(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 196 968 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
16.06.2010 Bulletin 2010/24

(51) Int Cl.:
G08B 21/24 *(2006.01)*

(21) Application number: **08305891.7**

(22) Date of filing: **05.12.2008**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(71) Applicant: **Alcatel Lucent**
75008 Paris (FR)

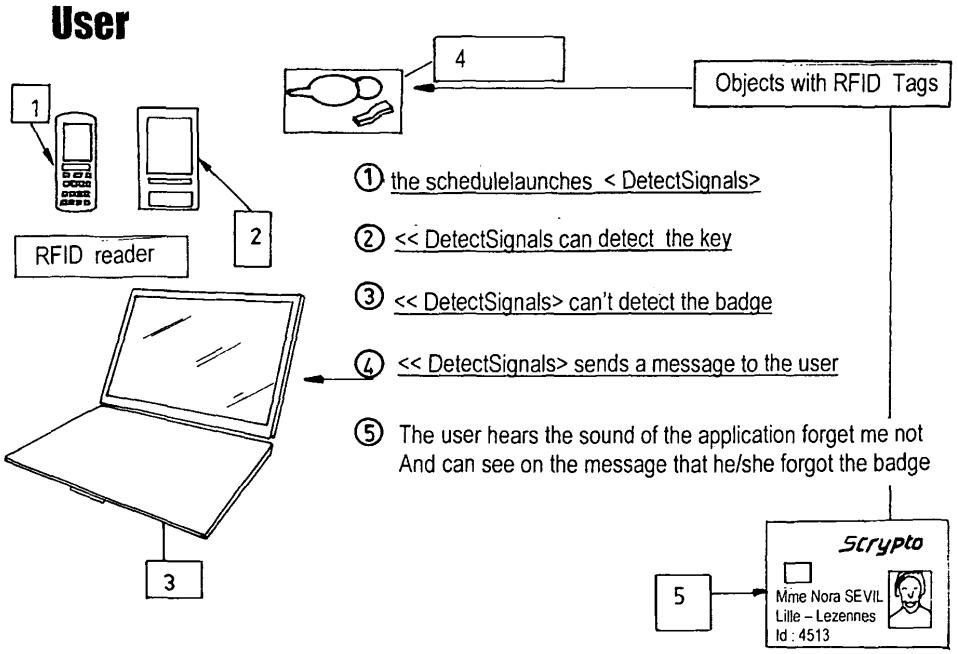
(72) Inventors:
- **Daurensan, Véronique**
  91620 Nozay (FR)
- **Boidart, Bertrand**
  91620 Nozay (FR)

(74) Representative: **Hedarchet, Stéphane**
Alcatel Lucent
Intellectual Property & Standards
54 rue La Boétie
75008 Paris (FR)

(54) **Detection of personal satellite objects in the vicinity of the user**

(57) The invention is related to a computer program product for detecting the presence of satellite objects in the vicinity of a mobile terminal in a wireless telecommunication network, said program product being adapted to carry out all the following steps:
- a step for registering at least a satellite object through a respective name and a tag identifier with which the object is equipped, said tag having RF near field communication capabilities for communicating with the terminal,
- a step for triggering the detection search of the registered satellite objects as a function of an event, the event being predetermined by the user or manually triggered by the user,
- a step for alerting the user if at least a satellite object is not detected within the vicinity of the terminal.

FIG_2



EP 2 196 968 A1

Description

[0001] The invention is related to a computer program product for detecting the presence of satellite objects in the vicinity of a mobile terminal in a wireless telecommunication network. The invention is related as well to a mobile terminal.

[0002] In today's life, we suffer from the increasing number of "satellite objects" we have to deal with. What is referred to as a satellite object hereinafter is a commonly-used object that we need to keep with ourselves during the day: that is for example the case for the different sets of keys we handle, the wallet, the credits cards, badges, etc.

Much frustration is felt, time is spent and possibly damages occurred when the users of such satellite objects realize that they have forgotten these at home in the morning.

Unfortunately, there is no way currently to avoid such problem except for checking all by oneself every morning whether no satellite objects have been forgotten at home.

[0003] The present invention aims at solving the above-mentioned problems. The object of the present invention, according to an embodiment, is a computer program product for detecting the presence of satellite objects in the vicinity of a mobile terminal in a wireless telecommunication network, said program product being adapted to carry out all the following steps:

- a step for registering at least a satellite object through a respective name and a tag identifier with which the object is equipped, said tag having RF near field communication capabilities for communicating with the terminal,
- a step for triggering the detection search of the registered satellite objects as a function of an event, the event being predetermined by the user or manually triggered by the user,
- a step for alerting the user if at least a satellite object is not detected within the vicinity of the terminal.

[0004] According to an embodiment of the invention, the program product comprises a list of vectors of satellite objects-related identifiers comprising for example the name and the corresponding tag identifier for each satellite object.

[0005] According to an embodiment of the invention, the registration step comprises approaching by the user each satellite object in the vicinity of the terminal below a maximum distance, and, for each satellite object such approached to the terminal, adding a vector to said list of vectors with entering the name and the corresponding tag identifier for each satellite object.

[0006] According to an embodiment of the invention, the computer program product comprises a module adapted to configure an agenda destined to store events entered by the user and a predetermined period (T) and a scheduler adapted to trigger automatically during predetermined time slots of the agenda periodically the triggering step and the alerting step in case at least a satellite object is not detected within the vicinity of the terminal.

[0007] According to an embodiment of the invention, the program product further comprises, further to the registration step, a step for cancelling a vector corresponding to a satellite object that is not any more taken into account by the program.

[0008] According to an embodiment of the invention, a parameter in the detection search of the registered satellite objects is the maximum distance for establishing RF near field communication between the tags and the terminal.

[0009] The invention according to an embodiment is related to a mobile terminal in a wireless telecommunication network, **characterized in that** it comprises a computer program product according to the invention.

[0010] Other objects and further features of the present invention will be apparent from the following detailed description when read in conjunction with the accompanying drawings:

Figure 1 allows to illustrate the sizes of an RFID label compared to 1€ coin,

Figure 2 schematically illustrates a system and steps of a method according to an embodiment of the invention.

[0011] A description will hereinafter be given of embodiments of the present invention, by referring to the drawings.

[0012] There are two main functions for the RFID personal tracking terminal. First, the user wants to be able to know the general vicinity of his satellite objects and second, the user wants to be able to find it rapidly without getting frustrated.

[0013] The description of an embodiment of the invention is described below:

1. It is assumed that the user always carries his mobile terminal 1 with him. As a mobile terminal, it is encompassed a mobile phone 1 or a Personal Digital Assistant 2 or a mobile computer 3 or any other object linked to a wireless mobile network which the user is always carrying on. This object is called hereinafter the **MainDriver** 3.

An application running from the operating system of the terminal is called hereinafter the application "ForgetMeNot" which supports to perform the functions aimed at in the present patent application.

2. On the **MainDriver** 3, there is a RFID-enabled reader. As an alternative, the terminal or MainDriver could use other Near Field Communication techniques.

3. Moreover, on each satellite communicating objects such as the set of keys 4 and the badge 5, there is an RFID sticker (the user could easily add RFID sticker on each satellite object).

4. At first, there is a step of "Registration" in the embedded application.

a. The user chooses the menu "Registration" in the "ForgetMeNot" application;
b. A list of vectors of identifiers of the satellite communicating objects called ListSat is created. A vector of identifiers is composed of a name (as "HomeKey") and the corresponding RFID tag;
c. The user approaches each satellite close to the RFID/NFC mobile phone reader (the distance is below 5cm).
d. When a satellite is approached near the RFID/NFC mobile phone reader, a vector is added to ListSat. And the user has to enter the friendly name of the satellite object;

5. There is as well possibly a "Cancel" step for cancelling a vector.

a. The user chooses in the menu the tab "Cancel" in the "ForgetMeNot" application.
b. The user can display the **ListSat** and remove the vector corresponding to the satellite object that is not any more taken into account by the application.

6. When a satellite object is approached near the RFID/NFC mobile phone reader, a vector is added to **ListSat.**
7. The application "ForgetMeNot" comprises:

a. Global parameters:

i. the telephone number and/or the mail address of **MainDriver**
ii. a specific sound for the user of **MainDriver** to immediately recognize that he/she is receiving a message from the application "ForgetMeNot"

b. a module to configure:

i. a tooFar distance **D** (Default Value=2 m).
ii. an agenda
iii. a period T (Default Value=2 minutes)
iv. and a list of vectors of identifiers of the satellite communicating objects called **ListSat.** A vector of identifiers is composed of a name (as "HomeKey") and the corresponding RFID tag

c. a module "DetectSatellites" which can be launched:

i. manually on demand of the user
ii. automatically in the time slots defined in the agenda

d. The module "DetectSatellites" uses the RFID reader to see if it can detect the RFID of the items of **ListSat.** If it can't detect an RFID tag, the module "DetectSatellites" sends a message (SMS, email, ring alert, etc.) to the **MainDriver.** In the message is indicated the name of the objects which can't be detected.

8. In the application "ForgetMeNot", there is a scheduler which triggers automatically during the time slots of the agenda periodically the module "DetectSatellites"
9. The user can also launch Himself/herself the module "DetectSatellites".
10. The user if he/she forgot one of the RFID objects hears the "ForgetMeNot" sound and receives the message with the names of the objects he/she forgot.

[0014] There is as well a possible extension of the embodiment:
[0015] The user has several RFID readers in different places, for example:

- an RFID reader connected to his/her PC at home,
- another one connected to his/her PC at office.

[0016] Then the user could have, in step 10 of the embodiment of the invention, the names of the objects he/she forgot and their localization (ie : at home, office,..., unknown). A scheduler will also triggers all the RFID readers, at home, at office , etc.. The RFID readers will send a mail with the list of all the satellites around the RFID reader to **MainDriver.** So the application can associate to each satellite object its localization.

Claims

1. Computer program product for detecting the presence of satellite objects in the vicinity of a mobile terminal in a wireless telecommunication network, said program product being adapted to carry out all the following steps:

- a step for registering at least a satellite object through a respective name and a tag identifier with which the object is equipped, said tag having RF near field communication capabilities for communicating with the terminal,
- a step for triggering the detection search of the registered satellite objects as a function of an event, the event being predetermined by the user or manually triggered by the user,
- a step for alerting the user if at least a satellite object is not detected within the vicinity of the

terminal.

2. Computer program product according to claim 1 **characterized in that** the program product comprises a list of vectors of satellite objects-related identifiers comprising for example the name and the corresponding tag identifier for each satellite object.

3. Computer program product according to claim 2 **characterized in that** the registration step comprises approaching by the user each satellite object in the vicinity of the terminal below a maximum distance, and, for each satellite object such approached to the terminal, adding a vector to said list of vectors with entering the name and the corresponding tag identifier for each satellite object.

4. Computer program product according to any of claims 1 to 3 **characterized in that** it comprises a module adapted to configure an agenda destined to store events entered by the user and a predetermined period (T) and a scheduler adapted to trigger automatically during predetermined time slots of the agenda periodically the triggering step and the alerting step in case at least a satellite object is not detected within the vicinity of the terminal.

5. Computer program product according to claim 2, 3 or claim 4 combined with claim 2 **characterized in that** the program product further comprises, further to the registration step, a step for cancelling a vector corresponding to a satellite object that is not any more taken into account by the program.

6. Computer program product according to any of claims 1 to 5 **characterized in that** a parameter in the detection search of the registered satellite objects is the maximum distance for establishing RF near field communication between the tags and the terminal.

7. Mobile terminal in a wireless telecommunication network, **characterized in that** it comprises a computer program product according to any of claims 1 to 6.

FIG_1

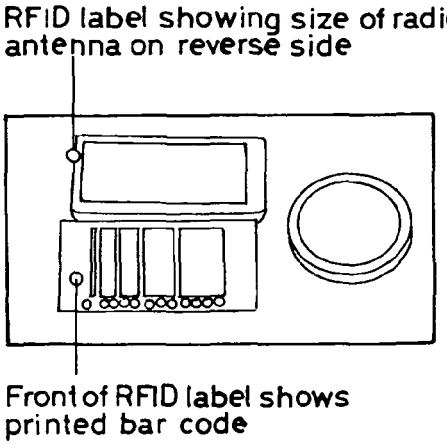
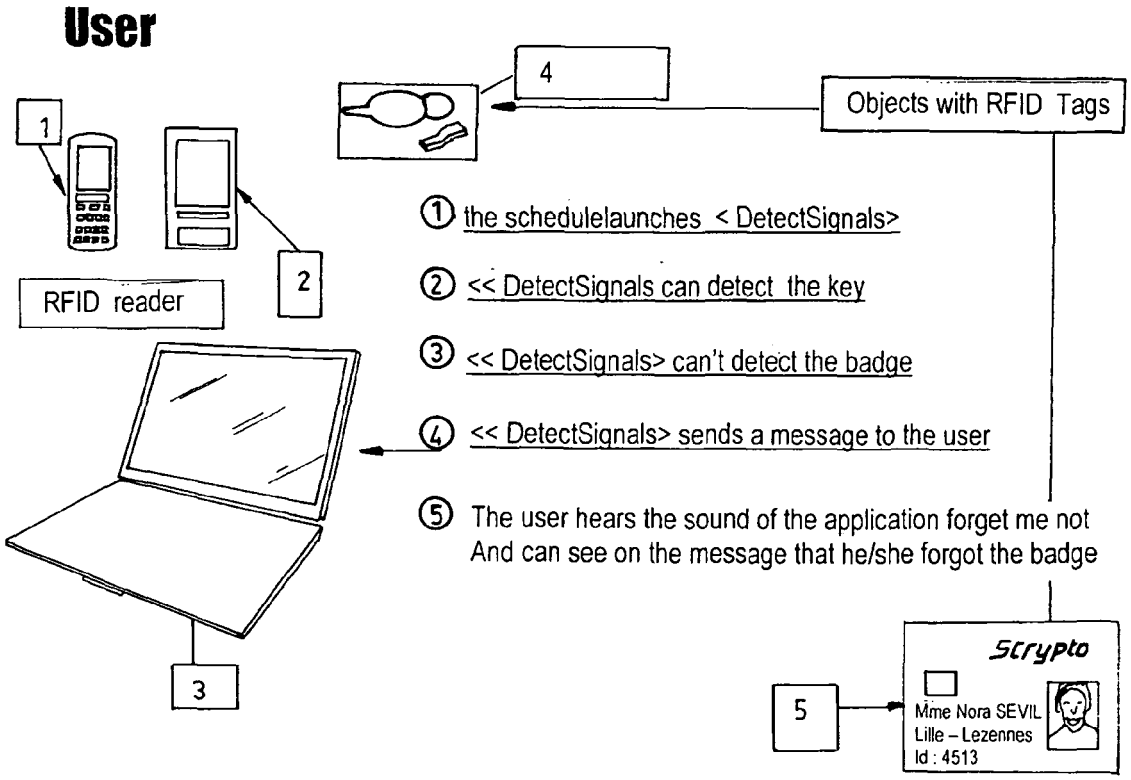

RFID label showing size of radio antenna on reverse side
Front of RFID label shows printed bar code

FIG_2


User
1
2
RFID reader
3
4
Objects with RFID Tags
① the schedulelaunches < DetectSignals>
② << DetectSignals can detect the key
③ << DetectSignals> can't detect the badge
④ << DetectSignals> sends a message to the user
⑤ The user hears the sound of the application forget me not
And can see on the message that he/she forgot the badge
5
Scrypto
Mme Nora SEVIL
Lille – Lezennes
Id : 4513

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 08 30 5891

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2007/007259 A (AMBROSETTI ANTONIO [IT]) 18 January 2007 (2007-01-18) * page 9, line 14 - page 10, line 30 *	1-7	INV. G08B21/24
A	US 4 772 876 A (LAUD TIMOTHY G [US]) 20 September 1988 (1988-09-20) * abstract *	1,3	
A	US 4 855 713 A (BRUNIUS ROBERT E [US]) 8 August 1989 (1989-08-08) * abstract *	1,3	
A	EP 1 903 347 A (PORRO MARCO [IT]; PORRO FLAVIO [IT]) 26 March 2008 (2008-03-26) * abstract *	1-7	
A	US 2005/285739 A1 (VELHAL RAVINDRA V [US] ET AL VELHAL RAVINDRA V [US] ET AL) 29 December 2005 (2005-12-29) * abstract *	1-7	
A	US 2006/023626 A1 (KRAUSZ MANUEL [US]) 2 February 2006 (2006-02-02) * abstract *	1-7	TECHNICAL FIELDS SEARCHED (IPC) G08B
A	US 2007/096933 A1 (ENITAN OLUSOLA [GB] ET AL) 3 May 2007 (2007-05-03) * abstract *	1-7	
A	US 2007/279220 A1 (WILCOX KAREN [US]) 6 December 2007 (2007-12-06)	1-7	
A	US 2008/085735 A1 (LIN HSIEN-CHUNG [TW]) 10 April 2008 (2008-04-10) * abstract *	1-7	

-/--

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	30 March 2009	Sgura, Salvatore

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

1 EPO FORM 1503 03.82 (P04C01)

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 08 30 5891

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2004/217859 A1 (PUCCI DONALD [US] ET AL) 4 November 2004 (2004-11-04) * abstract *	1-7	
A	US 2008/203158 A1 (WIESER STEFAN [AT]) 28 August 2008 (2008-08-28) * abstract *	1-7	
A	US 2007/069897 A1 (BAUCHOT FREDERIC [FR] ET AL) 29 March 2007 (2007-03-29) * abstract *	1-7	
A	WO 2007/104693 A (UNIV DEGLI STUDI UDINE [IT]; BIOTTO GIANLUCA [IT]; DI MONTE PAOLO [IT]) 20 September 2007 (2007-09-20) * abstract *	1-7	
			TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	30 March 2009	Sgura, Salvatore

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

1 EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 30 5891

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-03-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2007007259 A	18-01-2007	EP 1907877 A2	09-04-2008
US 4772876 A	20-09-1988	NONE	
US 4855713 A	08-08-1989	NONE	
EP 1903347 A	26-03-2008	WO 2008037345 A1	03-04-2008
US 2005285739 A1	29-12-2005	NONE	
US 2006023626 A1	02-02-2006	WO 2006014900 A2	09-02-2006
US 2007096933 A1	03-05-2007	NONE	
US 2007279220 A1	06-12-2007	NONE	
US 2008085735 A1	10-04-2008	NONE	
US 2004217859 A1	04-11-2004	US 2005088302 A1	28-04-2005
		WO 2004100093 A2	18-11-2004
US 2008203158 A1	28-08-2008	AT 389924 T	15-04-2008
		CN 101057266 A	17-10-2007
		DE 602005005498 T2	04-12-2008
		WO 2006030387 A1	23-03-2006
		JP 2008513767 T	01-05-2008
US 2007069897 A1	29-03-2007	WO 2007039328 A1	12-04-2007
WO 2007104693 A	20-09-2007	EP 2002412 A1	17-12-2008

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82