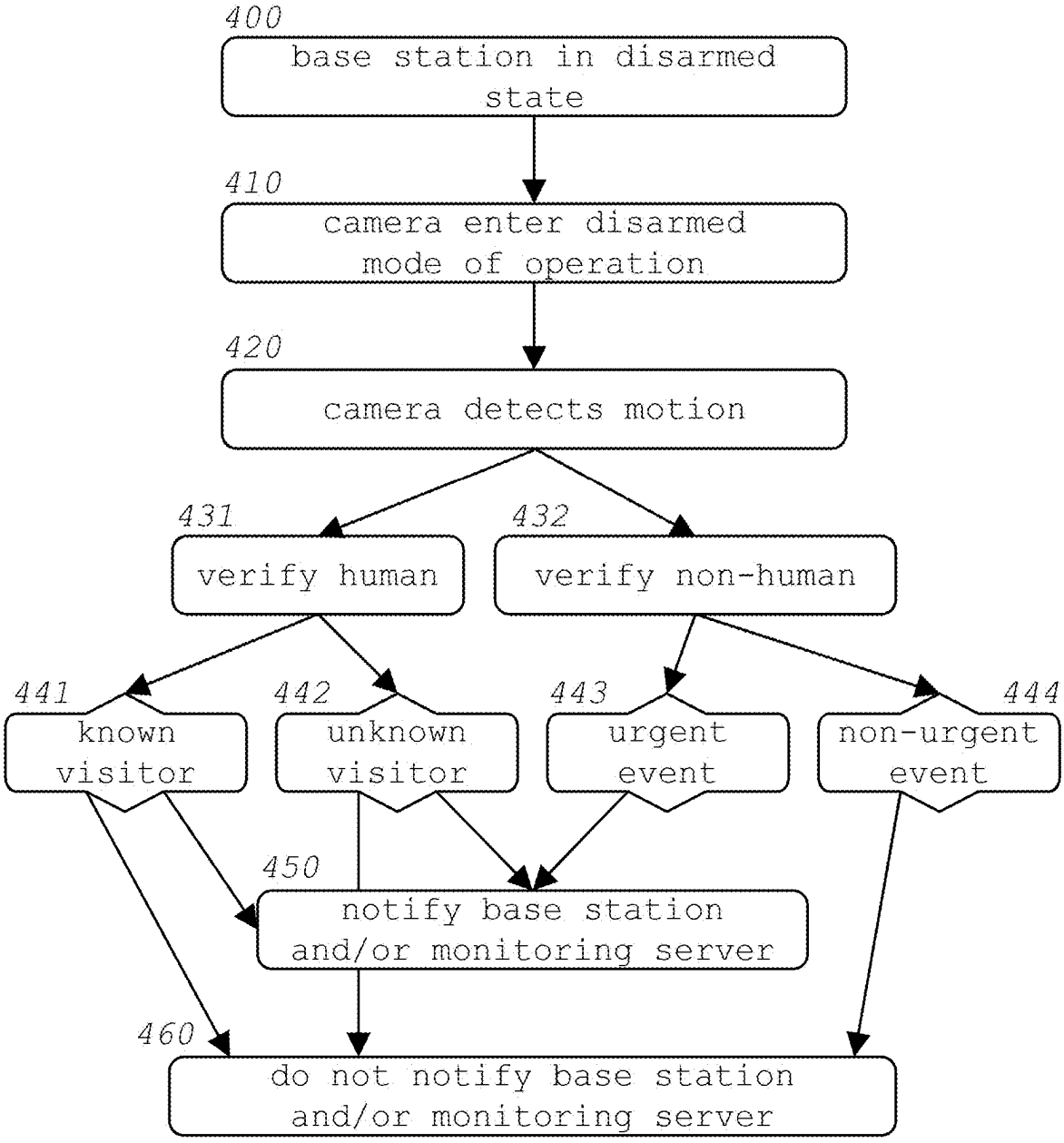

400
base station in disarmed state
410
camera enter disarmed mode of operation
420
camera detects motion
431
verify human
432
verify non-human
441
known visitor
442
unknown visitor
443
urgent event
444
non-urgent event
450
notify base station and/or monitoring server
460
do not notify base station and/or monitoring server

FIG. 2

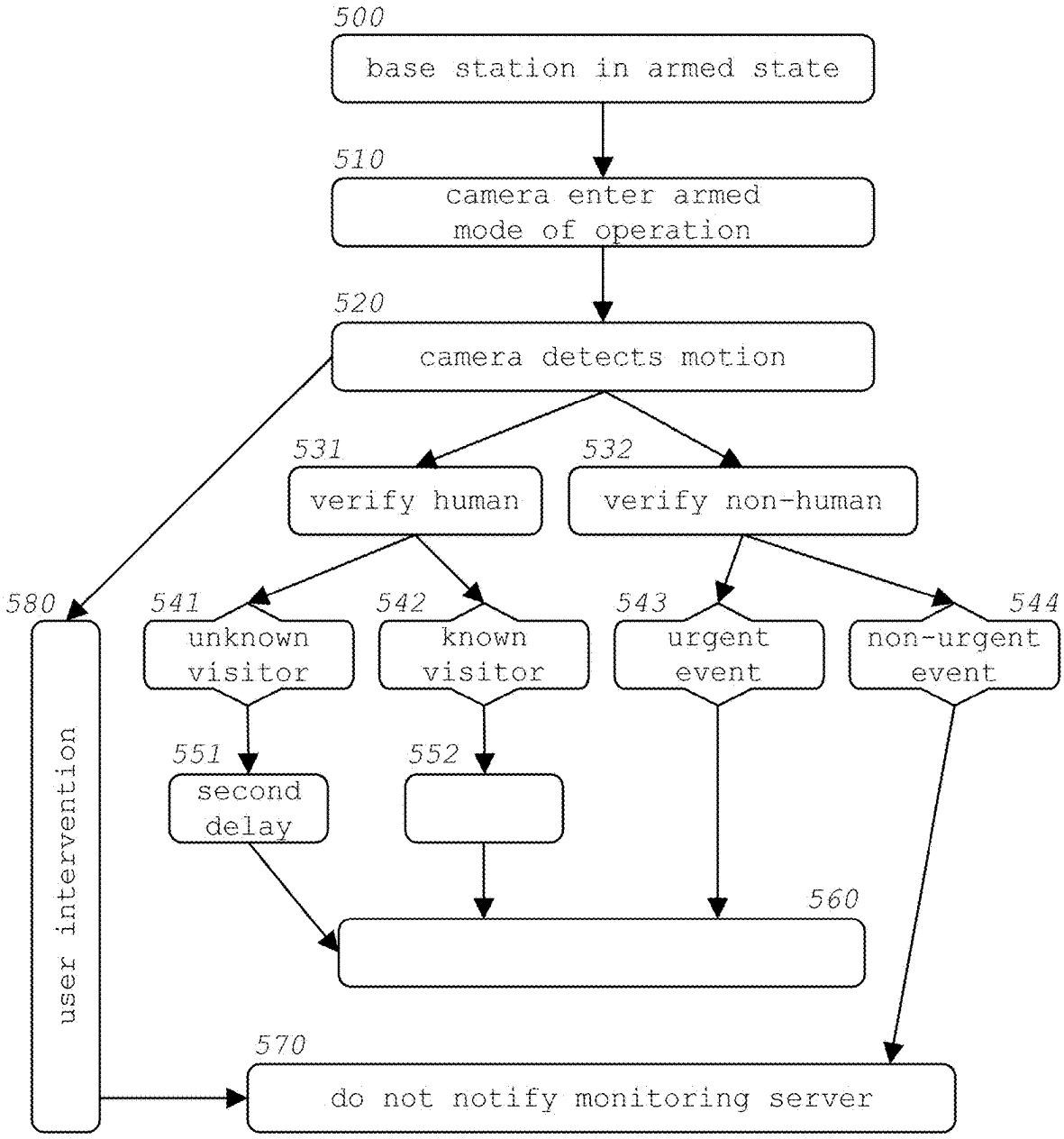

500
base station in armed state
510
camera enter armed mode of operation
520
camera detects motion
531
verify human
532
verify non-human
580
user intervention
541
unknown visitor
542
known visitor
543
urgent event
544
non-urgent event
551
second delay
552
560
570
do not notify monitoring server

FIG. 3

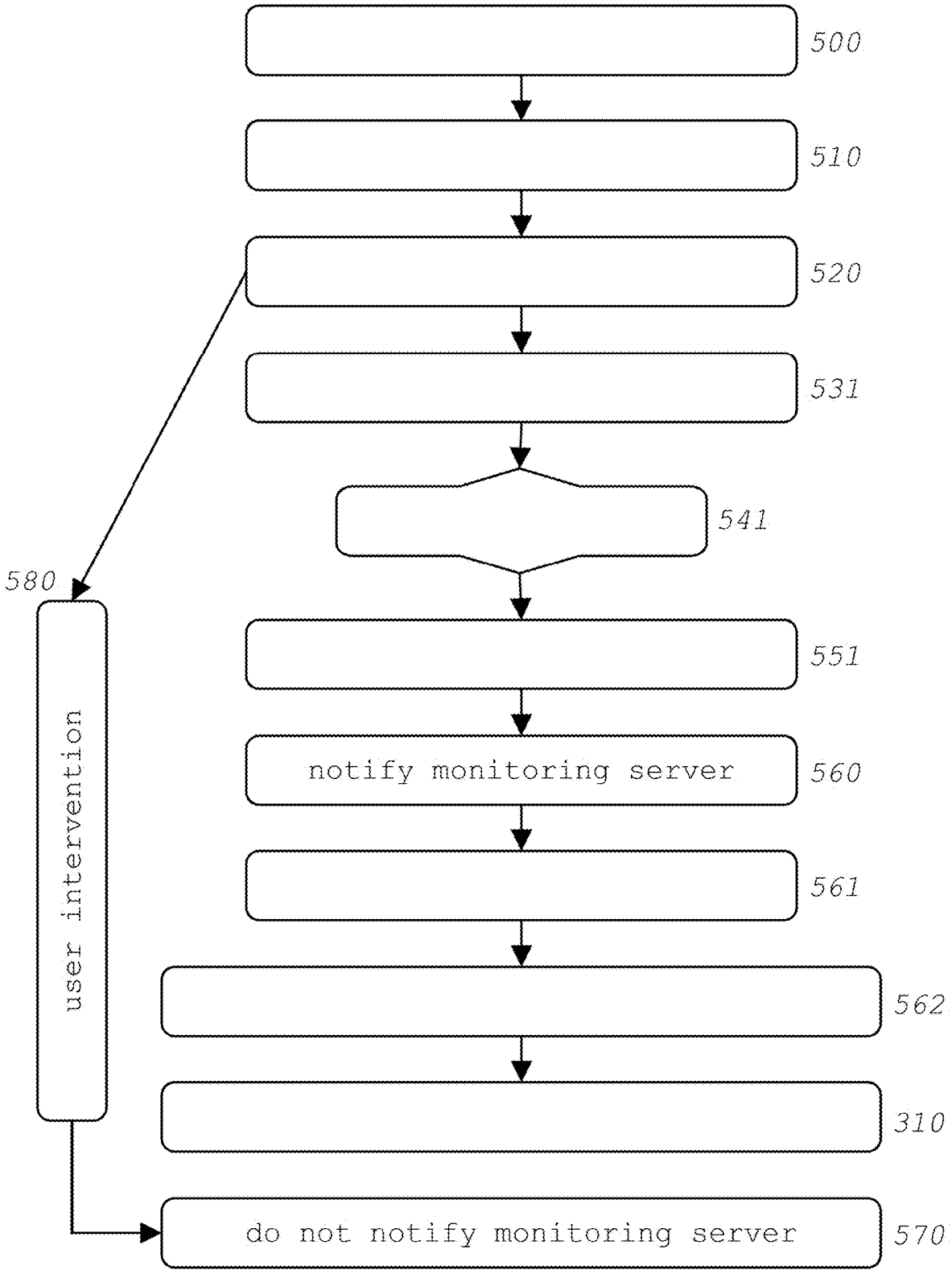

500
510
520
531
541
580
551
notify monitoring server
560
561
562
310
user intervention
do not notify monitoring server
570

FIG. 4

SYSTEM AND METHOD FOR PROPERTY MONITORING

RELATED APPLICATIONS

[0001] This application is a continuation of and claims the benefit under 35 U.S.C. § 120 to U.S. application Ser. No. 18/933,433, entitled SYSTEM AND METHOD FOR PROPERTY MONITORING, filed Oct. 31, 2024, which is a continuation of and claims the benefit under 35 U.S.C. § 120 to U.S. application Ser. No. 18/243,191, entitled SYSTEM AND METHOD FOR PROPERTY MONITORING, filed Sep. 7, 2023, and now U.S. Pat. No. 12,223,813, which is a continuation of and claims the benefit under 35 U.S.C. § 120 to U.S. application Ser. No. 17/529,332, entitled SYSTEM AND METHOD FOR PROPERTY MONITORING, filed Nov. 18, 2021, and now U.S. Pat. No. 11,790,743, which claims the benefit under 35 U.S.C. § 119 (e) of U.S. Provisional Application Ser. No. 63/115,798, entitled SYSTEM AND METHOD FOR PROPERTY MONITORING, filed Nov. 19, 2020, the entire contents of each of which are incorporated herein by reference for all purposes.

FIELD

[0002] Disclosed embodiments are related to property monitoring technology and related methods of use.

BACKGROUND

[0003] Many homes and businesses are equipped with surveillance systems for monitoring the property with respect to various conditions such as unauthorized entry through doors and/or windows, fire or smoke conditions, movement in a room or around a building, etc.

SUMMARY

[0004] Systems and methods described herein provide the ability to automate the detection and emergency response of a property alarm system to reduce the overall operational costs associated with the manual or human review of detected events at a monitoring site. Outdoor sensors associated with an alarm system typically detect significantly higher volumes of events than indoor sensors. For example, an outdoor camera may detect neighbors passing by the property, delivery personnel entering and exiting the property, or canvassers, as well as non-human objects at the property, such as debris blown through by wind, wild animals and/or pets. In cases where outdoor sensors do not conduct preliminary review of events locally at the monitoring site, information, such as still images, video, and/or audio, may be relayed to an external monitoring center, where the information is manually reviewed. As a result of the high volume of information requiring rapid review, there may be high operational costs associated with alarm systems having outdoor sensors, such as one or more cameras. In some embodiments, an alarm system sensor, such as an outdoor camera, can perform automated or computer-based preliminary review of detected events captured in data such as still images, video, and/or audio, using software capabilities including artificial intelligence analysis. Automated or computer-based analysis or other processing of the information collected from an outdoor sensor can reduce the total number of events and/or the number of false positive detected events reported to the user and/or the monitoring servers, thus reducing the number of events a user or professional staff must manually review to determine an appropriate course of action (for example, communicating with local authorities).

[0005] In some embodiments, an alarm system includes an outdoor camera configured to generate monitoring data from a property using an image sensor and capable of collecting and analyzing the data. The alarm system may also include a base station configured to communicate with the outdoor camera, the user of the alarm system, and/or a monitoring server which may monitor the property in the absence of or in addition to the user. The base station may be configured in an armed or a disarmed mode, e.g., during which the base station can enter an alarm state based on various sensor conditions such as opening of a door while the door is locked. When the base station is in an armed (or disarmed) mode, the outdoor camera can monitor an outdoor area, detect motion in the area, and in response capture image and/or audio data and analyze the data according to various criteria. (As used herein, video data refers to data including still images, multiple or moving image data, and/or audible or sound information.) In some embodiments, the criteria and/or actions taken by the camera based on the analysis can depend on whether the alarm system is in an armed or disarmed mode. In some embodiments, the camera can identify whether detected motion is that of a human, e.g., if the alarm system is in an armed mode the camera may attempt to identify whether detected motion is that of a human, whereas if the alarm system is in a disarmed mode the camera may not analyze detected motion at all. If the detected motion is caused by a human, the camera and/or base station can send an alert to a user and/or a monitoring server as well as begin recording video data of the detected human and/or displaying a countdown chime or siren that is audible in the area around the detected human. A user can be given a threshold period of time to respond to the alert, such as by dismissing or canceling the alert, disarming the alarm system via user app and/or keypad at the property, requesting video data from the camera regarding the human, requesting to communicate via audio/video with the person, etc. Where the user can communicate with people at the property, the camera or other portions of the alarm system can have a video and/or audio display to facilitate communication. If the user fails to respond within the threshold, the monitoring server may prompt monitoring personnel to review the video data, attempt to communicate with the human at the property, and/or notify authorities such as the police. In some cases, if the camera detects a human, the camera can analyze the video data of the human in an attempt to recognize the human, e.g., by facial or voice recognition, etc., or the camera can take steps to recognize the human in other ways that do not involve video data analysis, such as by detecting that an authorized person's phone or other device is located within a particular distance of the property (e.g., using geofencing). If the human is recognized as a homeowner or other person authorized to be at the property, the camera can prompt the alarm system to use an extended time for the threshold period of time to allow a user to respond to an alert. This may provide the recognized homeowner with extended time to enter the building and disarm the alarm. Alternately, if the person is not recognized as authorized to be at the property, the shorter threshold period of time may be employed before an alert is sent.

[0006] In some embodiments, an outdoor camera can be integrated into an alarm system including indoor sensors, e.g., to detect window and door opening, glass breakage, etc. and other components. Operation of the outdoor camera and indoor sensors and other alarm system components can be coordinated, e.g., by the alarm system base station, so that indoor and/or outdoor sensors operate based on conditions sensed at outdoor and/or indoor locations. For example, if the outdoor camera detects human motion near a back door of the building, the base station can employ indoor sensors at the rear of the building to monitor for unauthorized entry and/or to follow the movements of the human into and through the building. In addition, or alternately, the base station can use an alarm siren to display a noise or audible message to the human at the back door to vacate the premises or otherwise discourage the human from entering the building. As another example, if indoor sensors detect unauthorized opening of a door of the building, the base station can cause the outdoor camera to record video data, e.g., to hopefully capture a person exiting the building through the door. Thus, indoor and outdoor sensors can capture evidence, perform data analysis, etc. in response to alarm conditions detected at any location in or around a building.

[0007] In some embodiments, events detected by an outdoor camera can be assigned a risk score based on various criteria and events can be screened or identified for screening by monitoring personnel or a user based on the risk score. For example, the presence of a human detected by an outdoor camera at night may be assigned a higher risk score than the presence of a human during the day. Similarly, a human acting suspiciously regardless of the time of day such as hiding behind bushes or walking around a property multiple times in a few days can be assigned a higher risk score than arrival of a known delivery person carrying and leaving a package at the building five days a week. In some cases, higher risk scores can be assigned to events that tend to have a higher correlation to criminal activity than other events. Some criteria that can be factored into risk score assignment can include time of day an event is detected, crime statistics in the area local to the outdoor camera, recognition of a human that is authorized or not to be at the premises, how long an unknown person is detected to be at the premises, whether the event is known or predicted in advance of detection (e.g., a package delivery may be known to be occurring between 4-6 pm and receive a lower risk score than an unexpected delivery), whether a human is detected by multiple outdoor cameras and/or on multiple consecutive days or weeks, whether a human is detected by the outdoor camera along with other sensor data indicative of an alarm event (such as breaking glass), etc. An outdoor camera can be configured to assign risk scores to detected events, e.g., using artificial intelligence and/or other data analysis techniques, and can forward or otherwise recommend events along with related video data for screening by monitoring personnel and/or a user along with or based on an associated risk score. Alternately, or in addition, risk scores can be assigned by an alarm base station, monitoring server, a user, or other device or person. Risk scores can be used to rank or otherwise determine an order in which events are screened by monitoring personnel and/or a user, e.g., such that higher risk score events are reviewed by a person before lower risk score events even if the higher risk score events were detected later in time. As an example, a user interface dashboard used by monitoring personnel to screen event data can display higher risk event data in a foreground or otherwise more prominently than lower risk score event data. Risk scores can be used for other purposes, such as whether police and/or other authorities are notified automatically by a computer system, e.g., an event with a risk score over a threshold can cause notification of police before human screening, whether video data or other sensor data is stored and for how long, adjusting a countdown or delay time that a base station employs before entering an alarm state, whether a countdown chime or siren is displayed when a human is detected and before a user responds to a corresponding alert and/or an alarm system is disarmed, and so on.

[0008] It should be appreciated that the foregoing concepts, and additional concepts discussed below, may be arranged in any suitable combination, as the present disclosure is not limited in this respect. Further, other advantages and novel features of the present disclosure will become apparent from the following detailed description of various non-limiting embodiments when considered in conjunction with the accompanying figures.

BRIEF DESCRIPTION OF DRAWINGS

[0009] The accompanying drawings are not intended to be drawn to scale. In the drawings, each identical or nearly identical component that is illustrated in various figures may be represented by a like numeral. For purposes of clarity, not every component may be labeled in every drawing. In the drawings:

[0010] FIG. **1** is a schematic block diagram of an example of an outdoor camera integrated with an alarm system having one or more internal sensors;

[0011] FIG. **2** is a flow chart of an example process for generating an alarm when the alarm system is in a disarmed state;

[0012] FIG. **3** is a flow chart of an example process for generating an alarm when the alarm system is in an armed state; and

[0013] FIG. **4** is a flow chart of an example process for generating an alarm when the alarm system is in an armed state and an unknown human visitor has been detected.

DETAILED DESCRIPTION

[0014] Systems and methods described herein are described below by way of one or more illustrative embodiments. It should be understood that the illustrative embodiments described are not intended to be limiting, but rather to help show how one or more aspects may be implemented in a particular example. Also, features described herein may be implemented alone and/or in combination with other features.

[0015] Turning to the figures, specific non-limiting embodiments are described in further detail. It should be understood that the various systems, components, features, and methods described relative to these embodiments may be used either individually and/or in any desired combination as the disclosure is not limited to only the specific embodiments described herein.

[0016] FIG. **1** shows an illustrative arrangement including an alarm system that incorporates one or more features of systems and methods described herein. In this embodiment, a building **110** is located on a property **100**. As used herein,

the term "building" refers to any suitable structure that may be entered and/or exited by a person, such as a single family home, a single apartment in a multi-apartment complex, a warehouse or other industrial facility, one or more rooms or other spaces of a larger structure, and so on.

[0017] In this embodiment, the building **110** is equipped with an alarm system which may be used to monitor the building **110** as well as the property **100** for various conditions, such as the use of doors **111** to enter/exit the building **110**, noise at the property **100**, fire and/or smoke conditions at the property **100**, movement of people or object at the property **100**, abnormally high/low temperatures and/or water at the property **100**. As is understood in the art, the alarm system may be employed to monitor conditions at the building as well as taking particular actions in response to sensed conditions, such as notifying authorities (e.g., police, fire, building management, etc.) of particular conditions, notifying a user of particular conditions, displaying an alarm (e.g., emitting siren noises and emergency lighting at the building, etc.), recording video and/or audio conditions at the building, and so on. Thus, although the system is referred to herein as an "alarm" system, the alarm system need not necessarily display alarm sounds or lights at the building, but instead may be employed only for monitoring conditions at the building and optionally reporting on monitored conditions.

[0018] In some embodiments, the alarm system is equipped with a base station **112**, which coordinates communications with devices located at the building **110** and can also coordinate communications between the devices located at the building **110** and remote devices. As used herein, conditions or devices located "at" a building refers to the condition or devices being within and/or near the building, e.g., movement of persons "at" a building refers to movement of persons within and/or near the building. The base station **112** is shown as a single element, but may include two or more components, which may be located separately at the property **100** and/or remotely from the property **100**. Thus, while in this embodiment the base station **112** is located at the building **110**, the base station **112** may be located remotely from the building **110** at least in part, e.g., the base station **112** may be implemented at least in part at one or more computers or other data processing devices that are remote from the property **100**. The base station **112** may be configured and arranged to communicate with any number and/or type of remote devices using any suitable communications channel (e.g., wireless, wired, Internet, cellular telephone, satellite, etc.). The base station **112** may also include one or more software components, such as artificial intelligence features to perform image analysis (such as facial recognition, movement detection, object recognition, etc.) or other processing functions (such as generating MPEG, JPEG or other image data structures, and so on). It should be understood that the components of the base station **112** shown in FIG. **1** are selected for purposes of explanation and that the base station **112** can include one or more other components for performing any suitable function.

[0019] In some embodiments, the alarm system also includes an internal sensor **113**, which may be employed to detect conditions at the building **110**. The internal sensor **113** is shown as a single element, but may include two or more components, or sensors which may be used to detect whether the door **111** is in an open or closed position, whether a window is open or closed, visual and/or audible detection of information at the building **110** such as the presence of persons or noise at the building **110**, the motion of persons or objects, but not necessarily video information, noises such as breaking of glass, loud impacts such as hammering, talking by people etc., the presence of smoke (including carbon monoxide) and/or fire, the temperature and/or the presence of water in abnormal locations, and others. The base station **112** may be in communication with the internal sensor **113** and may be arranged to record sensor information, such as video or other data for later review by a user. Those of skill in the art will appreciate the variety of sensors that may be employed with an alarm system, and how the information detected by the sensors may be used, recorded or otherwise handled for use with the alarm system.

[0020] In some embodiments the base station **112** is equipped with a wifi access point, router and/or other gateway **10** to an Internet or other wide area network connection (such as a broadband modem) can have one or more components at the property **100** (such as a wifi router) and/or one or more remote components (such as a satellite-based wifi component). The gateway **10** provides a network connection for the internal sensor **113** and the base station **112** to the Internet or other wide area network, and so can provide a communications link to remote components of the building **110**. Remote components can include a server **90**, which can include multiple servers in distributed locations and/or other data processing and storage devices. The server **90** can provide various monitoring functions such as receiving data from the internal sensor **113** and/or the base station **112**, controlling operation of the local components at the property **100**, analyzing data from the base station **112** and other local components to assess whether an alarm condition is present or to assess other property conditions, notifying authorities (such as police or fire) regarding conditions at the property **100** which may need attention, etc. The server **90** can also provide information regarding the property **100** to, and receive instructions from, a user device **80** (often referred to herein more simply as a user, and can include a smartphone, computer, or other data processing device along with a suitable user interface to provide output (e.g., information display) and receive input (e.g., user commands)). In addition to being able to communicate with the server **90** via a network connection that includes the gateway **10**, the base station **112** can communicate with the server **90** via a network that includes a cellular network **20**. The cellular network **20** can be employed, for example, when the gateway-based network is not operable.

[0021] In some embodiments, the base station **112** is also configured and arranged to communicate with one or more monitoring server(s) **200** as well as authorities communication devices **300**. The monitoring server(s) **200** may receive information and commands from the base station **112**, such as alarm and other conditions sensed at the property **100**, and take suitable action including sending information and commands to the base station **112**, authorities communication devices **300**, and others. For example, the base station **112** may send to the monitoring server(s) **200** information indicating an alarm condition related to unauthorized entry onto the property **100**, and in response the monitoring server(s) **200** may notify authorities (e.g., fire, police, etc. via the authorities communication devices **300**) of the alarm condition along with other information such as the suspected point of entry onto the property **100**, etc. The monitoring

server(s) **200** may notify a user of sensed conditions by communicating with a user **80**. As with other communications between the base station **112** and remote devices, the monitoring server(s) **200** may communicate with other devices via any suitable communications network or other channel, such as wired or wireless networks, Internet, cellular telephone, satellite, etc.

[0022] The monitoring server(s) **200** may provide other functions as are known in the art. For example, the monitoring server(s) **200** may relay video and/or audio information received the property **100** to the user **80**, which may display the video and/or audio information to the user **80**. This may, for example, allow the user to observe and communicate with a visitor at the property **100** who is seeking entry to the property **100**. The user **80** may also provide commands to the monitoring server(s) **200**, such as instructions to cancel an alarm state at the property **100**, and the monitoring sever(s) **200** may provide suitable commands to the base station **112** accordingly. In some embodiments the user **80** communicates with the base station **112** and other devices at the property **100** via the monitoring server (s) **200**, and/or the user **80** may communicate more directly with the base station **112** and/or other devices at the property **100**. As an example, the user **80** may communicate directly with an audio/video recording and display device (e.g., a camera, speaker and microphone that is part of a doorbell at the property **100**) to receive audio/video data recorded from the property **100**, as well as provide audio/video data for display at the property **100**. Similarly, the base station **112** may communicate more directly with authorities communication devices **300** and/or other devices rather than via the monitoring server(s) **200**. This may, for example, allow the base station **112** to relay alarm state messages to the authorities communication devices **300** even if communication with the monitoring server(s) **200** is interrupted.

[0023] The building **110** is further equipped with one or more doors **111** which may be used by persons to enter and/or exit the building **110** and one or more door locks **111**A, which is configured to engage to lock an associated door **111** and to disengage to unlock the door **111**. The door lock **111**A may be configured to receive commands or other information, such as a command to move a bolt, latch or other mechanism to lock or unlock the associated door **111** in a closed position. In this embodiment, the door lock **111**A may communicate with a lock server **111**B to send and receive commands and other information. The lock server **111**B may manage operation of the door lock **111**A as well as communications with the user **80** to provide instructions for lock operation and/or to receive information from the door lock **111**A, such as whether the door lock **111**A is engaged to lock a door **111** or not. While in some embodiments the functions of the lock server **111**B may be performed by the monitoring server(s) **200**, in this embodiment the door lock **111**A is capable of coordinating at least some of its functions with the base station **112** as described more below. Thus, a user, e.g., interacting with an application running on the user device **80**, may provide instructions to the lock server **111**B to lock or unlock the door **111** and/or receive information regarding door lock **111**A status and other conditions, and the lock server **111**B may provide suitable information or commands to the door lock **111**A. The door lock **111**A may communicate with the base station **112**, either directly via a local network (e.g., Wi-Fi) or other communications channel, or more indirectly via the lock server **111**B which may communicate with the monitoring server(s) **200** via the Internet or any other suitable communications network(s) or channels. Thus, the base station **112** may receive information from the door lock **111**B, such as whether the door lock **111**A is engaged or not to lock the door **111** in a closed position. The door **111** may further include a door sensor **111**C that can detect whether the door **111** is in an open or closed position. The door sensor **111**C may be part of the door lock **111**A, or may be independent of the door lock **111**A, such that the door sensor **111**C communicates with the base station **112** whether an associated door **111** is open or closed. Therefore, the base station **112** may receive information regarding whether the door **111** is in an open or closed position as well as whether the door lock **111**A is engaged or not to lock the door **111** in a closed position.

[0024] In some embodiments, the alarm system further includes one or more outdoor sensors, such as one or more cameras **120**. The outdoor camera **120** is shown as a single element, but may include two or more components, which may be located separately or together at the property **100**. In some embodiments, each camera comprises a motion sensor **121** which may detect motion of persons or objects but not necessarily detect video information, and an imaging device **123** which may detect visual and/or audio information at the property **100**. (Herein, video data refers to visible or optical information and/or audible or sound information.) In some embodiments, the motion sensor **121** may include a passive infrared sensor, ultrasonic sensor or other device that can detect movement and/or the presence of various objects. The signal from such a motion sensor **121** can be used to activate the imaging device **123** if suitable motion has been detected. The outdoor camera **120** can include any suitable components for capturing image data, such as lenses, filters, a CMOS or other imaging device, a microphone to capture sound data that is combined with image data to form video image data, etc. as is known in the art. The outdoor camera **120** can also include one or more software components **122**, such as artificial intelligence features to perform image or sound analysis (such as facial recognition, movement detection, object recognition, etc.) or other processing functions (such as generating MPEG, JPEG or other image data structures, and so on). It should be understood that the components of the outdoor camera **120** shown in FIG. **1** are selected for purposes of explanation and that the outdoor camera **120** can include one or more other components for performing any suitable function. In some embodiments, the outdoor camera **120** may include an image sensor, one or more filters (such as an IR cut filter), optical lens, a motor or other drive to control lens focusing or other operations, a light sensor or other exposure control system (ALS), and other components. As an example, the imaging device **123** can include infrared and/or visible light LEDs or other light emitters that can help illuminate an area at the property **100** for imaging purposes, such as illumination light, ranging or other distance determination, focusing operations, and so on. In some cases, light emitters can be used to illuminate an area near the imaging device **123** without imaging taking place, e.g., the outdoor camera **120** can operate as a spotlight. While example implementations described herein have generally been depicted in the context of wireless cameras, other embodiments are possible, and the beneficial systems and methods herein can be implemented in a variety of other devices that process and transmit data to connected devices,

such as tablets, mobile devices, video gaming systems, communication devices, computer peripherals, audio equipment, etc. Additionally, while some example devices described herein are referred to as wireless, this is not intended to limit the claimed scope to require that no wires can be used to connect the devices to other things. For example, in some cases, some of the techniques and approaches described herein can be implemented in or with devices that receive power by a wired connection but transmit data wirelessly.

[0025] In some embodiments, the imaging device **123** of the outdoor camera **120** may be in a low power mode to conserve battery power in which all components of the imaging device **123** are disabled other than the communications components. In such embodiments, a signal from the motion sensor **121** may trigger imaging device **123** operation to capture image data. The base station **112** may also send an activation signal based on various criteria, such as information received from the property **100** (opening of a door, etc.), or receipt of an activation signal by the base station **112** from the monitoring server(s) **200** and/or user **80**. An activation signal from the monitoring server(s) **200** and/or the user **80** and/or the monitoring can be prompted for various reasons, such as a user wishes to view an area of interest, some condition detected by the monitoring server(s) **200** at the property **100** requires activation of the imaging device **123** (such as inoperability of a network connection between the imaging device **123** and the monitoring server (s) **200**) and others.

[0026] Each outdoor camera **120** may communicate information about detected motion and recordings directly to the base station **112**. Alternatively, or in addition, each outdoor camera **120** may communicate directly to the monitoring server(s) **200**, i.e., without routing the image data through the base station **112**. This can enable faster transmission to the monitoring server(s) **200**, e.g., allowing a user **80** to view real-time video at the property **100**, while freeing the base station **112** from handling any image data flows to the monitoring server(s) **200**. As a result, the base station **112** can be more available for its critical functions, such as detecting alarm events and notifying the monitoring server (s) **200** of them. Where a first network connection between the camera **120** and the monitoring server(s) **200** is inoperable, there may still be a need for at least some video image data to be transmitted to the monitoring server(s) **200**. For example, there can be an alarm condition at the property **100**, such as a detected broken window or forced door opening during a failure of a network connection, and transmission of at least one image frame (or still image) from video image data captured by the imaging device **123** can be useful to determine whether a person is involved with the alarm event and if so, the identity of the person. In some cases, the base station **112** may have a secret alert function where if one or more conditions at the property **100** are detected (e.g., movement around a house), the base station **112** can activate one or more cameras **122** to record and send video image data without notifying authorities or otherwise triggering an alarm state. This may allow a user to be notified of the activity at the property **100** without triggering an alarm state and attendant siren noise, notifying authorities, etc. The base station may also coordinate communications between the outdoor camera **120** and the internal sensor **113** to track the motion of a human or a dangerous event (e.g., fire, smoke, or water) throughout the building **110** and property **100**. As an example, the outdoor camera **120** may identify a human entering a door of the building, and the base station **112** can use indoor sensors to follow movement of the human through the building. The base station **112** may further activate either the outdoor camera **120** or the internal sensor **113** in response to detected signals from either the outdoor camera **120** or the internal sensor **113**. For example, if a glass breakage sensor is set off in the building **110** indicating that a window has been broken, the base station **112** may cause the outdoor camera **120** to record image data near the window, e.g., to verify if the responsible party was a tree branch that may have been moving around the property **100** due to excessive wind conditions, or if the responsible party was a suspicious visitor. The collaboration of the outdoor camera **120** and the internal sensor **113** via the base station **112** may allow the alarm system to more robustly monitor the entire building **110** and property **100** by cross-referencing signals and detected events.

[0027] Image data can be sent from the camera **120** to the base station **112** in different ways, e.g., a wifi network connection through the gateway **10**, the cellular network **20**, or a sub-GHz communications module. A communications link between the camera **120** and the base station **112** for sending image data, or a network connection between the base station **112** and the monitoring server(s) **200** can have a relatively small maximum bandwidth or other ability to send large amounts of data in a rapid fashion. In such case, a portion of the video image data can be selected for sending from the camera **120** to the base station **112** and/or from the base station **112** to the monitoring server(s) **200**.

[0028] In some embodiments, the outdoor camera **120** can identify and select a portion of the motion sensor data or video image data for sending to the user, base station **112** and/or monitoring server **200** based on analysis of the image data. As an example, the software components **122** of the outdoor camera **120** may identify one or more image frames that include a recognizable or recognized face, and send that selected image frame to the user, base station **112** and/or monitoring server **200**. Detected events and related video data can be identified for reporting or other notification in other ways, such as by identifying frames that have a person, animal, pet, object, text, or some other feature that suggests the event should be screened by a person or not, and/or of some other action should be taken such as notifying authorities. In some embodiments, the camera **120** can determine a risk score for each detected event, e.g., that represents a likelihood that the event may be connected to actual or future criminal activity. Risk scores can be used by the camera **120** to determine whether an event is sent to a user of the monitoring server **200** for assessment and/or what video data should be sent. As an example, detection of a known human at a building may prompt the camera **120** to send a single still image of the face of the known human to the user along with a relatively low risk score, whereas detection of an unknown human may prompt the camera **120** to send a longer video clip to the user and the monitoring server **200** along with a relatively high risk score. Events with risk scores over a threshold may require screening by monitoring personnel, whereas lower risk score events may not be screened at all, and/or events may be screened in an order or hierarchy according to risk score (rather than time of detection). Some criteria that can be factored into risk score assignment can include time of day an event is detected, crime statistics in the area local to the outdoor

camera, recognition of a human that is authorized or not to be at the premises, how long an unknown person is detected to be at the premises, whether the event is known or predicted in advance of detection (e.g., a package delivery may be known to be occurring between 4-6 pm and receive a lower risk score than an unexpected delivery), whether a human is detected by multiple outdoor cameras and/or on multiple consecutive days or weeks, whether a human is detected by the outdoor camera along with other sensor data indicative of an alarm event (such as breaking glass), etc. A camera **120** can be configured to assign risk scores to detected events, e.g., using artificial intelligence and/or other data analysis techniques, and can forward or otherwise recommend events along with related video data for screening by monitoring personnel and/or a user along with or based on an associated risk score. Alternately, or in addition, risk scores can be assigned by an alarm base station, monitoring server, a user, or other device or person. Risk scores can be used to rank or otherwise determine an order in which events are screened by monitoring personnel and/or a user, e.g., such that higher risk score events are reviewed by a person before lower risk score events even if the higher risk score events were detected later in time. As an example, a user interface dashboard used by monitoring personnel to screen event data can display higher risk event data in a foreground or otherwise more prominently than lower risk score event data. Risk scores can be used for other purposes, such as whether police and/or other authorities are notified automatically by a computer system, e.g., an event with a risk score over a threshold can cause notification of police before human screening, whether video data or other sensor data is stored and for how long, adjusting a countdown or delay time that a base station employs before entering an alarm state, whether a countdown chime or siren is displayed when a human is detected and before a user responds to a corresponding alert and/or an alarm system is disarmed, and so on. In some embodiments, audio data that is part of the video data can be used to analyze or select one or more image frames, such as a set of images corresponding to a time during which glass breakage is detected, or when a person is heard talking. In other embodiments, the base station **112** can analyze and select one or more image frames from video data received from the camera **120**, whether the camera **120** has sent a full set of image frames or sent a selected set of images to the base station **112**. The software components of the base station **112** may use image analysis or any other suitable technique to identify portions of video image data for sending to the monitoring server(s) **200**.

[0029] The software components **122** of the outdoor camera **120** may also determine whether a detected signal from the motion sensor **121** at the property **100** is from a human visitor or not, and based on the analysis, adjust the frequency of activation events and/or video data captured and sent for review by the user, monitoring server(s) **200** or the base station **112**. The software components **122** of the outdoor camera **120** may further distinguish the source of the detected motion by the motion sensor **121** and video data collected by the imaging device **123** by using artificial intelligence features and certain logical operations. For example, the software components **122** of the outdoor camera **120** may be able to recognize that a visitor at the property **100** is a delivery person based upon the external recognition of the visitor and the path that the visitor takes at the property and not report the event to the base station **112** during the daytime. The decision not to report may be based on a relatively low risk score assigned to the event by the camera **120**. However, if such an event occurred at night the software components **122** of the outdoor camera **120** may flag the event (e.g., with a relatively high risk score) and notify the user, base station **112** or the monitoring server(s) **200**, e.g., because such visitors are less likely at night. As another example, the outdoor camera **120** may be aware of the weather at the property **100** due to information passed on by the base station or sensors embedded in the outdoor camera **120**. With this environmental information, the outdoor camera **120** may raise a higher priority alert to the base station **112** if a person is detected with an umbrella at property on a sunny day versus a rainy day, when it is more likely that visitors may be carrying umbrellas. The classification of events by the software components of the outdoor camera **120** also may enhance the privacy of the alarm system by reducing the total amount of recordings transferred over wireless connections to the base station **112** or the monitoring server(s) **200**. The camera may retain information (such as image video and/or audio from the imaging device **123** or motion signals from the motion sensor **121**) from events that do not trigger review (e.g., because of a low risk score) by the user, base station **112** or the monitoring server(s) **200** in an encrypted local storage drive, which may be accessible at a later date for further review or reference.

[0030] The software components **122** of the outdoor camera **120** may further be able to distinguish whether the human visitor at the property **100** is a known visitor, using facial recognition or geo-fencing capabilities, wherein signals from the known visitor's location-aware device, for example a cellular telephone, may be cross-referenced with a list of approved visitors by the user **80** and would trigger a different response to the base station **112** than an unknown visitor. By conducting at least some image analysis at the source of the detection, for example at the outdoor camera **120** by the software components **122**, the alarm system may filter out many of the false positives of the detected events associated with monitoring an outdoor property, which may be exposed to more visitors than an indoor property, such as the inside of a house. Moreover, by reporting events along with and/or based on a risk score that attempts to categorize the event according to risk of criminal activity or risk to life and property, the camera **120** can help ensure that higher risk events are reported and/or screened more rapidly and have suitable and prompt emergency response.

[0031] The alarm system may also include a keypad **114** to provide information to and/or receive information from the base station **112**. For example, the keypad **114** may have a number pad or other arrangement to allow a user to enter an alphanumeric string or other code to the base station **112**, e.g., to place the base station **112** in an armed or disarmed state, to configure the alarm system in one or more ways, to silence or initiate an alarm state, to communicate with the monitoring server(s) **200** and/or authorities communication devices **300**, to provide a code to the door lock **111**A to unlock an entry door, etc. As an example, if a user enters the building **110** while the alarm system is in an armed state, the user may employ the keypad **114** to enter an entry code or other information to prevent the alarm system from indicating an alarm state, e.g., in which authorities are notified of an alarm condition. One or more keypads **114** may be provided within or outside of the building **110**, as desired. In addition, or alternately, a user may interact with the base

station **112** via the user device **80**, e.g., a keypad **114** may be implemented via a user interface on the user device **80**.

[0032] In some embodiments, the alarm system may be arranged to enter an armed state and a door lock **111**A engaged to lock an associated door **111** in response to a user pressing a single button, e.g., on a keypad **114**, and/or in response to use of a specific code, e.g., to gain access to the building **110** or property **100**. As an example, a user may press a single button on a keypad **114** after entering the property **100** so that the base station **112** enters an armed state (e.g., a home mode) and one or more door locks **111**A are engaged to lock their associated doors **111** in a closed position. Where door locks **111**A are not fully integrated with the alarm system, the base station **112** may send a signal to the door lock(s) **111**A at the property **100** instructing the door lock(s) **111**A to engage to lock their associated doors **111** in response to button press on the key pad **114**. Such a signal may be sent directly from the base station **112** to the door lock(s) **111**A, or via the monitoring server(s) **200**, lock server **111**, and/or other devices via any set of suitable communication channels. Such an arrangement may allow a user to easily and rapidly re-arm an alarm system as well as lock any unlocked doors in a single action.

[0033] As another example, a user may enter a particular code into a keypad **114** to gain access to the property **100** (e.g., to place the base station **112** in a disarmed state so doors can be opened without triggering an alarm condition and/or to unlock an entry door) and thereafter the base station **112** may automatically enter an armed state and one or more door locks **111**A may automatically engage to lock their respective doors **111**. These rearming and lock engagement features may be activated automatically without further action required by the user and may allow for easier and more foolproof arming of an alarm system and locking of doors for particular users. As an example, a child may be associated with a specific code to gain access to a property **100**. Thus, the child may use the code, e.g., with a keypad **114**, keyfob, or user device **80**, to cause the base station **112** to enter a disarmed state and/or to unlock an entry door **111** so the child can enter the property **100** without triggering an alarm condition. Thereafter, the base station **112** may enter an armed state and door locks **111**A may engage to lock respective doors **111**, e.g., after a period of time has elapsed since the code was used, after a door **111** was opened and closed by the entering child, or other condition that indicates the child has entered the building **110** and the alarm system can be rearmed and doors locked. This may help ensure that an alarm system is armed and doors locked after a child has returned home, thereby avoiding any potential problem that a child may forget to lock doors and rearm the alarm system. Of course, these features may be employed for any user, regardless of the user's age.

[0034] As another example, use of a single button by a user whether on a keypad **114**, user device **80** or other user interface with the base station **112** or door lock **111**A may allow a user to more simply and reliably both arm an alarm system and lock doors of a property **100**. This feature may be particularly useful if door locks **111**A at the building **110** are not fully integrated with the alarm system. That is, door locks **111**A may be provided separately from an alarm system, and may be operated independently of the alarm system. For example, a user may enjoy regular use of remote activated door locks **111**A via a user device **80** and the lock server **111**B, but may use an alarm system less frequently. Thus, a user may interact with the alarm system less than the door lock system, and the door lock system may have a completely separate interface (whether on the user device **80** or other interface) than the alarm system. By providing the user with a single button to both arm an alarm system and lock building doors, the user may be ensured that both functions are employed. As an example, the user interface on the user device **80** for the door lock **111**A (or the alarm system) may include a single button (via touch screen or other interface like a keypad **114**) that a user can activate to arm the alarm and lock doors. The user may receive feedback from the base station **112** and the door locks **111**A that the alarm system is suitably armed and doors locked, all in response to a single action by the user.

[0035] FIG. **2** is a diagrammatic flow chart depicting some embodiments of the alarm system in the disarmed state. In some embodiments, when the base station **112** has entered a disarmed state **400** by command of a user device **80**, the outdoor camera **120** may enter a disarmed mode of operation **410**. In this disarmed mode of operation **410**, the outdoor camera **120** may continue to monitor for activity **420** at the property **100** but only notify the base station **112** of the activity if it has been deemed suspicious **450**, e.g., is assigned a risk score over a threshold. The outdoor camera **120** may continue to recognize activity related to debris blown through the property by wind or wild animals and/or pets, **444** but only capture image video data and/or notify the user if the detected event has passed a threshold of urgency as determined by the disarmed mode of operation. For example, if the outdoor camera **120** detects a large tree branch at the property but recognizes that the tree branch is moving erratically due to known environmental condition (for example excessive wind), the outdoor camera **120** may alert the user or base station **112**. The outdoor camera **120** may also continue to monitor for human activity **431** at the property **100**, but may use its software capabilities **122** to reduce the number of reported events of normal human activity to the base station **112**. For example, if the base station **112** is in a disarmed state while the user and known personnel (e.g., family) are traversing the property **100**, the outdoor camera **120** would not notify the user or base station **112** of humans **460** at the property **100**. In this example, the outdoor camera **120** may not report the known humans at the property due to any combination of the following: the recognition of their faces, the sensing of their devices via geofencing, or lack of suspicious movement or behavior.

[0036] However, even when the base station **112** is in a disarmed state, the outdoor camera **120** may continue to report suspicious human behavior which may pose a threat, characterized by erratic or urgent behavior, to the base station **112**. For example, the outdoor camera **120** would use the software capabilities **122**, which may include tracking, to recognize if an unknown human at the property **100** is just passing by on the sidewalk or if the unknown human is lurking or suspiciously moving around the property **100**. Additionally, the outdoor camera **120** may report known human detection events to the base station **112** or the monitoring server(s) **200** if a known human (recognized by the software capabilities **122** of the outdoor camera **120**) is exhibiting unexpected behavior. For example, the outdoor camera **120** would use the software capabilities **122**, which may include tracking, to recognize if the known human is exhibiting behaviors that necessitate medical attention, for example a heart attack or a serious fall. Furthermore, if the

base station **112** is in a disarmed state, the outdoor camera **120** may still notify the base station **112** of urgent external events **443**, for example, fires, falling trees, gunshots, or an automobile accident at the property **100**. Depending on the urgency of the detected event, either the base station **112** or the outdoor camera **120** may report the event to the monitoring server(s) **200** and/or the user device **80**. Such reporting can be accompanied by a risk score assigned by the camera **120**, and a user and/or personnel at the monitoring server **200** may be prompted to review or otherwise screen event data according to the risk score, e.g., with higher risk score events being reviewed before lower risk score events.

[0037] FIG. **3** is a diagrammatic flow chart depicting some embodiments of the alarm system in the armed state. In some embodiments, when the base station **112** has entered an armed state **500** by command of a user device **80**, the outdoor camera **120** may enter an armed mode of operation **510**. In this armed mode of operation **510**, the camera may report any human or non-human activity at the property **100**. The outdoor camera **120** may continue to recognize non-urgent and non-human activity at the property **100**, e.g., related to debris blown through the property by wind, wild animals and/or pets, **544** but only capture image video data and/or notify the base station or user if the detected event has passed a threshold of urgency as determined by the armed mode of operation, e.g., if the event is assigned a risk score over a threshold. However, if the outdoor camera **120** has recognized human activity at the property **100**, the software capabilities **122** of the outdoor camera **120** may provide further information to the base station **112** in combination with image data from the imaging sensor **123**. For example, the software capabilities **122** of the camera may be able to detect if the visitor is human **531** and whether the human is known **542** or unknown **541**, as described previously.

[0038] If the human visitor is determined to be known **542**, then the outdoor camera **120** communicates the distinction of a known visitor to the user or base station **112**, e.g., along with a corresponding risk score for the event. The base station may then employ a first delay **552** from when the known human was detected before communicating the detected event to the monitoring server(s) **200** or the user device **80**, or employ the first delay to allow a user to respond to an alert regarding the recognized human. As an example, the first delay may be employed from when a door is opened at the building until the alarm system is disarmed. During this first delay, the user or known human can have the opportunity to disarm the alarm system **580**, which may occur by entering a particular code into the keypad **114** or by disarming the alarm system by a user interface on the user device **80**, so that an alarm state is not entered and/or the monitoring server(s) **200** are not notified **570**. The first delay may be between 30 seconds and one minute, for example. The camera **120** or other part of the alarm system can display a countdown chime or other audible and/or visual message that indicates that the first delay has been implemented. If the user does not or is not able to disarm the alarm system or otherwise respond to an alert in the allotted first delay, then an alarm state may be entered and an alert may be passed on **560** to the monitoring server(s) **200**. Alternatively, the alert may be communicated simultaneously to the user **80** and the monitoring server(s) **200** for efficiency. The monitoring server(s) **200**, e.g., personnel at the monitoring server, may communicate with the known human visitor at the property **100** to determine the reason why the alarm system had not been disarmed in the allotted time or take other suitable action. For example, the known human visitor may have entered the property **100** carrying a damaged box that spilled its contents right as the known human visitor was about to disarm the alarm system. With the attention of the known human visitor now turned to the spillage, the first delay may have passed without any disarming of the system. At this point, the user or monitoring server(s) **200** may be notified by the base station **112** and may use a speaker and microphone or other means of communication to directly communicate with the visitor at the property to verify the situation and disarm the alarm system. Alternatively, the user or monitoring server(s) **200** may use the speaker or microphone with the outdoor camera **120** to determine that the known human visitor did not disarm the alarm system during the first delay due to an urgent medical condition. The monitoring server(s) **200** may then alert the appropriate emergency response. As described previously, the outdoor camera **120** may alternatively be able to determine if the human visitor is exhibiting unexpected behavior and directly communicate the detected event to the base station **112** or the monitoring server(s) **200** based on the urgency of the detected event.

[0039] FIG. **4** is a diagrammatic flow chart depicting some embodiments of the alarm system in the armed state responding to an unknown human visitor. If the human visitor is determined to be unknown by the outdoor camera **541**, then the outdoor camera **120** communicates the distinction of an unknown visitor to the base station **112**, e.g., along with a relatively high risk score. The base station may then employ a second delay **551** from when the known human was detected before communicating the detected event to the monitoring server(s) **200** or the user device **80**, or communicate the event to the user and employ the second delay for response from the user to the alert and/or disarming of the alarm system. As an example, the second delay may be employed from when a door is opened at the building until the alarm system is disarmed. During this second delay, the user or unknown human has the opportunity to disarm the alarm system **580**, which may occur by entering a particular code into the keypad **114** or by disarming the alarm system by a user interface on the user device **80**, so that the user or monitoring server(s) **200** are not notified **570**. The second delay may be shorter than the first delay and may be between 15 seconds and one minute, for example. The camera **120** or other portion of the alarm system can display a countdown chime or other indication that the second delay has been implemented. If the unknown human visitor does not or is not able to disarm the alarm system in the allotted first delay, then an alert may be passed on **560** to the user or monitoring server(s) **200**. Alternatively, the alert may be communicated simultaneously to the user **80** and the monitoring server(s) **200** for efficiency. The user and/or personnel at the monitoring server **200** can be prompted to review the event data according to a risk score assigned by the camera **120**, base station **112**, monitoring server **200** and/or user, e.g., so higher risk score events are reviewed before lower risk score events. The user or monitoring server(s) **200** may use a speaker and microphone or other means of communication to directly communicate with the visitor **561** at the property to verify the situation and disarm the alarm system or alert the appropriate emergency response **310**. For example, if an unknown human visitor trespasses the property **100** or otherwise attempts to enter the building **110** for

longer than the second delay when the alarm system is in the armed state, then the camera **120**, base station **112** and/or monitoring server(s) **200** may provide visual and audible warnings to the unknown human visitor to vacate the premise. Depending on the information received from the outdoor camera **120**, the monitoring server(s) **200** may choose to alert the appropriate emergency response **310** without communicating with the unknown human visitor. Alternatively, the initiation of the emergency response may be accompanied with activation of a siren **115** shown in FIG. **1** at the property **100**, which may make audible sounds such as to indicate an alarm condition and/or display emergency lighting at the property **100**.

[0040] If the unknown human visitor enters the building without disarming the alarm system (for example, by breaking a window), then the internal sensor **113** may be able to coordinate with the outdoor camera **120** through the base station **112** to determine the path of the unknown human visitor **562** throughout both the property **100** and the building **110**. If the outdoor camera **120** had not captured the unexpected entry of the unknown human visitor to the building **110**, then communication with the base station **112** and the internal sensor **113** may provide information about where the unknown human visitor would exit the building **110**, and the outdoor camera **120** may then be able to capture more information about the unknown human visitor in case the authorities do not arrive at the property **100** in time to catch the unknown human visitor. Alternatively, the coordination between the internal sensor **113** and the outdoor camera **120** may provide detailed information to the monitoring server(s) **200** that may be passed on to the authorities communication device **300** so that the authorities may know more precisely where in the building **110** or property **100** the unknown human visitor may be located.

[0041] In any embodiment, the first delay is longer than the second delay based upon the recognition of known human visitors by the software capabilities **122** of the outdoor camera **120** and/or based on different risk scores assigned to the two events. When the human visitors are known, the alarm system provides more time to disarm and/or more time before the monitoring server(s) **200** are notified than when the human visitors are unknown. The reduction of alerts to the monitoring server(s) **200** is facilitated by the analysis and filtering abilities of the software capabilities **122** of the outdoor camera **120**. When the human visitors are unknown, the alarm system provides a shorter delay to disarm and/or less time before the monitoring server(s) **200** are notified as there is a higher likelihood of danger for the property **100**. In all embodiments, the user **80** may disarm any alert or request an appropriate emergency response during either the first delay or the second delay or after an alert has been passed on to the monitoring server(s) **200**.

[0042] For any state of the alarm system (for example armed or disarmed), certain sensors and capabilities of the internal sensor **113** and the outdoor camera **120** may be continuously active. For example, sensors relating to water damage, fire, and glass or window breakage may be active regardless of whether the alarm system is armed or disarmed.

[0043] Each of the components in FIGS. **1-4** may be implemented, at least in part, by a suitably programmed computer or other data processor, and may be employed in the form of software modules, ASICs, programmable arrays, or any other suitable arrangement, in addition to hardware components. For example, computer-implemented portions of the base station **112**, door lock **111**A, monitoring server(s) **200**, authorities communication devices **300**, lock server **111**B, etc. may be implemented at least in part as single special purpose integrated circuits (e.g., ASICs), or an array of ASICs, each having a main or central processor section for overall, system-level control and separate sections dedicated to performing various different specific computations, functions and other processes under the control of the central processor section, as a plurality of separate dedicated programmable integrated or other electronic circuits or devices, e.g., hardwired electronic or logic circuits, such as discrete element circuits or programmable logic devices, as a programmed general purpose computer and/or other data processing device along with suitable software or other operating instructions, one or more memories (including non-transient storage media that may store software and/or other operating instructions), and so on. The devices may also include other components, such as an information display device, user input devices (such as a keyboard, user pointing device, touch screen or other user interface), data storage devices, communication devices, a power supply for the control circuitry and/or other system components, temperature and liquid level sensors, pressure sensors, RFID interrogation devices or other machine readable indicia readers (such as those used to read and recognize alphanumeric text, barcodes, security inks, etc.), video recording devices, speakers or other sound emitting devices, input/output interfaces (e.g., such as the user interface to display information to a user and/or receive input from a user), communication buses or other links, a display, switches, relays, triacs, motors, mechanical linkages and/or actuators, or other components necessary to perform desired input/output or other functions.

[0044] While aspects have been described with reference to various illustrative embodiments, such aspects are not limited to the embodiments described. Thus, it is evident that many alternatives, modifications, and variations of the embodiments described will be apparent to those skilled in the art. Accordingly, embodiments as set forth herein are intended to be illustrative, not limiting.

1. A method, comprising:
receiving, by a computing system, data acquired by a camera monitoring a property;
determining, by the computing system and using the data, that a visitor on the property is a delivery person based on at least one external feature of the visitor; and
causing, by the computing system, a notification to be sent to an endpoint device based at least in part on the visitor having been determined to be a delivery person.

2. The method of claim **1**, further comprising:
performing, by the computing system, recognition processing using the data to recognize the at least one external feature of the visitor.

3. The method of claim **2**, wherein the recognition processing includes facial recognition processing.

4. The method of claim **1**, further comprising:
determining, by the computing system, a path that the visitor takes at the property;
wherein determining that the visitor is a delivery person is based at least in part on the path.

5. The method of claim **1**, wherein the computing system is a component of the camera.

6. The method of claim 1, further comprising:

determining, based at least in part on the visitor having been determined to be a delivery person, a risk score;

wherein causing the notification to be sent to the endpoint device is based at least in part on the risk score.

7. The method of claim 6, wherein the risk score is further based on a time of day.

8. A system, comprising:

one or more processors; and

one or more computer-readable mediums encoded with instructions which, when executed by the one or more processors, cause the system to:

receive data acquired by a camera monitoring a property;

determine, using the data, that a visitor on the property is a delivery person based on at least one external feature of the visitor; and

cause a notification to be sent to an endpoint device based at least in part on the visitor having been determined to be a delivery person.

9. The system of claim 8, wherein the one or more computer-readable mediums are further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

perform recognition processing using the data to recognize the at least one external feature of the visitor.

10. The system of claim 9, wherein the recognition processing includes facial recognition processing.

11. The system of claim 8, wherein the one or more computer-readable mediums are further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

determine a path that the visitor takes at the property; and

determine that the visitor is a delivery person based at least in part on the path.

12. The system of claim 8, wherein the one or more computer-readable mediums are further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

determine, based at least in part on the visitor having been determined to be a delivery person, a risk score; and

cause the notification to be sent to the endpoint device based at least in part on the risk score.

13. The system of claim 12, wherein the one or more computer-readable mediums are further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

determine the risk score further based on a time of day.

14. One or more non-transitory computer-readable mediums encoded with instructions which, when executed by one or more processors of a system, cause the system to:

receive data acquired by a camera monitoring a property;

determine, using the data, that a visitor on the property is a delivery person based on at least one external feature of the visitor; and

cause a notification to be sent to an endpoint device based at least in part on the visitor having been determined to be a delivery person.

15. The one or more non-transitory computer-readable mediums of claim 14, further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

perform recognition processing using the data to recognize the at least one external feature of the visitor.

16. The one or more non-transitory computer-readable mediums of claim 15, wherein the recognition processing includes facial recognition processing.

17. The one or more non-transitory computer-readable mediums of claim 14, further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

determine a path that the visitor takes at the property; and

determine that the visitor is a delivery person based at least in part on the path.

18. The one or more non-transitory computer-readable mediums of claim 14, further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

determine, based at least in part on the visitor having been determined to be a delivery person, a risk score; and

cause the notification to be sent to the endpoint device based at least in part on the risk score.

19. The one or more non-transitory computer-readable mediums of claim 18, further encoded with additional instructions which, when executed by the one or more processors, further cause the system to:

determine the risk score further based on a time of day.

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