

# Security System in Order to Ensure the Application of Position

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**Abstract.** A system, method, and computer program product determine when a user's mobile device has left a secured location, such as a house or office, without predefined site security settings being met, and responsively inform the user of any security anomalies. A predetermined distance threshold is compared with the distance between the mobile device, and the secured location. If the distance exceeds the threshold and a trigger event is detected, an alert is transmitted. An alert may also be sent when a mobile object to be secured is moved away from the user's mobile device by a distance that exceeds the predetermined distance threshold.

## 1 Introduction

Security systems are widely known and have been used for some time. Sensors detect if a physical site, such as a home or office, is undergoing an event that should trigger an alarm. Sensors may detect glass breakage, electricity use or outage, smoke or fire, door openings, and many other events of concern.[1] The security system may then sound an alarm at the site, and/or send a remote alarm signal indicating a security emergency to an external monitoring service, based on the input data from the sensors.

In many instances though, a security issue is not the result of an actual emergency situation, but merely the result of a physical site not being properly put into a predetermined secure condition. A homeowner may leave a house's door open that should be closed, and/or unlocked when it should be locked, or unintentionally leave a light on. Such situations should be brought to the user's attention for possible correction, but should not necessarily trigger an alarm. If the homeowner is still on the premises, there may be no need to put the house into a secured condition, as people are routinely coming and going. The need may arise only when the security system user is away from the house. This patent application provides a viable approach to solving this challenge and presents a practical implementation of that technique.[2]

## 2 computer program product for automating site security

A system, method, and computer program product for automating site security are claimed herein. An exemplary computer-implemented method embodiment may comprise comparing a predetermined threshold with a distance between a mobile device and a secured site, detecting a trigger event, and selectively transmitting an alert, based on the distance. The distance may be determined by GPS and/or cellular positioning[3,4].

The mobile device may comprise a vehicle and/or a mobile device. The secured site may comprise a house and/or an office. The trigger event may comprise a predefined security anomaly, including a movable barrier and/or a light being in a condition other than a predetermined condition, such as locked or unlocked, open or closed, and lit or unlit.

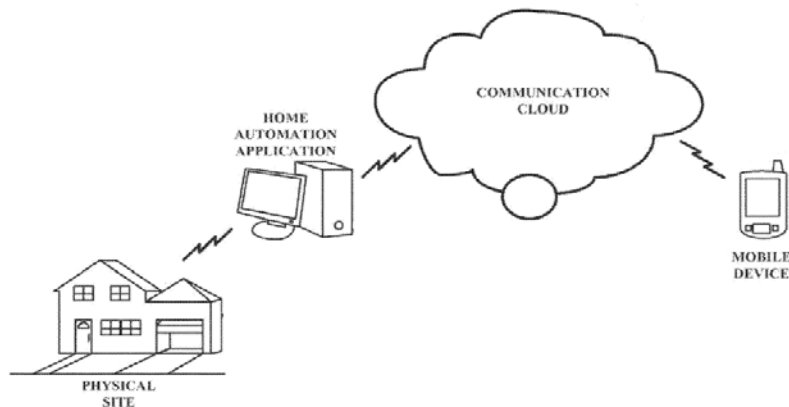


FIG. 1 depicts an overview of the arrangement of a physical site security system

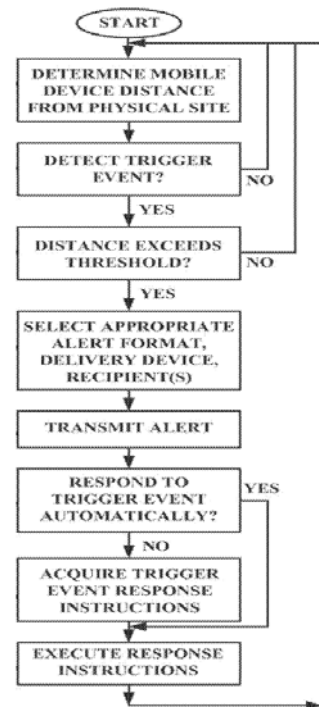


FIG. 2 depicts a flowchart of the operation of a physical site security system

The alert may be delivered via a speaker in a vehicle and/or a mobile phone, and an alert format may be selected according to whether the speaker in the vehicle and/or the mobile phone are in use. The method may further comprise acquiring instructions regarding a response to the trigger event from a customer, the mobile device, a security server, and/or security personnel. The instructions may be acquired by detecting a steering wheel pushbutton activation and/or a voice command. The condition of a movable barrier and/or a light may be changed, for example in response to the instructions. The acquired instructions may be executed by a home automation controller running a home automation application. The alert may be transmitted as a subscription based service.[5]

### 3 the operation of the security system

Referring now to FIG. 2, a flowchart of the operation is shown. In this flowchart, the embodiments are presumed to be monitoring a departing user, but it is to be understood that the invention is not so limited. In step , application determines the distance between physical site and mobile device . In step , application determines if a trigger event has occurred, which may for example comprise a security anomaly, and if so proceeds, otherwise returns to the distance determination. In step , application determines if the distance between physical site and mobile device exceeds the predetermined threshold distance. If not, then operation returns to the beginning, but if so then an alert is warranted.

### 4 The operation of a physical site security system

The security system as shown is similar to the security system may include similar features and may operate in a similar way to the security system, with some differences highlighted below. For ease of reference, aspects of the system that are similar to aspects of the security system have been designated with similar reference numbers.

A location to be secured may include a house, apartment/condominium, hotel room, hospital, commercial facility, office, or any other physical site as may be conventionally known. Electronic device at the secured location may run a security application that may be installed on the electronic device . It is to be understood that the security application may be optionally launched on the

electronic device via an external website instead of via an installed software application. The electronic device (which may be one or more devices) may be a portable electronic device such as a laptop computer, tablet computer, mobile phone, or any other electronic device where the security application may be installed.

Since most electronic devices such as laptops, tablet computers, and mobile phones include at least one built in camera, electronic device may be set up at the location to be secured such that the built in camera of the electronic device monitors the location to be secured . For example, the security application installed on the electronic device may monitor detection, by the camera of the electronic device , of movement and/or opening and closing of doors and/or windows and/or turning of the lights on/off at the location to be secured . It will be appreciated that where the electronic device includes both a camera that faces the user and a camera that faces away from the user, the electronic device may be set up such that the security application of the electronic device monitors any predefined event detected by both of the built in cameras. It is to be appreciated that the electronic device may use a connected external camera instead of the camera built into the electronic device .

The security application of the electronic device communicates with mobile device , which may be a mobile phone. Mobile device is capable of determining its geographic location through means known in the art, including but not limited to GPS and cellular positioning. The security application of the electronic device provides for storage of the geographic location of the location (e.g., hotel room) to be secured in a memory of the electronic device , and compares this location to the location of mobile device to determine a distance between the two. The distance is then compared to a predefined distance threshold. In this manner, the security application of the electronic device may determine if a user has vacated the location to be secured , or, conversely may determine if a user who had left is now returning.

The security application of the electronic device has predefined, user-modifiable settings to define various states of the location to be secured that may be detected by the camera of the electronic device . Generally speaking, the security application may check to determine whether any predefined security condition that is monitored via the built in camera of the electronic device is unmet. For example, the camera of the electronic device may detect movement, i.e., opening of a door, a person walking inside a room, lights being turned on or off, etc. If so, and the user is further than a predefined distance away from the premises, a trigger event occurs. The security application on the electronic device communicates via a communication network or cloud. The alert sent from the electronic device to the mobile device may be formatted as a text message, a phone vibration, a popup alert, a ringtone, an audio recording, a synthesized voice message, an image, and/or a video.

The mobile device may be a mobile device such as a cellular phone or tablet computer having a security application installed thereon. The security application installed on the mobile device is configured for communication with the security application on the electronic device . For example, the security application installed on the mobile device may be configured to receive alerts (e.g., based on predefined trigger events) from the security application of the electronic device and to send instructions to the security application of the electronic device , or to an external security or emergency service. Preferably, the security application installed on the mobile device may, in response to receiving an alert from the security application of the electronic device , generate an on-screen menu with options that permit the user of the mobile device to select an appropriate instruction to send to the electronic device and/or other action .

## **5 Conclusion**

When implemented in software, the elements of the embodiments are essentially the code segments to perform the necessary tasks. The non-transitory code segments may be stored in a processor readable medium or computer readable medium, which may include any medium that may store or transfer information. Examples of such media include an electronic circuit, a semiconductor memory device, a read-only memory (ROM), a flash memory or other non-volatile memory, a floppy diskette, a CD-ROM, an optical disk, a hard disk, a fiber optic medium, etc. User

input may include any combination of a keyboard, mouse, touch screen, voice command input, etc. User input may similarly be used to direct a browser application executing on a user's computing device to one or more network resources, such as web pages, from which computing resources may be accessed.

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