(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 December 2008 (04.12.2008)

PCT

(10) International Publication Number
WO 2008/147244 A1

(51) International Patent Classification:
B60R 25/00 (2006.01) *G08B 21/00* (2006.01)
B60R 25/10 (2006.01) *G08B 25/10* (2006.01)
G07C 5/00 (2006.01) *G08B 25/00* (2006.01)
G08B 13/00 (2006.01)

(21) International Application Number:
PCT/RU2007/000316

(22) International Filing Date: 30 May 2007 (30.05.2007)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant *(for all designated States except US)*: **MOTOROLA, INC.** [US/US]; Corporate Offices, 1303 East Algonquin Road, Schaumburg, IL 60196 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **BOGUSHEVICH, Vladislav V.** [RU/RU]; Serebisty blvd., 16/1-326, St.Petersburg, 197227 (RU). **SHAMANIN, Stanislav A.** [RU/RU]; Dimitrova Street, 12/1-1, St.Petersburg, 192239 (RU).

(74) Agents: **STANKOVSKY, Viktor Mikhailovich** et al.; Law Firm "Gorodissky & Partners" Ltd., Kamennoostrovsky prosp., 1/3, office 30, St.Petersburg, 197046 (RU).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR PROVIDING VEHICLE SECURITY

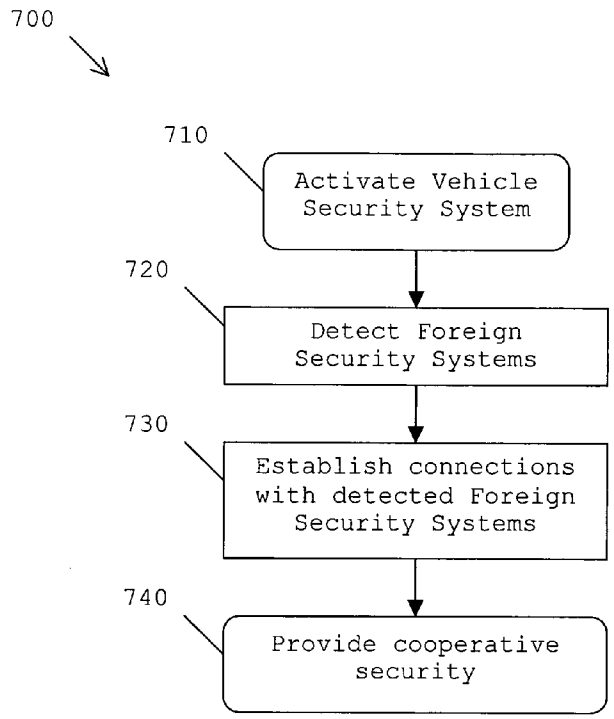


FIG. 7

(57) Abstract: A method of providing vehicle security comprises detecting one or more foreign security systems; establishing a connection with at least one of the one or more detected foreign security systems (720); and providing cooperative security with the at least one security system with which a connection is established (740). A vehicle security system is also described. In this manner, an improved anti-theft vehicle protection system and method thereof is provided.

WO 2008/147244 A1

PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report*

METHOD AND SYSTEM FOR PROVIDING VEHICLE SECURITY

TECHNICAL FIELD

The technical field relates generally to a method and system for providing vehicle security.

BACKGROUND

It is known to provide vehicles, such as cars, motorcycles, etc. with anti-theft devices. Such known anti-theft devices may generally be divided into three categories: locks; alarms and 'spies'.

Locks provide a generally mechanical means for preventing, or at least hindering, access to, and therefore subsequent transport of, a vehicle. Alarms provide a means for drawing attention to potential theft or the like, for example by way of an audible signal. 'Spies' provide a means of monitoring and recording activities identifying a theft or the like, to provide information that may subsequently be used in the prosecution of thieves, etc.

A problem with such known anti-theft devices is that, if the anti-theft device, or a component used thereby, is disabled or otherwise inoperative, the vehicle is effectively left unprotected. Consequently, not only is the vehicle prone to theft, theft of the vehicle may potentially go unnoticed for an extended period of time, greatly reducing the likelihood of the vehicle be retrieved.

A further problem with known anti-theft devices is that a vehicle is limited to those devices with which it is fitted when purchased, or devices an owner has purchased and subsequently had fitted. Older vehicles may not be

provided with the latest anti-theft devices, and as such may not benefit from the latest protection available.

Furthermore, some vehicles, for example light weight vehicles such as motorcycles and bicycles, or older cars, may not be capable of being provided with more complex and/or voluminous security devices. Motorcycles, in particular, suffer from the fact that they are easily transportable.

Thus, there exists a need for an improved system and apparatus for providing vehicles or the like with anti-theft protection.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying figures, where like reference numerals refer to identical or functionally similar elements throughout the separate views and which together with the detailed description below are incorporated in and form part of the specification, serve to further illustrate various embodiments and to explain various principles and advantages all in accordance with the invention.

FIG. 1 illustrates vehicle security system in accordance with an exemplary embodiment of the invention.

FIGs. 2 to 5 illustrate a cooperative security network according to an exemplary embodiment of the invention.

FIG. 6 illustrates a cooperative security network according to an alternative exemplary embodiment of the invention.

FIG. 7 illustrates a method of establishing cooperative security according to an exemplary embodiment of the invention.

FIG. 8 illustrates an exemplary method of providing cooperative security in accordance with embodiments of the invention.

FIG. 9 illustrates an additional and/or alternative exemplary method of providing cooperative security in accordance with embodiments of the invention.

DETAILED DESCRIPTION

Before describing in detail embodiments that are in accordance with the invention, it should be observed that the embodiments reside primarily in combinations of method steps and apparatus components related to a method and apparatus for providing vehicle security. Accordingly, the apparatus components and method steps have been represented where appropriate by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the embodiments of the invention so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein. Thus, it will be appreciated that for simplicity and clarity of illustration, common and well-understood elements that are useful or necessary in a commercially feasible embodiment may not be depicted in order to facilitate a less obstructed view of these various embodiments.

It will be appreciated that embodiments of the invention described herein may be comprised of one or more generic or specialized processors (or 'processing devices') such as microprocessors, digital signal processors, customized processors and field programmable gate arrays (FPGAs) and unique stored program instructions (including both software and firmware) that control the one or more

processors to implement, in conjunction with certain non-processor circuits, some, most, or all of the functions of the method and apparatus for providing vehicle security described herein. The non-processor circuits may include, but are not limited to, a radio receiver, a radio transmitter and user input devices. As such, these functions may be interpreted as steps of a method to perform the provision of vehicle security described herein. Alternatively, some or all functions could be implemented by a state machine that has no stored program instructions, or in one or more application specific integrated circuits (ASICs), in which each function or some combinations of certain of the functions are implemented as custom logic. Of course, a combination of the two approaches could be used. Both the state machine and ASIC are considered herein as a 'processing devices' for purposes of the foregoing discussion and claim language.

Moreover, an embodiment of the invention may be implemented as a computer-readable storage element having computer readable code stored thereon for programming a computer (e.g., comprising a processing device) to perform a method as described and claimed herein. Examples of such computer-readable storage elements include, but are not limited to, a hard disk, a CD-ROM, an optical storage device and a magnetic storage device. Further, it is expected that one of ordinary skill, notwithstanding possibly significant effort and many design choices motivated by, for example, available time, current technology, and economic considerations, when guided by the concepts and principles disclosed, herein, will be readily capable of generating such software instructions and programs and ICs with minimal experimentation. Generally speaking, pursuant to the various embodiments, there is

provided a method of providing vehicle security comprising the steps of detecting one or more foreign security systems; establishing a connection with each of the one or more detected foreign security systems; and providing cooperative security with the one or more detected security systems.

Furthermore, there is provided a vehicle security system adapted to detect foreign security systems, and upon detection of one or more foreign security systems to establish a connection with the one or more detected foreign security systems. The vehicle security system is further adapted, upon establishing a connection with the one or more detected foreign security systems, to provide cooperative security with one or more foreign wireless communication modules connected thereto.

In addition, a vehicle is described that is adapted to implement the method, or comprising the aforementioned vehicle security system. The vehicle may not only be protected by its own security resources, but may also be linked to security resources available via detected wireless communication modules connected thereto.

In this manner, if the security resources of the vehicle are disabled, or otherwise inoperative, the vehicle will not be completely unprotected.

Furthermore, more sophisticated and/or advanced security resources than those of the vehicle may be available via cooperative protection. Thus, the vehicle may be afforded improved protection.

Those skilled in the art will realize that the above recognized advantages and other advantages described herein are merely exemplary and are not meant to be a complete rendering of all of the advantages of the various embodiments of the invention.

Referring now to the drawings, and in particular FIG. 1, a vehicle security system is shown and indicated generally at 100. Those skilled in the art, however, will recognize and appreciate that the specifics of this illustrative example are not specifics of the invention itself and that the teachings set forth herein are applicable in a variety of alternative settings.

The vehicle security system 100 comprises a wireless communication module (WCM) 110 adapted to detect wireless communication modules of foreign vehicle security systems, and upon detection of one or more foreign vehicle security systems to establish a connection with the one or more detected foreign vehicle security systems.

As previously mentioned, the vehicle security system 100 is adapted, upon establishing a connection with the one or more detected foreign vehicle security systems, to provide cooperative security with the one or more foreign vehicle security system(s) connected thereto.

For the illustrated embodiment, the vehicle security system 100 further comprises a network controller (NC) 120, operatively coupled to the WCM 110. The NC 120 is also operatively coupled to a security system interface (SI) 130.

The SI 130 provides an interface to security resources (not shown) provided by, for example, a local vehicle in which the vehicle security system 100 is located. Such security resources may include, by way of example only, one or more of the following:

(i) proximity sensors;

(ii) intrusion sensors;

(iii) tampering sensors;

(iv) audible alarm system;

(v) GPS tracking system;

(vi) Immobilizer system; and/or

(vii) Theft reporting system (e.g. direct reporting to police, local security, etc.).

For the illustrated embodiment, the NC 120 comprises a security management module (SMM) 140. The SMM 140 is adapted to monitor a status of the security resources via the SI 130. The SMM 140 is further adapted to monitor one or more connection(s) with one or more foreign vehicle security systems.

In this manner, the NC 120, or for the illustrated embodiment the SMM 140, is able to determine a security alert, for example in one or more of the following instances:

(a) when a security threat to a local vehicle is detected, by virtue of information received via the SI 130; and

(b) when a security threat to a foreign vehicle is detected, by virtue of:

i. information received via the WCM 110, for example when a 'distress' signal is received from the foreign vehicle security system; and

ii. when a connection to the security system of that foreign vehicle is inappropriately lost (for example due to disabling of the foreign security system or due to the foreign vehicle moving out of range, following a theft thereof).

In an exemplary embodiment, if all connections to security systems of foreign vehicles are inappropriately lost, it may be assumed that a cause is theft of the local vehicle, without the local security resources having detected the theft. Consequently, the vehicle security system may activate the local security resources itself.

When the NC 120, or for the illustrated embodiment the SMM 140, determines such a security alert relating to a foreign vehicle, the NC 120 initiates local security measures via the SI 130. In this manner, the vehicle security system 100 provides cooperative security to foreign vehicles connected thereto.

Furthermore, when the security alert relates to the local vehicle, the NC 120, or SMM 140, transmits a 'distress' signal to foreign security systems connected thereto. The foreign security systems connected thereto, and embodying the inventive, concept hereindescribed initiate their own local security measures upon receipt of the distress signal.

Additionally, if the vehicle security system 100 is disabled, and/or the local vehicle is moved out of range of one or more of the foreign security systems, the connection therebetween will be inappropriately lost. The foreign security systems up to that time connected thereto, and embodying the inventive, concept hereindescribed initiate their own local security measures upon detection of the inappropriate loss of connection.

In this manner, the vehicle security system 100 is provided with cooperative security by the foreign security systems.

The vehicle security system 100 is preferably activated upon receipt of a signal or command from a driver or other person responsible for the vehicle.

For example, it is well known for a driver, upon parking and exiting a vehicle, to use a remote fob, or similar device to lock the vehicle and activate the alarm system. Such a remote fob transmits a signal, for example by way of infrared or radio waves, to a receiver within the vehicle.

It is envisaged that the vehicle security system 100 may be activated in the same manner, by way of a driver or other person responsible for the vehicle using a remote fob to lock the vehicle open exiting, and at the same time activating the security system.

Similarly, it is envisaged that the vehicle security system 100 may be deactivated by way of a driver or other person responsible for the vehicle using a remote fob to unlock the vehicle, and at the same time deactivating the security system.

As previously mentioned, when a connection is inappropriately lost, the vehicle security system 100 interprets this as a security alert, and initiates security measures in response thereto. Therefore, a mechanism of appropriately terminating a connection is required, in order to avoid the initiation of security measures when a security system is legitimately deactivated.

Thus, when the vehicle security system 100 receives a deactivation signal or command, for example as a result of a driver or other person responsible for the vehicle using a remote fob to unlock the vehicle, the vehicle security system 100 sends a "terminating connection" signal to the one or more foreign vehicle security systems connected thereto. In this manner, when the vehicle security system 100 subsequently deactivates, and therefore disconnects from the foreign security system(s), the one or more foreign security system(s) do not treat the disconnection as inappropriate.

Referring now to FIG. 2, there is illustrated a cooperative security network 200 according to an exemplary embodiment of the invention.

A plurality of vehicles 210 each comprise a vehicle security system, for example the vehicle security system

100 illustrated in FIG. 1. As illustrated in FIG. 2, the security systems of each of the vehicles has been activated, and are wirelessly connected to one another to create a cooperative security network 200.

It is envisaged that a number of vehicles 210 comprise detection logic 220 operably coupled to logic arranged to establish a connection with at least one detached foreign security system. The vehicle 210 further comprises monitoring logic 230 which may encompass transceiver circuitry for wireless communication, for example radio frequency or infrared communication, with other vehicles. The aforementioned logic configured to support embodiments of the invention is illustrated with respect to a single vehicle, and in relation to a single figure for clarity purposes only.

The cooperative security network 200 is a substantially ad hoc network comprising any number of two or more vehicle security systems. A typical example of where such a cooperative security network may exist is in a car park where the security systems of parked vehicles are activated, and connect to one another to create an ad hoc cooperative security network.

As will be appreciated by a skilled artisan, a cooperative security network, such as the one illustrated in FIG. 2, may be created wherever two or more vehicles, each comprising an active security system embodying the inventive concept described herein, are located.

As cars arrive and leave a geographical area defining network range (for example one dictated by the transmit power and receive sensitivity of the monitoring logic), and their security systems are activated and deactivated respectively, the 'nodes' of the network, for example the

security systems of which the network comprises, will continuously change.

In addition, the security system of a vehicle that has been stolen and driven away may continue to detect foreign security systems, and establish connections therewith. In this manner, even if the security resources of the stolen vehicle have been deactivated, those of foreign security systems, with which a connection has been established, may be utilised wherever the stolen vehicle travels, facilitating the location and/or tracking of a stolen vehicle.

Referring now to FIG. 3, there is illustrated a first exemplary scenario in which the cooperative security network 200 of FIG. 2 provides cooperative security protection to a vehicle 310.

The vehicle 310 moves out of range of one or more of the foreign vehicle security systems of the other vehicles 210 within the cooperative security network 200, without transmitting a terminating connection signal. This causes the connections to the one or more foreign security systems to be lost.

Upon detection of the lost connection, one or more the foreign security system(s) initiate(s) their local security measures. For example, the one or more foreign security system(s) may activate alarms of the vehicles 210 to draw attention to the fact that a vehicle is being stolen.

In this manner, even if the security system of the vehicle 310 being stolen has been disabled, the theft has not gone unnoticed. Furthermore, one or more of the foreign vehicles may comprise more advanced security resources, such as a theft reporting system (e.g. direct reporting to police, local security, etc.), thereby

alerting someone to the fact that a vehicle is being stolen.

For the illustrated embodiment, all connections are lost. As a consequence of the loss of all connections, the local security system of the vehicle 310 initiates its own local security measures.

Referring now to FIG. 4, there is illustrated a further exemplary scenario in which the cooperative security network 200 of FIG. 2 provides cooperative security protection to a vehicle 410.

The security system of the vehicle 410 detects an attempted theft of the vehicle 410, setting of the local security resources of the vehicle 410. Upon detection of the attempted theft, the security system of the vehicle 410 sends a distress signal to the foreign security system(s) connected thereto.

Upon receipt of the distress signals, the one or more foreign security systems initiate the security measures for their own vehicles 210.

Referring now to FIG. 5, there is illustrated a further exemplary scenario in which the cooperative security network 200 of FIG. 2 provides cooperative security protection to a vehicle 510.

The security system of vehicle 510 detects that the security resources of the vehicle 510 have been disabled, indicating that an attempted theft is in progress. In response thereto, the security system of vehicle 510 transmits a distress signal to the foreign security systems connected thereto.

Upon receipt of the distress signals, the foreign security systems initiate the security measures for their own vehicles 210.

Referring now to FIG. 6, there is illustrated a cooperative security network 600 according to an alternative exemplary embodiment of the invention.

As for the cooperative security network 200 illustrated in FIG. 2, a plurality of vehicles 210 each comprise a vehicle security system, for example the vehicle security system 100 illustrated in FIG. 1. The security systems of each of the vehicles 210 has been activated, and are wirelessly connected to one another to create the cooperative security network 600.

For the embodiment illustrated in FIG. 6, the cooperative network 600 further comprises a resident vehicle security system 620. For example, the resident vehicle security system 620 may reside within a public car park or the like, and comprise a vehicle security system, such as the vehicle security system 100 illustrated in FIG. 1. In this case, the SI 130 provides an interface to resident security resources.

The resident security resources may comprise, by way of example only:

(i) an audible alarm;

(ii) a security guard terminal;

(iii) exit barriers;

(iv) theft reporting system (e.g. direct reporting to police, local security, etc.); and

(v) security camera system.

The resident vehicle security system 620 may comprise a plurality of wireless communication modules (WCMs), each covering an area of the public car park.

In an alternative embodiment, the resident vehicle security system 620 may reside at a private residence.

In the same manner as for vehicle security systems provided within vehicles, the resident vehicle security

system 620 connects with active vehicle security systems within range to form the cooperative security network 600.

Upon detection of an inappropriate loss of connection, or upon receipt of a distress message, the resident vehicle security system initiates its local security measures. In this manner, in the event of a theft, or attempted theft, of a vehicle 210 in, for example, a local car park, security resources of the car park may quickly and effectively be activated to protect the vehicle 210 or prevent the vehicle from being removed the car park.

For example, a security guard may be immediately notified of a theft in progress. Furthermore, exits from the car park may be secured to prevent the vehicle from leaving. In this manner, the cooperative security afforded by the security network 600 significantly enhances the protection afforded to vehicles within the network.

Referring now to FIG. 7, there is illustrated a method of establishing cooperative security according to an exemplary embodiment of the invention.

The method starts at step 710, with the activation of a vehicle security system.

Next, in step 720, the vehicle security system one or more detects foreign security systems. The vehicle security system then establishes connections with the detected one or more foreign security system(s), in step 730.

Finally, in step 740, the vehicle security system provides cooperative security with the connected foreign security connections.

Referring to FIG. 8, there is illustrated an exemplary method of providing cooperative security in accordance with the invention.

The method starts at step 810 with the monitoring of connections with foreign security systems.

Next in step 820, a security alert is detected relating to a foreign security system. Such an alert may be in a form of the receipt of a distress signal, or alternatively may be in the form of an inappropriate connection.

In step 830, security measures are initiated on behalf of the foreign security system to which the security alert relates.

Referring now to FIG. 9, there is illustrated an additional and/or alternative exemplary method of providing cooperative security in accordance with the invention.

The method starts at step 910 with a monitoring of a status of a number of local security resources. Next, in step 920, a security alert is detected relating to the local security resources. Such an alert may be in a form of a receipt of an indication received from the local security resources of an attempted theft. Alternatively, the security alert may be in a form of disablement of one or more of the local security resources.

In step 930, a distress signal is sent to foreign security systems connected thereto. Finally, in step 940, local security measures are initiated. Connections between security systems may be created using any suitable technology. It is envisaged that such connections are created, in one embodiment of the invention, using radio waves, for example utilising known technologies such as Bluetooth™ (for more information see www.bluetooth.org), or wireless local area network (LAN) technology (for more information see http://standards.ieee.org/wireless). However, it is envisaged that any suitable alternative means of communication may be utilised.

As will be appreciated by a skilled artisan, a vehicle may be provided with a variety of security resources, such as, by way of example only:

(i) proximity sensors;

(ii) intrusion sensors;

(iii) tampering sensors;

(iv) audible alarm system;

(v) GPS system;

(vi) Immobilizer system; and/or

(vii) Theft reporting system (e.g. direct reporting to police, local security, etc.).

It is anticipated that vehicle security resources may be divided into two categories: shared; and personal. Personal resources may include such resources as proximity sensors, intrusion sensors, tampering sensors, etc., with such resources not being of much use to a foreign security vehicle. Conversely, the shared resources may include such resources as audible alarm system, GPS system, theft reporting system, etc. Such shared resources potentially being beneficial to a foreign vehicle.

In the foregoing specification, specific embodiments of the present invention have been described. However, one of ordinary skill in the art appreciates that various modifications and changes can be made without departing from the scope of the present invention as set forth in the claims below. Accordingly, the specification and figures are to be regarded in an illustrative rather than a restrictive sense, and all such modifications are intended to be included within the scope of invention. The benefits, advantages, solutions to problems, and any element(s) that may cause any benefit, advantage, or solution to occur or become more pronounced are not to be construed as a critical, required, or essential features or

elements of any or all the claims. The invention is defined solely by the appended claims including any amendments made during the pendency of this application and all equivalents of those claims as issued.

Moreover in this document, relational terms such as first and second, top and bottom, and the like may be used solely to distinguish one entity or action from another entity or action without necessarily requiring or implying any actual such relationship or order between such entities or actions. The terms 'comprises,' 'comprising,' 'has', 'having,' 'includes', 'including,' 'contains', 'containing' or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a process, method, article, or apparatus that comprises, has, includes, contains a list of elements does not include only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. An element proceeded by 'comprises ...a', 'has ...a', 'includes ...a', 'contains ...a' does not, without more constraints, preclude the existence of additional identical elements in the process, method, article, or apparatus that comprises, has, includes, contains the element. The terms 'a' and 'an' are defined as one or more unless explicitly stated otherwise herein. The terms 'substantially', 'essentially', 'approximately', 'about' or any other version thereof, are defined as being close to as understood by one of ordinary skill in the art. The term 'coupled' as used herein is defined as connected, although not necessarily directly and not necessarily mechanically. A device or structure that is 'configured' in a certain way is configured in at least that way, but may also be configured in ways that are not listed.

CLAIMS

What is claimed is:

1. A method of providing vehicle security comprising:

detecting one or more foreign security systems (720);

establishing a connection with at least one of the one or more detected foreign security systems (730); and

providing cooperative security with the at least one security system with which a connection is established (740).

2. The method of providing vehicle security of Claim 1 further characterised in that providing cooperative security (740) comprises monitoring the connection with a number or each of the one or more detected foreign security systems (810).

3. The method of providing vehicle security of Claim 1 or Claim 2 further characterised in that providing cooperative security (740) comprises detecting a security alert relating to a foreign security system (820), and in response thereto initiating one or more local security measure(s) (830).

4. The method of providing vehicle security of Claim 3 further characterised in that detecting a security alert relating to a foreign security system (820) comprises receiving a distress signal, or detecting an inappropriate connection.

5. The method of providing vehicle security of Claim 1 or Claim 2 further characterised in that providing

cooperative security (740) comprises detecting a security alert relating to one or more local security resource(s) (920), and in response thereto transmitting a distress signal to the or each foreign security system connected thereto (930).

6. The method of providing vehicle security of Claim 5 further characterised in that detecting a security alert relating to one or more local security resource(s) (920) comprises receiving an indication from the one or more local security resources of an attempted theft, or receiving an indication of disablement of one or more of the local security resources.

7. The method of providing vehicle security of any preceding claim further characterised in that, in establishing a connection with at least one of the detected foreign security systems (730), a cooperative security network is created.

8. The method of providing vehicle security of Claim 7 further characterised in that the cooperative security network is a substantially ad hoc network.

9. A vehicle security system (100) characterised by detection logic arranged to detect one or more foreign security system(s) operably coupled to logic for establishing a connection, with at least one of the one or more detected foreign security systems; wherein upon establishing a connection with the at least one or more detected foreign security systems, cooperative security system with the foreign security system connected thereto is created.

10. The vehicle security system (100) of Claim 9, further characterized in that the vehicle security system (100) comprises monitoring logic arrange to monitor the connection with each of the one or more detected foreign security systems.

11. The vehicle security system (100) of Claim 9 or Claim 10 further characterised in that the detection logic detects a security alert relating to a foreign security system, and in response thereto initiates one or more local security measure(s).

12. The vehicle security system (100) of Claim 11 further characterised in that the detection logic is arranged to detect a security alert relating to a foreign security system in response to receiving a distress signal, or detecting an inappropriate connection.

13. The vehicle security system (100) of Claim 9 or Claim 10 further characterised in that the detection logic detects a security alert relating to one or more local security resources, and in response thereto to transmits a distress signal to the or each foreign security system connected thereto.

14. The vehicle security system (100) of Claim 13 further characterised in that detecting a security alert relating to local security resources comprises receiving an indication from the local security resources of an attempted theft, or receiving an indication of disablement of one or more of the local security resources.

15. The vehicle security system (100) of any of Claims 9 to 14 further characterised in that the means for establishing connection establishes a connection with at least one of the detected foreign security systems forming a cooperative security network (200, 600).

16. The vehicle security system (100) of Claim 15 further characterised in that the cooperative security network (200, 600) is a substantially ad hoc network.

17. The vehicle security system (100) of any of Claims 9 to 16 further characterised in that the vehicle security system (100) is adapted for use within a vehicle.

18. The vehicle security system (100) of any of Claims 9 to 17 further characterised in that the vehicle security system (100) is adapted for use as part of a resident security system (620).

19. The vehicle security system (100) of any one of Claims 9 to 18 further characterised in that the vehicle security system (100) comprises a wireless communication module (110), a network controller (120) and a security system interface (130).

20. A computer-readable storage element having computer readable code stored thereon for programming a computer to perform a method of providing vehicle security according to any of Claims 1 to 8.

21. The computer-readable storage element of Claim 20 further characterised in that the computer-readable storage

element comprises at least one of: a hard disk, a CD-ROM, an optical storage device and a magnetic storage device.

22. A vehicle comprising a vehicle security system according to any of Claims 9 to 19.

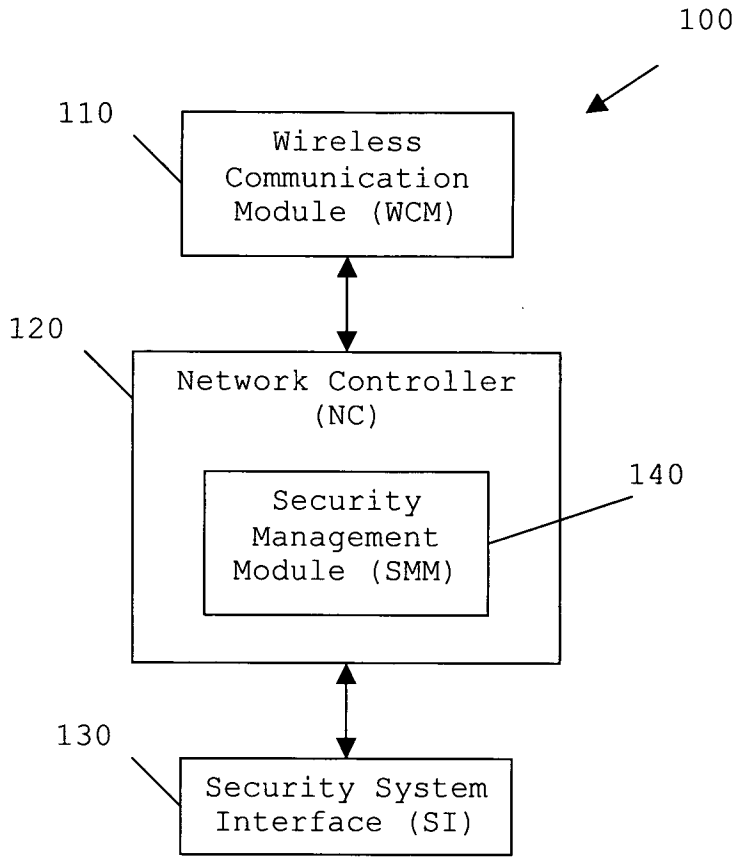

100
110
Wireless Communication Module (WCM)
120
Network Controller (NC)
140
Security Management Module (SMM)
130
Security System Interface (SI)

FIG. 1

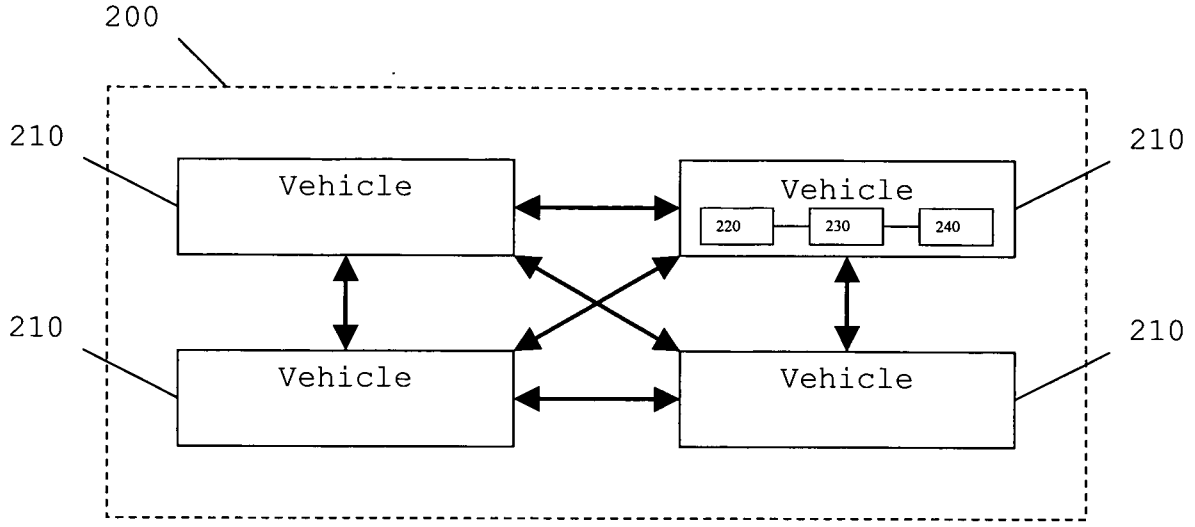

200
210
210
210
210
Vehicle
Vehicle
220
230
240
Vehicle
Vehicle

FIG. 2

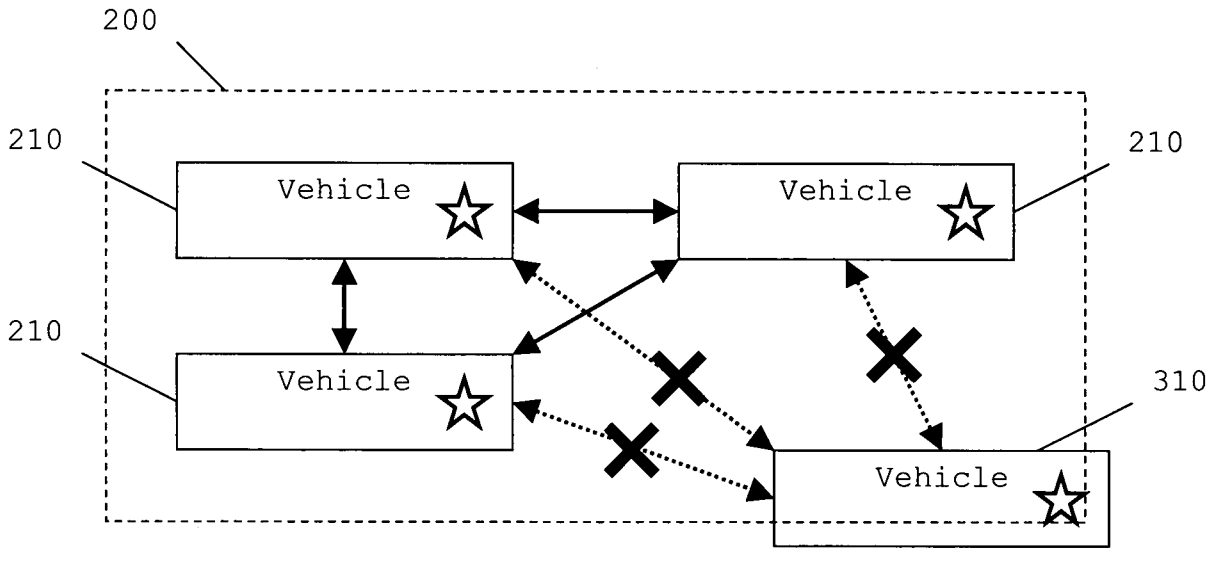

200
210
210
210
310
Vehicle
Vehicle
Vehicle
Vehicle

FIG. 3

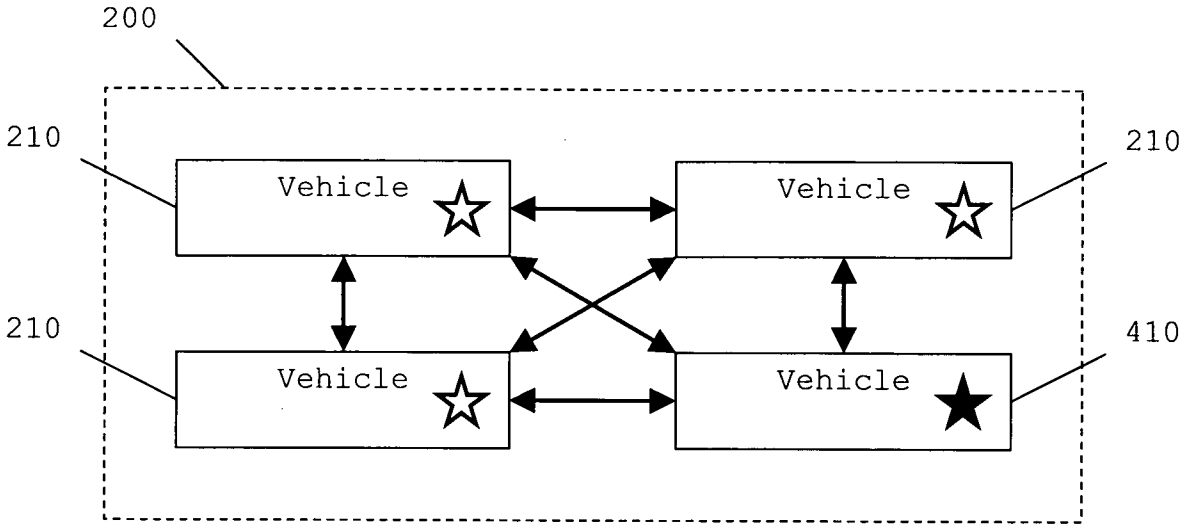

200
210
210
210
410
Vehicle
Vehicle
Vehicle
Vehicle

FIG. 4

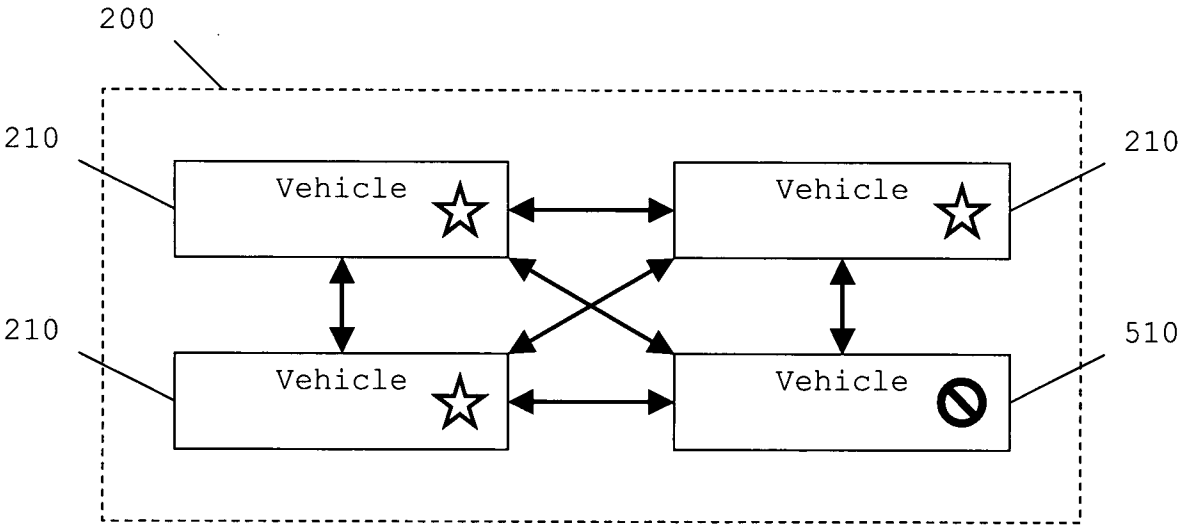

200
210
210
210
510
Vehicle
Vehicle
Vehicle
Vehicle

FIG. 5

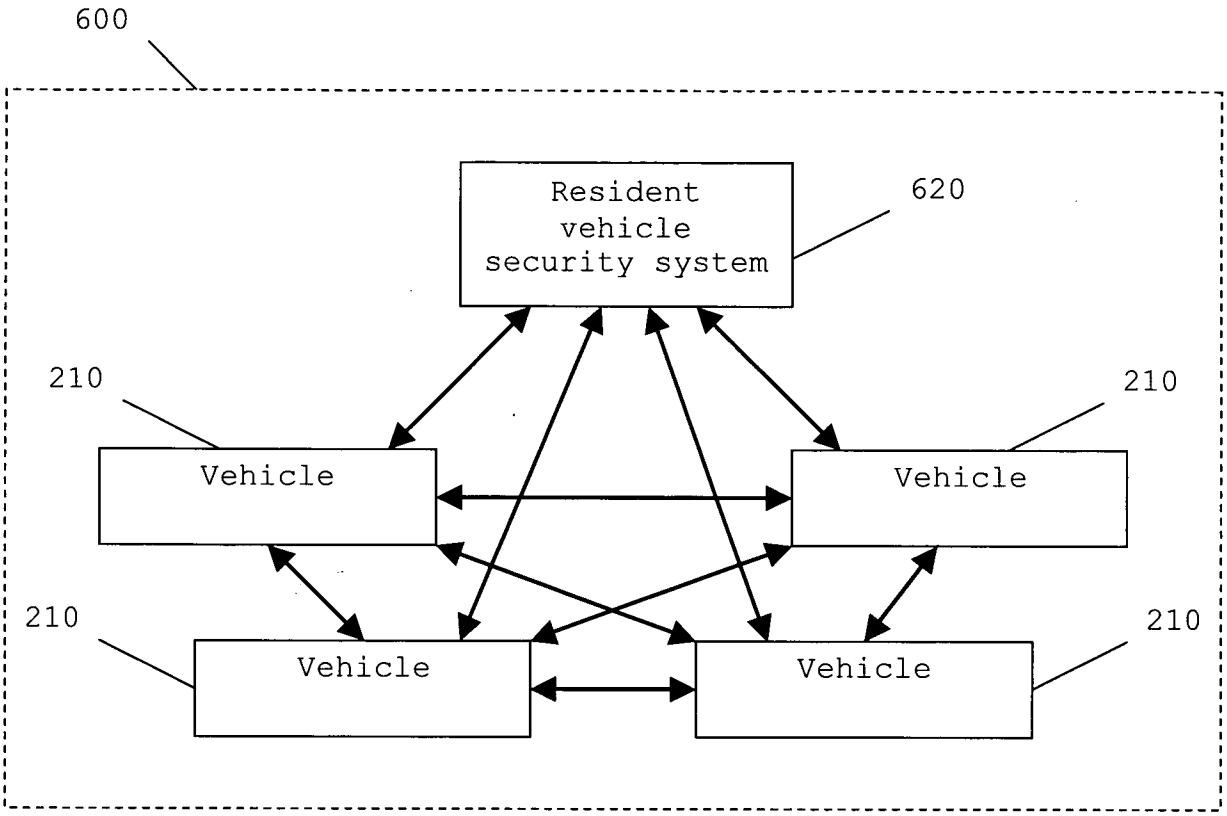

600
Resident vehicle security system
620
210
210
Vehicle
Vehicle
210
210
Vehicle
Vehicle

FIG. 6

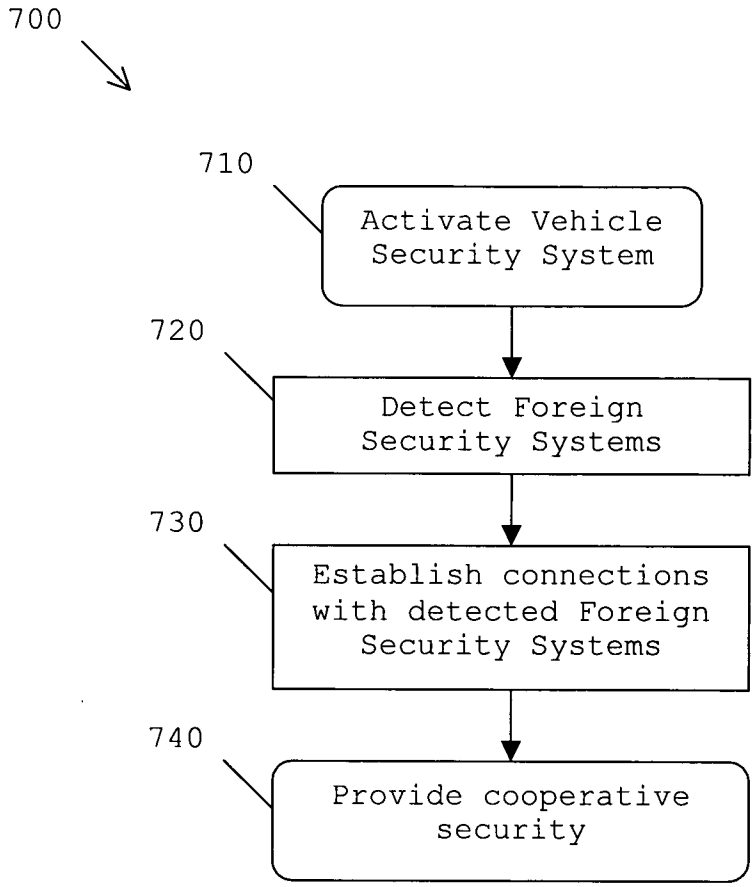

700
710
Activate Vehicle Security System
720
Detect Foreign Security Systems
730
Establish connections with detected Foreign Security Systems
740
Provide cooperative security

FIG. 7

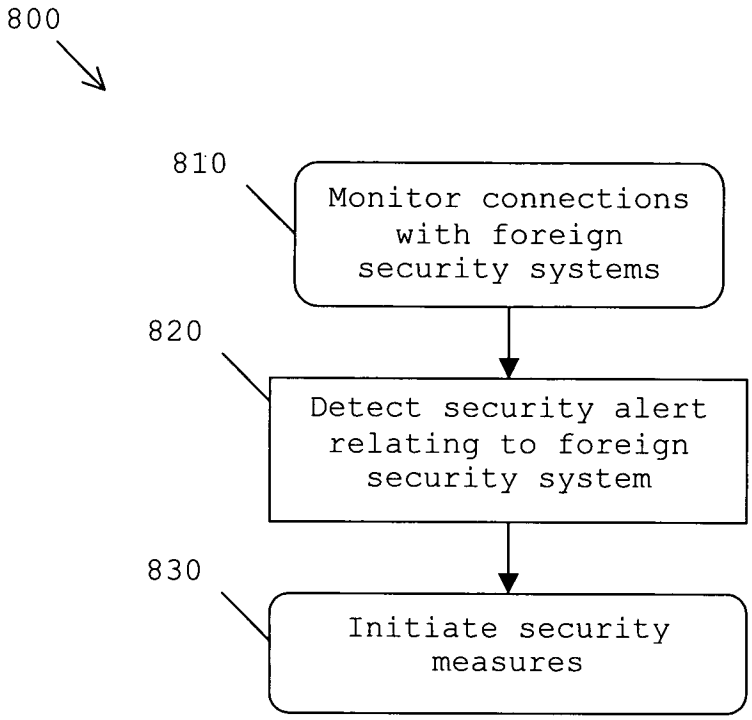

800
810
Monitor connections with foreign security systems
820
Detect security alert relating to foreign security system
830
Initiate security measures

FIG. 8

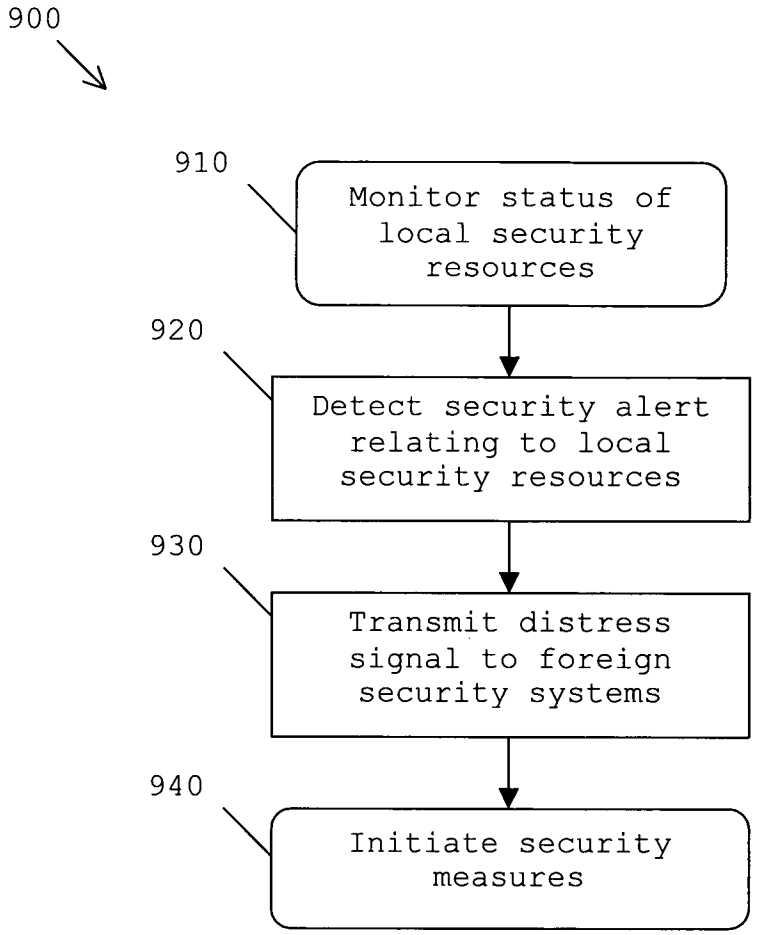

900
910
Monitor status of local security resources
920
Detect security alert relating to local security resources
930
Transmit distress signal to foreign security systems
940
Initiate security measures

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/RU2007/000316

A. CLASSIFICATION OF SUBJECT MATTER
INV. B60R25/00 B60R25/10 G07C5/00 G08B13/00 G08B21/00
G08B25/10 G08B25/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B60R G07C G08B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 593 564 A (MERONI GIUSEPPE [IT]) 9 November 2005 (2005-11-09)	1,2, 4-10, 12-17, 19-22
Y	the whole document	18
X	US 2003/211852 A1 (VIDAILLAC PIERRE [CA]) 13 November 2003 (2003-11-13)	1,2, 4-10, 12-17, 19-22
Y	paragraphs [0032] - [0034], [0036], [0038], [0040], [0041], [0043], [0052] - [0058], [0060] - [0064], [0101]; figures 3,5	18

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 May 2008	02/06/2008

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schombacher, Hanno

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/RU2007/000316

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/022823 A1 (RYAL KIM A [US] RYAL KIM ANNON [US]) 2 February 2006 (2006-02-02)	1-4, 7-12, 15-17, 19-22
Y	paragraphs [0015], [0024], [0040], [0041]; figures 3,5	18
X	EP 1 384 635 A (BOOMERANG TRACKING INC [CA]) 28 January 2004 (2004-01-28)	1,2,5, 7-10,13, 15-17, 20-22
Y	paragraphs [0009] - [0017]; claims 1,6; figures	18
A	WO 00/52658 A (COMMTRACK LTD [IL]; ALJADEFF DANIEL [IL]) 8 September 2000 (2000-09-08) the whole document	1-22
A	EP 1 513 123 A (RF MONOLITHICS [US]) 9 March 2005 (2005-03-09)	1,9
Y	paragraphs [0015] - [0018]; figure 1	18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/RU2007/000316

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1593564 A	09-11-2005	NONE	
US 2003211852 A1	13-11-2003	NONE	
US 2006022823 A1	02-02-2006	NONE	
EP 1384635 A	28-01-2004	CA 2394770 A1	23-01-2004
		DE 60311039 T2	08-11-2007
		ES 2280708 T3	16-09-2007
		MX PA03006569 A	15-10-2004
		US 2004130440 A1	08-07-2004
WO 0052658 A	08-09-2000	AU 2686800 A	21-09-2000
EP 1513123 A	09-03-2005	JP 2005078639 A	24-03-2005
		KR 20050021962 A	07-03-2005
		US 2007008126 A1	11-01-2007
		US 2005046571 A1	03-03-2005