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(54) **ALARM SYSTEM AND METHOD OF OPERATION**

ALARMSYSTEM UND VERFAHREN ZUM BETRIEB

SYSTÈME D'ALARME ET PROCÉDÉ DE FONCTIONNEMENT

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EP 3 621 045 B1

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Description

Technical Field

[0001] The present disclosure relates to an alarm system and a method of operating an alarm system.

Background

[0002] Alarm or security systems for detecting and notifying intrusion into a building or the like are common. Historically, a user (that is, a bona fide or authorised user) had to manually disable the alarm system, for example by manually entering a code into a number pad of the alarm system, when entering the building to prevent the alarm system triggering an alert. More recently, alarm systems are known that are automatically disabled when the presence of a user device that is registered with the alarm system is detected by the alarm system

[0003] US8494481 B1 discloses a method for responding to alarm using e.g. mobile alarm device, by responder in site through network, involves escalating alarm if responder accepting call message has not cleared alarm within predetermined time period.

[0004] US2018025617 A1 discloses a method of providing series of user designated distributed responses based upon alarm state.

[0005] US9179107 B1 shows a method of using a doorbell system to emit a sound by a remote computing device that is communicatively coupled to the doorbell and remotely located with respect to the doorbell.

Summary

[0006] The invention is defined by the appended claims.

[0007] According to a first aspect disclosed herein, there is provided a method of operating an alarm system, the alarm system having registration information for a user device stored such that the user device is registered with the alarm system, the method comprising the alarm system:

receiving a motion detection signal which indicates detection of motion within a region monitored by the alarm system;
transmitting a notification to the registered user device upon receiving the motion detection signal, the notification being such as to cause the registered user device to play a sound; and
disabling the generation of an alarm in the case that the sound played by the registered user device is detected by the alarm system.

[0008] In an example, the alarm system knows what sound should be played back by the registered user device and disables the alarm only if that sound is detected.

[0009] It should be noted that in some examples, dis-

abling the generation of an alarm may mean that for example an alarm that is already being generated is caused to stop. On the other hand, in some examples, disabling the generation of an alarm may mean that no alarm is generated in the first place. The "alarm" may be one or more of an audible alarm, a visual alarm and an intrusion notification which is sent to one or more specific user devices or some security monitoring organisation say.

[0010] In an example, successive notifications transmitted to the registered user device are such as to cause the registered user device to play different respective sounds.

[0011] This helps to avoid spoofing by malicious users. It also helps to avoid or at least minimise the chances that the sound that the registered user device is instructed to play back (coincidentally) being the same as other sounds being played by other user devices that happen to be in the locality.

[0012] In an example, the alarm system causes an alarm to be generated in the case that the alarm system does not detect the instructed sound being played within a predetermined period of time following the transmitting of the notification.

[0013] That is, in this example the alarm system waits a while following transmission of the notification before deciding whether or not the alarm should be generated.

[0014] In an example, the registered user device is a cellular network device and the notification to the registered user device is transmitted over a cellular network.

[0015] This can be useful in the case that the registered user device does not have say WiFi or Bluetooth functionality, or if for example the user of the registered user device has switched off such functionality as commonly the user will still have left the cellular functionality still switched on.

[0016] In an example, the alarm system resets after a predetermined period of time following disabling the generation of an alarm and in the absence of receiving a motion detection signal during said predetermined period of time.

[0017] According to a second aspect disclosed herein, there is provided an alarm system, the alarm system comprising:

data storage for storing registration information for a user device such that the user device is registered with the alarm system;
the alarm system being configured to:

cause a notification to be transmitted for receipt by a registered user device upon the alarm system receiving a motion detection signal which indicates detection of motion within a region monitored by the alarm system, the notification being such as to cause a said registered user device to play a sound; and
disable the generation of an alarm in the case that said sound played by a said registered user

device is detected by the alarm system.

[0018] In an example, the alarm system is arranged such that successive notifications transmitted to a registered user device are such as to cause a said registered user device to play different respective sounds.

[0019] In an example, the alarm system is arranged to cause an alarm to be generated in the case that the alarm system does not detect the instructed sound being played within a predetermined period of time following the transmitting of the notification.

[0020] In an example, the alarm system is arranged such that the notification to a registered user device is transmitted over a cellular network for receipt by a registered cellular network device.

[0021] In an example, the alarm system is arranged to reset after a predetermined period of time following disabling the generation of an alarm and in the absence of receiving a motion detection signal during said predetermined period of time.

[0022] In an example, the alarm system comprises or is in communication with a motion detector for detecting motion within a region monitored by the alarm system.

[0023] In an example, the alarm system comprises or is in communication with a microphone or other sound transducer for detecting sounds within a region monitored by the alarm system.

Brief Description of the Drawings

[0024] To assist understanding of the present disclosure and to show how embodiments may be put into effect, reference is made by way of example to the accompanying drawings in which:

Figure 1 shows schematically an example of an alarm system and a user and user device outside the region monitored by the alarm system; and

Figure 2 shows schematically the alarm system and user and user device of Figure 1 inside the region monitored by the alarm system.

Detailed Description

[0025] As mentioned, alarm or security systems for detecting and notifying intrusion into a building or the like are common. Historically, a (bona fide or authorised) user had to manually disable the alarm system when entering the building to prevent the alarm system triggering an alert. More recently, alarm systems are known that are automatically disabled when the presence of a user device that is registered with the alarm system is detected by the alarm system. In such known systems, the alarm system detects the presence of the registered user device by virtue of the alarm system and the registered user device communicating directly with each other using a local wireless connection, such as for example WiFi,

Bluetooth, RFID (Radio-frequency identification), etc. However, not all user devices have such local wireless functionality. Alternatively, the user device may have the required local wireless functionality but the user may have switched it off (especially in the case of WiFi and Bluetooth say), for example to save battery life for the user device or simply inadvertently or not realising that it is required for proper operation of such alarm systems.

[0026] In examples described herein, an alarm system receives a motion detection signal which indicates detection of motion within a region monitored by the alarm system. The alarm system transmits a notification to a registered user device upon receiving the motion detection signal. The notification causes the registered user device to play a sound. The alarm system disables the generation of an alarm in the case that the sound played by the registered user device is detected by the alarm system. In an example, the alarm system "knows" what specific sound should be played back by the registered user device and disables the alarm only if that specific sound is detected.

[0027] Referring now to Figure 1, this shows an example of an alarm system 10 and a user 30 and a user device 32 outside the region 12 being monitored by the alarm system 10. The alarm system 10 is shown as monitoring a house 12. Other regions 12 that may be monitored include in general any building or a specific room or specific rooms within a building, open areas outside buildings, etc.

[0028] The alarm system 10 has a processor and data storage (not shown) for storing at least registration information for one or more user devices 32 that are registered with the alarm system 10 and for storing a computer program for operation of the alarm system 10. In the example shown, the alarm system 10 also has an alarm 14, which can output an audible alarm or siren and/or a visible light to indicate that the alarm system 10 has been triggered. Alternatively or additionally, the alarm system 10 may send a notification that the alarm has been triggered to some central security monitoring system, which may be provided locally or remotely as part of a security system for the building or other region 12 which is being monitored. As discussed further below, the alarm system 10 is also capable of sending notifications to one or more user devices 32 that are registered with the alarm system 10.

[0029] The alarm system 10 includes or is connected to receive signals from one or more motion detectors 16. The or each motion detector 16 can detect motion within the region 12 monitored by the alarm system 10 and operates to output a corresponding signal to the alarm system 10 to notify the alarm system 10 that motion within the region 12 has been detected. The or each motion detector 16 may be connected to the alarm system 10 via wired and/or wireless connections. The motion detector(s) 16 may be for example door or window sensors, which detect that a door or window has been opened, using for example a combination of a reed switch and a

magnet or other suitable arrangement. Alternatively or additionally, the motion detector(s) 16 may be active sensors which emit energy (e.g. light, including for example microwave, or sound) into the environment in order to detect a change of some kind when the light or sound is interrupted. Alternatively or additionally, the motion detector(s) 16 may be passive sensors, such as for example PIR (passive infrared) detectors which detect infrared being emitted by an intruder. As another example, the motion detector(s) 16 may detect sound in the region 12 being monitored. Other types of motion detector 16 may be used.

[0030] The alarm system 10 also includes or is connected to receive signals from one or more microphones 18 or other sound transducers which are located to detect sound in the region 12 monitored by the alarm system 10. The or each microphone 18 may be connected to the alarm system 10 by wired and/or wireless connections. One or more microphones 18 may be provided as part of a motion detector 16 and/or may be provided separately in the region 12. So-called digital home assistants (such as "Alexa" by Amazon and Google "Home") often have microphones for receiving voice input, and they may be used as the microphone 18 or one of the microphones 18 which are used in conjunction with or part of the alarm system 10 described here.

[0031] The user device 32 has a processor and data storage (not shown) for storing at least a computer program that enables the user device 32 to interact with the alarm system 10 as described herein. The user device 32 may be a wireless device, that is, a device that is capable of connecting wirelessly to a network. The user device 32 may have for example connectivity for a cellular network, such as a so-called 2G, 3G, 4G, 5G (second, third, fourth, fifth generation), etc. or other cellular network. The user device 32 may also have connectivity for direct wireless communications with another device, via for example WiFi and/or Bluetooth, etc. The user device 32 also has a loudspeaker or other audio output device 34 via which the user device 32 can play back sounds.

[0032] The user device 32 may be a mobile, battery-powered device. In general, the user device 32 may be a mobile or cell phone (including a so-called "smart phone"), a personal digital assistant, a pager, a tablet or laptop computer, a wearable communication device (including so-called "smart watches"), a content-consumption or generation devices (for music and/or video for example), etc. Here, a smart phone is a mobile (cellular) phone with an operating system and an integrated mobile broadband cellular network connection for voice and data communication. A smart phone typically enables the user to have Internet access and typically includes a Web browser and one or more of Wi-Fi connectivity and Bluetooth connectivity. The term "user equipment" or UE is often used to refer to wireless devices in general, and particularly mobile wireless devices.

[0033] In use, the user 30 first registers the user device 32 with the alarm system 10 such that the alarm system

10 can send signals, including particularly notifications, to the registered user device 32. For example, the user 30 can store a telephone number or some other contact or identification information for the user device 32 with the alarm system 10. The alarm system 10 may require a password to be entered to control access to the alarm system 10 as a whole and to control access to the registration details for the registered user device 32. Separate passwords may be required to enable access to the alarm system 10 as a whole and for the or each registered user device 32.

[0034] Once the user device 32 is registered with the alarm system 10, the alarm system 10 in an example operates as follows.

[0035] In the case that the alarm system 10 detects motion within the region 12 being monitored, for example by virtue of the or one of the motion detectors 16 detecting motion within the region 12 and sending a motion detection signal to the alarm system 10, the alarm system 10 transmits a notification for receipt by the user device 32.

[0036] In the case that the registered user device 32 is a cellular device, the notification may be transmitted by the alarm system 10 to the user device 32 over a cellular network. This has the advantage that in practice a user may have switched off other, local wireless connectivity for the user device 32, such as WiFi or Bluetooth, or the user device 32 may not have such local wireless connectivity in the first place, but in practice is likely to have cellular connectivity switched on on the user device 32. Nevertheless, in other examples the notification may be transmitted by the alarm system 10 to the user device 32 over a local wireless connection, such as for example WiFi or Bluetooth, etc., either instead of or in addition to transmitting the notification over a cellular network. For this purpose, the user may record with the alarm system 10 details of wireless connectivity options that are available for the user device 32 when the user registers the user device 32 with the alarm system 10 so that the alarm system 10 knows which options are available to send notifications to the registered user device 32 and can transmit the notification accordingly.

[0037] When received by the user device 32, the notification transmitted by the alarm system 10 causes the user device 32 to play back a sound via the speaker 34 or other audio output device 34. The notification may also cause a visible indication, such as a warning message or the like, to be displayed on a display screen of the user device 32. Alternatively or additionally, the alarm system 10 may send a separate notification to be sent to the user device 32 to cause a visible indication to be displayed on the display screen of the user device 32.

[0038] If the user device 32 is outside the region 12 being monitored, as indicated schematically in Figure 1, the sound being played back by the user device 32 may simply act as a notification to the user 30 that movement in the region 12 has been detected, indicating a possible intrusion into the region 12. The user 30 may then take some appropriate action.

[0039] On the other hand, if the user device 32 is inside the region 12 being monitored when a notification 38 that causes sound to be output by the user device 32 is received, as indicated schematically in Figure 2, the sound 36 being played back by the user device 32 may be picked up by the microphone 18 or one of the microphones 18, which relays the detected sound to the alarm system 10. In this case, the alarm system 10 recognises the sound being played back by the user device 32. The alarm system 10 therefore "knows" that the user device 32 and, by implication, the user 30 are in the region 12 being monitored, or, at the very least, are in very close proximity to the region 12 being monitored. In the case that the alarm system 10 recognises the sound being played back by the user device 32, the alarm system 10 disables generation of an alarm by the alarm system 10. In this regard, in the case that for example an audible and/or visible alarm is currently being generated by the alarm system 10, which may occur immediately that motion is detected as reported to the alarm system 10 by a motion detector 16, disabling generation of an alarm may cause the audible and/or visible alarm to be stopped. In another example, this may prevent an audible and/or visible alarm being generated in the first place and/or may prevent a notification being sent by the alarm system 10 to some central security monitoring system, as the case may be. The alarm system 10 may operate a timer such that an alarm is only generated some time, such as a few seconds or tens of seconds, after motion is detected, such that a false alarm can be prevented if play back of the sound by the user device 12 is detected within that predetermined period of time.

[0040] In any event, in this way the alarm system 10 learns whether the user device 32, and therefore by implication the user 30, is in the region 12 and can prevent or stop an alarm being generated if so. The user 30 does not have to manually disarm the alarm system 10 on entering the region 12. This also overcomes the problem that the user 30 may simply have forgotten to disarm the alarm system 10. In the case that the alarm system 10 uses a first wireless connection connectivity, such as connectivity for a cellular network, for sending the notification to the user device 32, this avoids the problem that some known systems have of using a different wireless connection connectivity, such as connectivity for direct wireless communications such as for example WiFi and/or Bluetooth, etc. for recognising the presence of the user device 32 given that the user 30 may have switched off such different wireless connection connectivity or it may not be present on the user device 32 in the first place.

[0041] Moreover, the play back of the sound by the user device 32 may act as a prompt or reminder for the user 30 to properly disarm the alarm system 10 whilst the user 30 is on the premises or in the region 12 being monitored.

[0042] In some examples, successive notifications sent by the alarm system 10 to cause the user device 32 to play back a sound may be such that different sounds

are played back by the user device 32 on receipt of the respective notifications. For example, the different sounds may have one or more of a different tone or pitch, different plural pitches (as in a musical chord), different duration, different succession of notes, such as a number of short "beeps" followed by a number of long "beeps", etc., etc. In such a case, the alarm system 10 notes the sound that the notification should cause the user device 32 to play back and only disables generation of the alarm if that specific sound is heard via the microphone(s) 18 and recognised by the alarm system 10. This helps to avoid spoofing by malicious users, such as unauthorised intruders, who may have devices that can play back sounds and attempt to disable the alarm system 10 by playing back sounds. This also helps to avoid or at least minimise the chances that the sound that the registered user device 32 is instructed to play back (coincidentally) is the same as other sounds being played by other user devices that happen to be in the region 12 or locality. There may be for example a library of sounds effectively stored by the user device 32 and the alarm system 10 may select different sounds from the library from its own record of the available sounds. The alarm system 10 may select different sounds from the library randomly or in a specific sequence.

[0043] In an example, if the generation of an alarm has been disabled by the alarm system 10 upon hearing an expected sound being played back by the registered user device 32, then the alarm system 10 may reset itself after a predetermined period of time such that the alarm system 10 is "on" and enabled again to detect intrusion into the region 12. In such a case, the alarm system 10 may reset itself after the predetermined period of time only in the absence of receiving a motion detection signal from a motion detector 16 during that predetermined period of time. This can be useful in the case that the user 30 has set the alarm system 10 on to detect an intrusion but has re-entered the region 12 being monitored: the alarm system 10 causes the user device 32 to play back a sound which is then heard by the alarm system 10 to cause the alarm system 10 to be temporarily disabled. If the user 30 quickly leaves the region 12 again, the alarm system 10 is re-enabled and ready to detect an intrusion. This allows users to enter the region 12 briefly, for example to pick up a forgotten item, without the user 30 having to turn off the alarm system 10 when entering the region 12 and then turn it back on again when exiting the region 12 (or more generally having to do anything about the armed alarm system 10).

[0044] It will be understood that the processor or processing system or circuitry referred to herein may in practice be provided by a single chip or integrated circuit or plural chips or integrated circuits, optionally provided as a chipset, an application-specific integrated circuit (ASIC), field-programmable gate array (FPGA), digital signal processor (DSP), graphics processing units (GPUs), etc. The chip or chips may comprise circuitry (as well as possibly firmware) for embodying at least one

or more of a data processor or processors, a digital signal processor or processors, baseband circuitry and radio frequency circuitry, which are configurable so as to operate in accordance with the exemplary embodiments. In this regard, the exemplary embodiments may be implemented at least in part by computer software stored in (non-transitory) memory and executable by the processor, or by hardware, or by a combination of tangibly stored software and hardware (and tangibly stored firmware).

[0045] Reference is made herein to data storage for storing data. This may be provided by a single device or by plural devices. Suitable devices include for example a hard disk and non-volatile semiconductor memory (e.g. a solid-state drive or SSD).

[0046] Although at least some aspects of the embodiments described herein with reference to the drawings comprise computer processes performed in processing systems or processors, the invention also extends to computer programs, particularly computer programs on or in a carrier, adapted for putting the invention into practice. The program may be in the form of non-transitory source code, object code, a code intermediate source and object code such as in partially compiled form, or in any other non-transitory form suitable for use in the implementation of processes according to the invention. The carrier may be any entity or device capable of carrying the program. For example, the carrier may comprise a storage medium, such as a solid-state drive (SSD) or other semiconductor-based RAM; a ROM, for example a CD ROM or a semiconductor ROM; a magnetic recording medium, for example a floppy disk or hard disk; optical memory devices in general; etc.

[0047] The examples described herein are to be understood as illustrative examples of embodiments of the invention. Further embodiments and examples are envisaged. Any feature described in relation to any one example or embodiment may be used alone or in combination with other features. In addition, any feature described in relation to any one example or embodiment may also be used in combination with one or more features of any other of the examples or embodiments, or any combination of any other of the examples or embodiments. Furthermore, equivalents and modifications not described herein may also be employed within the scope of the invention, which is defined in the claims.

Claims

1. A method of operating an alarm system (10), the alarm system having registration information for a user device (32) stored such that the user device is registered with the alarm system, the method comprising the alarm system performing the steps of:

receiving a motion detection signal which indicates detection of motion within a region (12)

monitored by the alarm system;
transmitting a notification (38) to the registered user device upon receiving the motion detection signal, the notification being such as to cause the registered user device to play a sound; and
disabling the generation of an alarm in the case that the sound played by the registered user device is detected by the alarm system.

2. A method according to claim 1, wherein successive notifications transmitted to the registered user device are such as to cause the registered user device to play different respective sounds.

3. A method according to claim 1 or claim 2, wherein the alarm system causes an alarm to be generated in the case that the alarm system does not detect the instructed sound being played within a predetermined period of time following the transmitting of the notification.

4. A method according to any of claims 1 to 3, wherein the registered user device is a cellular network device and the notification to the registered user device is transmitted over a cellular network.

5. A method according to any of claims 1 to 4, wherein the alarm system resets after a predetermined period of time following disabling the generation of an alarm and in the absence of receiving the motion detection signal during said predetermined period of time.

6. An alarm system (10), the alarm system comprising:

data storage device for storing registration information for a user device (32) such that the user device is registered with the alarm system;
the alarm system being configured to:

cause a notification (38) to be transmitted for receipt by the registered user device upon the alarm system receiving a motion detection signal which indicates detection of motion within a region (12) monitored by the alarm system, the notification being such as to cause the said registered user device to play a sound; and
disable the generation of an alarm in the case that said sound played by the said registered user device is detected by the alarm system.

7. An alarm system according to claim 6, arranged such that successive notifications transmitted to the registered user device are such as to cause the said registered user device to play different respective sounds.

8. An alarm system according to claim 6 or claim 7, arranged to cause an alarm to be generated in the case that the alarm system does not detect the instructed sound being played within a predetermined period of time following the transmitting of the notification. 5
9. An alarm system according to any of claims 6 to 8, arranged such that the notification to the registered user device is transmitted over a cellular network for receipt by the registered user device, wherein the registered user device is a cellular network device. 10
10. An alarm system according to any of claims 6 to 9, wherein the alarm system is arranged to reset after a predetermined period of time following disabling the generation of an alarm and in the absence of receiving the motion detection signal during said predetermined period of time. 15
11. An alarm system according to any of claims 6 to 10, comprising or in communication with a motion detector for detecting motion within the region monitored by the alarm system. 20
12. An alarm system according to any of claims 6 to 11, comprising or in communication with a microphone or other sound transducer for detecting sounds within the region monitored by the alarm system. 25
3. Verfahren nach Anspruch 1 oder Anspruch 2, bei welchem das Alarmsystem einen Alarm erzeugen lässt, falls das Alarmsystem nicht ein Abspielen des angewiesenen Tons innerhalb einer vorbestimmten Zeitdauer nach dem Senden der Benachrichtigung erfasst.
4. Verfahren nach einem der Ansprüche 1 bis 3, bei welchem das registrierte Benutzergerät ein Zellularnetzgerät ist und die Benachrichtigung an das registrierte Benutzergerät über ein zellulares Netzwerk gesendet wird.
5. Verfahren nach einem der Ansprüche 1 bis 4, bei welchem das Alarmsystem nach einer vorbestimmten Zeitdauer nach dem Unterbinden der Erzeugung eines Alarms und ohne Empfangen des Bewegungserfassungssignals während der vorbestimmten Zeitdauer wieder zurückgesetzt wird.
6. Alarmsystem (10), wobei das Alarmsystem eine Datenspeichervorrichtung aufweist zum Speichern von Registrierungsinformationen für ein Benutzergerät (32) so, dass das Benutzergerät beim Alarmsystem registriert ist, wobei das Alarmsystem konfiguriert ist, um:

eine Benachrichtigung (38) zum Empfang durch das registrierte Benutzergerät senden zu lassen, wenn das Alarmsystem ein Bewegungserfassungssignal empfängt, das eine Erfassung einer Bewegung in einem vom Alarmsystem überwachten Bereich (12) anzeigt, wobei die Benachrichtigung so ist, dass sie das registrierte Benutzergerät einen Ton abspielen lässt; und die Erzeugung eines Alarms zu unterbinden, falls der vom registrierten Benutzergerät abgespielte Ton vom Alarmsystem erfasst wird.

Patentansprüche

1. Verfahren zum Betreiben eines Alarmsystems (10), wobei das Alarmsystem Registrierungsinformationen für ein Benutzergerät (32) so gespeichert hat, dass das Benutzergerät beim Alarmsystem registriert ist, wobei das Verfahren aufweist, dass das Alarmsystem die Schritte durchführt:
- Empfangen eines Bewegungserfassungssignals, das eine Erfassung einer Bewegung in einem vom Alarmsystem überwachten Bereich (12) anzeigt;
- Senden einer Benachrichtigung (38) an das registrierte Benutzergerät nach Empfangen des Bewegungserfassungssignals, wobei die Benachrichtigung so ist, dass sie das registrierte Benutzergerät einen Ton abspielen lässt; und Unterbinden der Erzeugung eines Alarms, falls der vom registrierten Benutzergerät abgespielte Ton vom Alarmsystem erfasst wird.
2. Verfahren nach Anspruch 1, bei welchem aufeinanderfolgende Benachrichtigungen, die an das registrierte Benutzergerät gesendet werden, so sind, dass sie das registrierte Benutzergerät unterschiedliche jeweilige Töne abspielen lassen.
7. Alarmsystem nach Anspruch 6, das so eingerichtet ist, dass aufeinanderfolgende Benachrichtigungen, die an das registrierte Benutzergerät gesendet werden, so sind, dass sie das registrierte Benutzergerät unterschiedliche jeweilige Töne abspielen lassen.
8. Alarmsystem nach Anspruch 6 oder Anspruch 7, das eingerichtet ist, um einen Alarm erzeugen zu lassen, falls das Alarmsystem nicht ein Abspielen des angewiesenen Tons innerhalb einer vorbestimmten Zeitdauer nach dem Senden der Benachrichtigung erfasst.
9. Alarmsystem nach einem der Ansprüche 6 bis 8, das so eingerichtet ist, dass die Benachrichtigung an das registrierte Benutzergerät über ein zellulares Netzwerk zum Empfang durch das registrierte Benutzergerät gesendet wird, wobei das registrierte Benutz-

ergerät ein Zellulernetzgerät ist.

10. Alarmsystem nach einem der Ansprüche 6 bis 9, bei welchem das Alarmsystem eingerichtet ist, um nach einer vorbestimmten Zeitdauer nach dem Unterbinden der Erzeugung eines Alarms und ohne Empfangen des Bewegungserfassungssignals während der vorbestimmten Zeitdauer wieder zurückgesetzt zu werden.
11. Alarmsystem nach einem der Ansprüche 6 bis 10, aufweisend einen oder in Verbindung mit einem Bewegungsdetektor zum Erfassen einer Bewegung in dem vom Alarmsystem überwachten Bereich.
12. Alarmsystem nach einem der Ansprüche 6 bis 11, aufweisend ein oder in Verbindung mit einem Mikrofon oder einem anderen Schallwandler zum Erfassen von Tönen in dem vom Alarmsystem überwachten Bereich.

Revendications

1. Procédé de fonctionnement d'un système d'alarme (10), le système d'alarme ayant une information d'enregistrement pour un dispositif d'utilisateur (32) qui est stockée de telle sorte que le dispositif d'utilisateur (32) est enregistré auprès du système d'alarme, le procédé comprenant le système d'alarme effectuant les étapes de :

réception d'un signal de détection de mouvement qui indique une détection de mouvement dans une zone (12) surveillée par le système d'alarme ;
transmission d'une notification (38) au dispositif d'utilisateur enregistré lors de la réception du signal de détection de mouvement, la notification étant telle qu'elle provoque l'émission d'un son par le dispositif d'utilisateur enregistré ; et
désactivation de la génération d'une alarme dans le cas où le son émis par le dispositif d'utilisateur enregistré est détecté par le système d'alarme.
2. Procédé selon la revendication 1, dans lequel les notifications successives transmises au dispositif d'utilisateur enregistré sont telles qu'elles amènent le dispositif d'utilisateur enregistré à émettre différents sons respectifs.
3. Procédé selon la revendication 1 ou 2, dans lequel le système d'alarme provoque la génération d'une alarme dans le cas où le système d'alarme ne détecte pas le son indiqué en train d'être émis dans une période de temps prédéterminée suivant la transmission de la notification.

4. Procédé selon l'une quelconque des revendications 1 à 3, dans lequel le dispositif d'utilisateur enregistré est un dispositif de réseau cellulaire et la notification au dispositif d'utilisateur enregistré est transmise sur un réseau cellulaire.

5. Procédé selon l'une quelconque des revendications 1 à 4, dans lequel le système d'alarme se réinitialise après une période de temps prédéterminée suivant la désactivation de la génération d'une alarme et en l'absence de réception du signal de détection de mouvement pendant ladite période de temps prédéterminée.

6. Système d'alarme (10), le système d'alarme comprenant :

un dispositif de stockage de données pour stocker une information d'enregistrement pour un dispositif d'utilisateur (32) de telle sorte que le dispositif d'utilisateur est enregistré auprès du système d'alarme ;
le système d'alarme étant configuré pour :

provoquer la transmission d'une notification (38) pour qu'elle soit reçue par le dispositif d'utilisateur enregistré lors de la réception, par le système d'alarme, d'un signal de détection de mouvement qui indique la détection de mouvement dans une zone (12) surveillée par le système d'alarme, la notification étant telle qu'elle provoque l'émission d'un son par ledit dispositif d'utilisateur enregistré ; et
désactiver la génération d'une alarme dans le cas où ledit son émis par ledit dispositif d'utilisateur enregistré est détecté par le système d'alarme.

7. Système d'alarme selon la revendication 6, étant agencé de telle sorte que les notifications successives transmises au dispositif d'utilisateur enregistré sont telles qu'elles provoquent l'émission de différents sons respectifs par ledit dispositif d'utilisateur enregistré.

8. Système d'alarme selon la revendication 6 ou 7, étant agencé de manière à provoquer la génération d'une alarme dans le cas où le système d'alarme ne détecte pas le son indiqué en train d'être émis dans une période de temps prédéterminée suivant la transmission de la notification.

9. Système d'alarme selon l'une quelconque des revendications 6 à 8, étant agencé de telle sorte que la notification au dispositif d'utilisateur enregistré est transmise sur un réseau cellulaire pour être reçue par le dispositif d'utilisateur enregistré, le dispositif

d'utilisateur enregistré étant un dispositif de réseau cellulaire.

10. Système d'alarme selon l'une quelconque des revendications 6 à 9, dans lequel le système d'alarme est agencé de manière à se réinitialiser après une période de temps prédéterminée suivant la désactivation de la génération d'une alarme et en l'absence de réception du signal de détection de mouvement pendant ladite période de temps prédéterminée. 5 10
11. Système d'alarme selon l'une quelconque des revendications 6 à 10, comprenant ou en communication avec un détecteur de mouvement servant à détecter un mouvement dans la zone surveillée par le système d'alarme. 15
12. Système d'alarme selon l'une quelconque des revendications 6 à 11, comprenant ou en communication avec un microphone ou un autre transducteur sonore servant à détecter des sons dans la zone surveillée par le système d'alarme. 20

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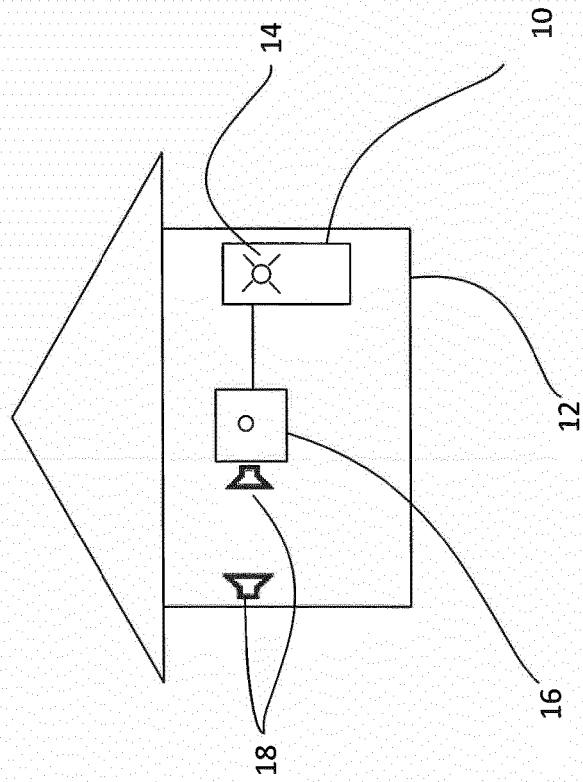
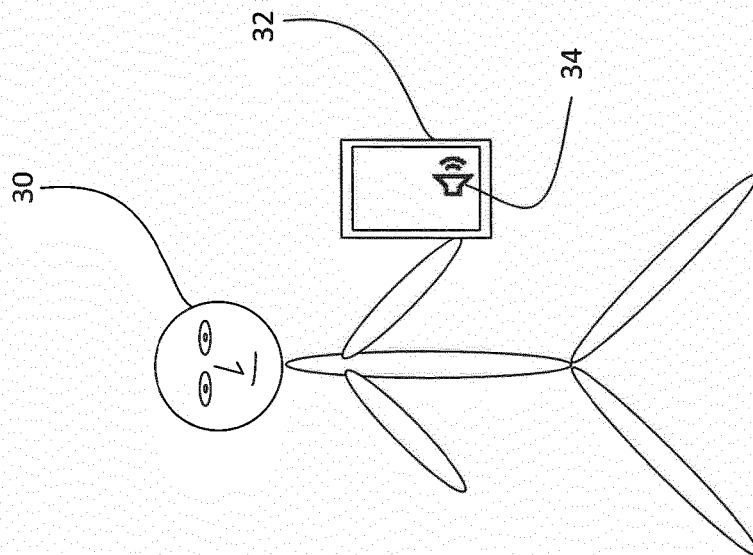


Figure 1



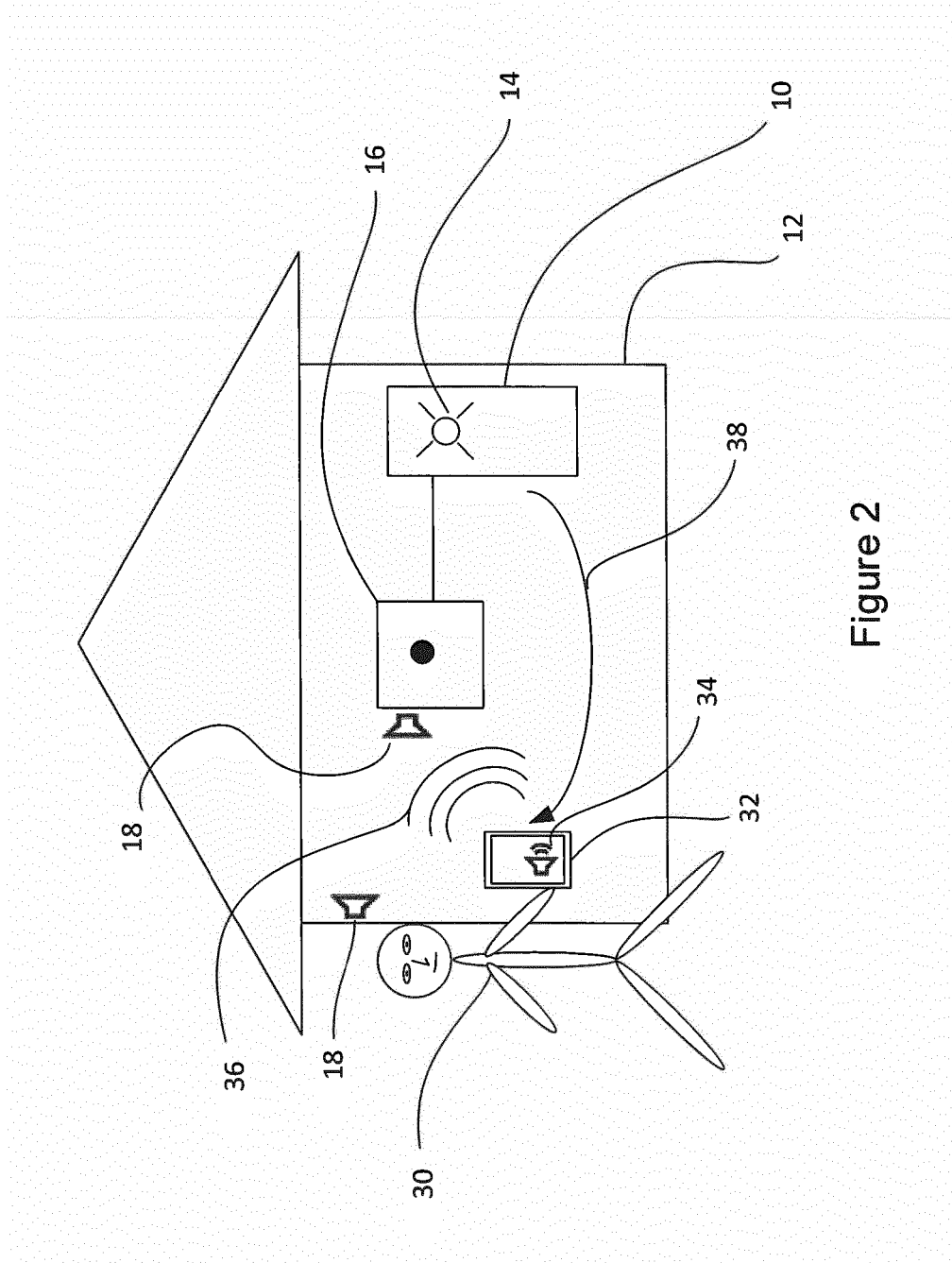


Figure 2

REFERENCES CITED IN THE DESCRIPTION

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