

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 April 2008 (03.04.2008)

PCT

(10) International Publication Number
WO 2008/037048 A1

(51) International Patent Classification:
H04L 9/32 (2006.01) H04L 9/00 (2006.01)
H04L 12/16 (2006.01) H04Q 7/32 (2006.01)

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, 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.

(21) International Application Number:
PCT/CA2006/001568

(22) International Filing Date:
26 September 2006 (26.09.2006)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant and

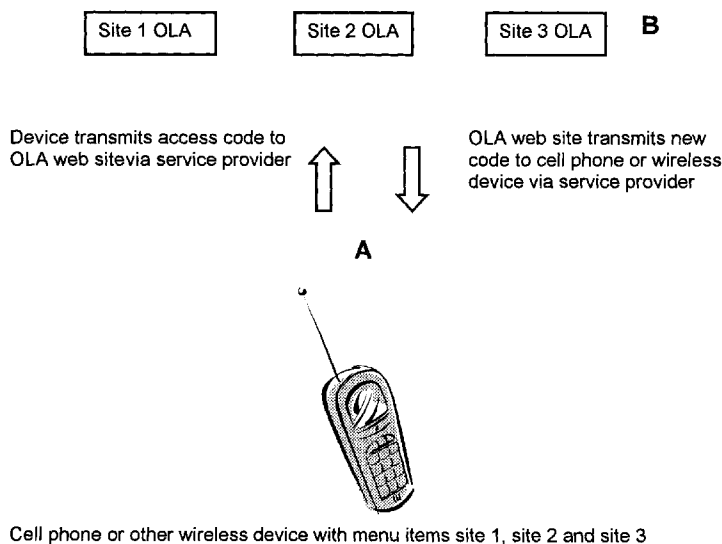
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(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

Published: — with international search report

(54) Title: SECURE ON LINE ACCOUNTS (SOLA) SYSTEM USING CELL PHONES AND OTHER WIRELESS DEVICES



(57) Abstract: This invention describes a cell phone, or other wireless device (henceforth known as "device"), to transmit sound (audible and inaudible) alphanumeric code in any language, special characters or symbols or graphic or pictures or videos or any combination thereof, to an on-line account at a web server that is equipped with a compatible digital transceiver card and software driver and/or firmware for the operation, management and maintenance of this system. Upon verification of the transmitted code or sound, by the web server, access is granted. The said server then transmits a randomly selected new code of any combination of the codes or sounds stated above to the device for storage. The said transmission from the web server cannot be stored in any other device. The device has a menu item and/or numeric code for each on-line account of the user.



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SPECIFICATION:

This invention relates to a cell phone or other wireless device ("device") with a Secure On-Line Account system (SOLA) utilizing a digital code that is changed after each use of the system.

Most "devices" are equipped with an internet browser. Many web sites, e.g., of financial institutions and scientific bodies, provide web accounts for member logins. These OLAs are frequently accessed using the "devices". Conventional security systems for OLAs utilize one of several methods, i.e., by provision of a User ID and password, by voice recognition, or by using biometrics systems. Passwords need to be easily remembered but should not be able to be "guessed" and should not be written down. However, these restrictions also leave the system vulnerable to hacking by unauthorized users using software or spyware at the web site or by "phishing" the OLA holder. Voice recognition systems require appreciable memory space, are slower to respond, and voices can be recorded accurately and played back to the OLA web server leaving the system vulnerable to hacking. Biometrics systems can encounter user resistance since the biometrics information can be misused if it falls into malevolent hands. Theoretically, even biometrics information can be recorded by spyware leaving the system vulnerable. Even security systems using 32 bit

encryption, one of the most secure systems in use, have been hacked using software. Banking, investment and other on-line financial accounts have been hacked and their accounts depleted without knowledge of the account holder.

Clearly a need is identified for a "hacker proof" security system especially for use in systems deployed for on-line accounts (OLA) at web sites and anywhere where sensitive data and documents are stored.

The drawbacks of the present practice for security of OLAs are eliminated with the use of the said device equipped with the SOLA system. Such a device is capable of transmitting (and receiving and storing) a sound or alphanumeric code in any language, or special characters or symbols or graphic or pictures or videos or any combination thereof.. The source of sound can be device generated or pre-recorded from a vast array of sources. These sources are listed in, but not limited to, the list in appendix 1. The list of pictures or videos can be similarly taken from, but not limited to the said appendix. Variables for alphanumeric in any language, special characters, symbols, or graphics are equally vast. A code comprised of any one of these would present a daunting task to any hacker. When used in combination, the system would be impossible to hack. Each OLA would require a different menu item selected from a pre-defined list and/or a numeric code. The transmitted code stored is specific for each OLA.

When setting up on-line accounts using the conventional system, the user is prompted to enter a User Identity (ID) and a password and to re-enter the password to check for accuracy and repeatability. If the host web server is equipped with the SOLA system, the user is prompted to select the conventional or SOLA system. If the SOLA system is selected, the user is asked for a ID and then prompted for a password. The user enters a numeric code or selects an item from a pre-defined list displayed on the screen on the device. The said numeric code is not the password and only serves to locate the stored code for the specific OLA. The user is not requested to re-enter the password.

Figure 1 illustrates the use of the system. On selecting the menu item or entering the code for the site, on first use, the device (A) with the SOLA system generates a random combination of the sounds or alphanumeric code in any language, or special characters or symbols or graphic or pictures or videos or any combination thereof. The signal is transmitted via the cell phone service provider to the web server hosting the OLA (B). The said server then transmits a random combination of the said signals via the cell phone service provider to the device. This new code is stored in 'A' as well as 'B'.

On subsequent use of the SOLA system to access 'A' the new code is transmitted. Upon verification of the code by 'B' access is granted. The server then transmits a new randomly generated code for storage in 'A' as well as 'B'.

This process continues for each use of the system. Therefore passwords are specific for each OLA and are changed on each use of the system and do not need to be remembered. The codes would be impossible to hack. Recording the transmitted signal would serve no purpose as this signal is changed on each use. Recording of the code by any spyware would serve no purpose for the same reason. The response time to this system would be much quicker and require less memory space than voice recognition systems. The new code transmitted by 'B' cannot be received and stored in any other device. Needless to say, the device 'A' has to be located in a secure place.

In the event, the "device" is lost or stolen, the user, as is the normal practice, calls the cell phone service provider who will place a restriction on the "device" after the user satisfactorily answers a few security questions. On acquiring a new "device" the user will need to set up the OLAs again by calling the respective sites to re-set the passwords. This can be inconvenient and is similar to losing a bunch of keys. However, if the "device" is tagged by a "War AMPS" tag for example the "device" can be returned to the user.

APPENDIX 1

Sources and agents of sound and pictures include but not limited to:

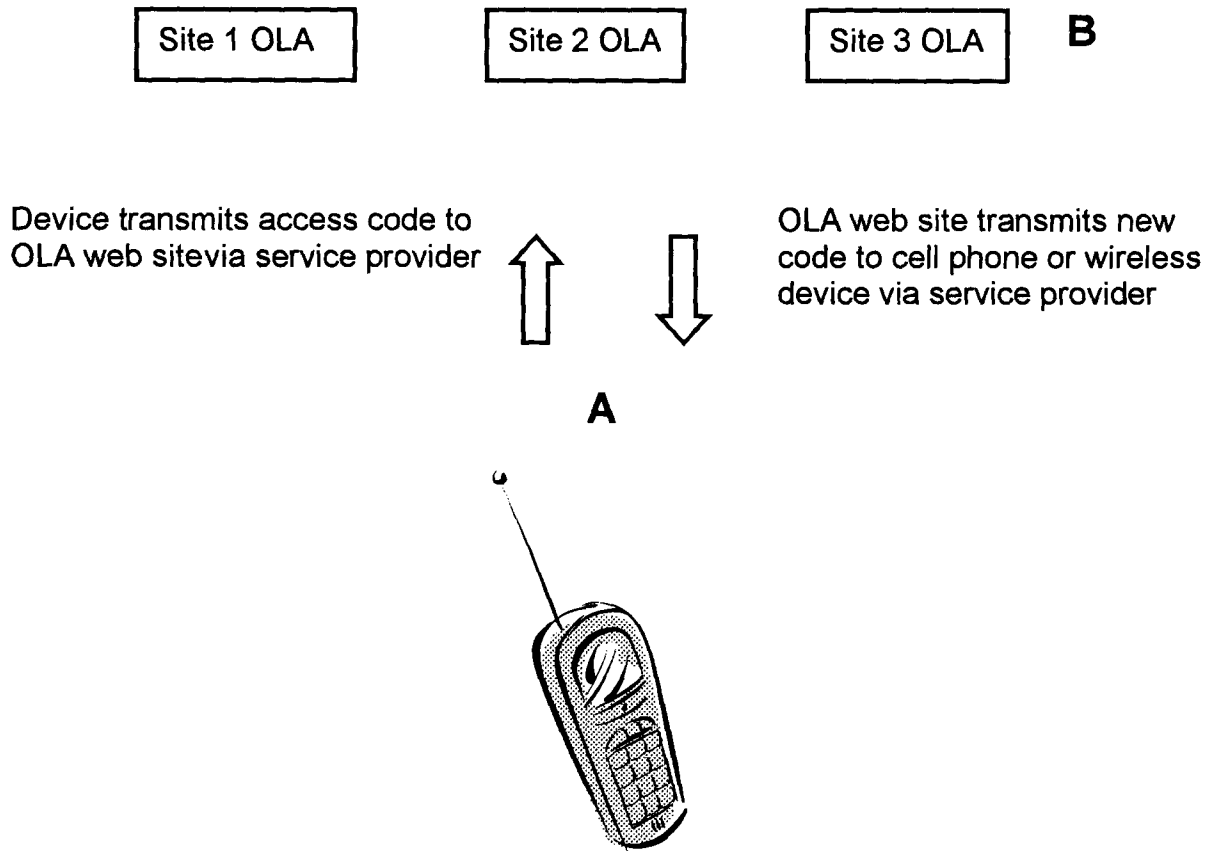
1. Human beings and animals, birds, insects, fish, whales, dolphins.
2. In any language, music, songs, videos, themes music from films. Musical instruments and tuning forks.
3. Running water, rain water, waterfalls, tributaries, rivers lakes, melting snow and ice, piped water, treated and untreated water, icebergs, glaciers.
4. Volcanoes, hurricanes, tornadoes, gales, ordinary wind, solar wind, earthquakes, tsunami, lightning and thunder or any other sounds from nature.
5. Operating machines of any size, anywhere in any industry including ultrasound.
6. Transport vehicles of any size, powered or manual, used anywhere.
7. Objects falling to earth from sky.
8. Explosions, avalanches.
9. Elevators.
10. Sporting events and stadiums, race courses.
11. Church or religious services conducted anywhere in any religion.
12. Clock tower bells, church bells in any religion anywhere, door bells and chimes.
13. Public meetings and demonstrations.
14. Theme park, funfare and circus sounds.
15. Farms and markets.

CLAIMS:

1. A cell phone or other wireless device ("Device") equipped with a Secure On-line Account (SOLA) system comprising:
 - The device 'A' capable of receiving, and storing and transmitting signals for sounds (audible and inaudible) or alphanumeric codes in any language, or special characters or symbols, or graphics or pictures or videos or any combination thereof.
 - The said "device" has user defined menu items. One menu item and/or numeric code is for each of the on-line accounts held by the user.
 - On-line account (OLA) held by the user at web site 'B' on the web server equipped with a transceiver for receiving and storing and transmitting signals or codes stated above.
 - Firmware and/or software for the control, management and maintenance of the DTS.
2. A system as defined in claim 1 in which:
 - A stored code in 'A' is transmitted to the OLA web server 'B' when prompted for a password.
 - 'B' receiving and verifying the transmitted code and upon verification granting access to the user and transmitting a new randomly selected code to 'A' for storing and using after the user logs off.
 - The transmitted code can be sound (audible and inaudible) or alphanumeric code in any language, special characters or symbols, or graphic or pictures or videos or any combination of said signals and codes.
 - The said alphanumeric codes are computer generated at the host web server or at the device. The said sound signals are either computer generated or pre-recorded both on the device and on the host server. Graphics or pictures are pre-recorded on 'A' as well as 'B'. The sources for sound are listed in, but not limited to, the list in appendix 1.

3. In the event, 'A' is lost or stolen, the normal practice for cell phones and wireless devices is followed, i.e., 'A' is placed on restriction by the service provider. On acquiring a new cell phone or wireless device, the OLAs will need to be setup as before, after the user accounts passwords are re-set by the web site.

DRAWING



Cell phone or other wireless device with menu items site 1, site 2 and site 3

FIGURE 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2006/001568

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC: H04L 9/32 (2006.01) , H04L 12/16 (2006.01) , H04L 9/00 (2006.01) , H04Q 7/32 (2006.01) According to International Patent Classification (IPC) or to both national classification and IPC</p>																			
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC: H04L 9/32, H04L 12/16, H04L 9/00, H04Q 7/32 (2006.01) using keywords</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used) WEST, Delphion, Canadian Patent Database Keywords: on-line account, web site, wireless device, cell phone, security, service provider, transceiver</p>																			
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Category*</th> <th style="width:60%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width:30%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td align="center">X</td> <td>US2001/0034678; "Electronic Purchase and Sale of Securities System and Method"; LERNER et al.; 25 October 2001 (25-10-2001) *entire document*</td> <td align="center">1, 2</td> </tr> <tr> <td align="center">X</td> <td>US2002/0112183; "Apparatus and Method for Authenticating Access to a Network Resource"; BAIRD, III et al.; 15 August 2002 (15-08-2002) *entire document*</td> <td align="center">1, 2</td> </tr> <tr> <td align="center">X</td> <td>US2004/0225603; "System and Method for WEB Access to Financial Data"; ALLEN et al.; 11 November 2004 (11-11-2004) *entire document*</td> <td align="center">1, 2</td> </tr> <tr> <td align="center">A</td> <td>WO 01/82242; "Advanced Service Redirector for Personal Computer"; PIKIVI et al.; 01 November 2001 (01-11-2001)</td> <td align="center">1, 2</td> </tr> </tbody> </table> <p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; vertical-align: top;"> * 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 application or patent 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 </td> <td style="width:50%; vertical-align: top;"> "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 </td> </tr> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US2001/0034678; "Electronic Purchase and Sale of Securities System and Method"; LERNER et al.; 25 October 2001 (25-10-2001) *entire document*	1, 2	X	US2002/0112183; "Apparatus and Method for Authenticating Access to a Network Resource"; BAIRD, III et al.; 15 August 2002 (15-08-2002) *entire document*	1, 2	X	US2004/0225603; "System and Method for WEB Access to Financial Data"; ALLEN et al.; 11 November 2004 (11-11-2004) *entire document*	1, 2	A	WO 01/82242; "Advanced Service Redirector for Personal Computer"; PIKIVI et al.; 01 November 2001 (01-11-2001)	1, 2	* 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 application or patent 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
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Date of the actual completion of the international search 26 June 2007 (26-06-2007)		Date of mailing of the international search report 28 June 2007 (28-06-2007)																	
Name and mailing address of the ISA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476		Authorized officer Lawrence J. Engel 819- 997-2936																	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2006/001568

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. Claim Nos. :
because they relate to subject matter not required to be searched by this Authority, namely :

2. Claim Nos. : 3
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :

Claim 3 is not a proper independent nor dependent claim and fails to define any explicit steps or apparatus which would relate to the matter of claims 1 and 2; rather claim 3 states what is "normal practice". Hence, no meaningful search could be performed.

3. Claim Nos. :
because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows :

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos. :
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos. :

- Remark on Protest** The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2006/001568

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US 2001034678A1	25-10-2001		
US 2002112183A1	15-08-2002	AU 2002240452A1 US 6732278E2 WO 02065697A2 WO 02065697A3	28-08-2002 04-05-2004 22-08-2002 12-12-2002
US 2004225603A1	11-11-2004	US 2007073588A1 WO 2004102358A2 WO 2004102358A3 WO 2004102358B1	29-03-2007 25-11-2004 02-06-2005 21-07-2005
WO 0182242A2	01-11-2001	AU 4267801A EP 1277184A2 US 7050993B1 WO 0182242A3	07-11-2001 22-01-2003 23-05-2006 04-04-2002