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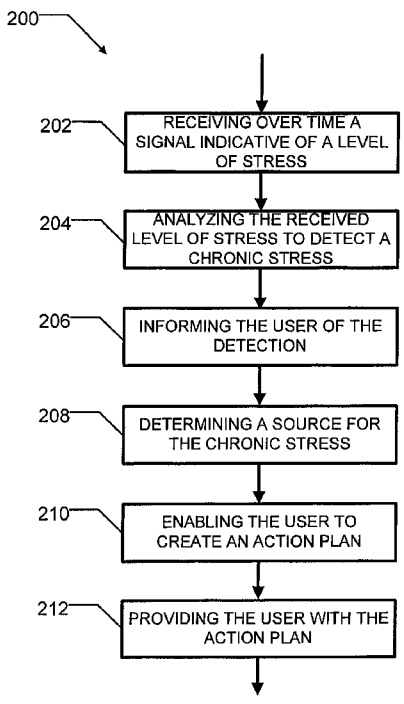

FIG.2

(57) Abstract: A method and a system are disclosed for helping a user to manage their stress using a smartphone, the method comprising receiving over time from the user, using the smartphone, a signal indicative of a level of stress; analyzing the received level of stress to detect a chronic stress; if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected; and providing the user with the action plan to thereby enable the user to manage their stress.

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METHOD AND SYSTEM FOR HELPING A USER TO DETECT AND MANAGE THEIR STRESS USING A SMARTPHONE

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority of U.S. provisional patent application No. 61/620,520, entitled "*Method and system for helping a user to detect and manage their stress using a smartphone*" that was filed on April 5, 2012, the specification of which is hereby incorporated by reference.

BACKGROUND

Many diseases or conditions are associated with chronic stress. For instance, obesity, depression, substance abuse, dropping out of school, burnouts, and cognitive deficit disorders are all associated with chronic stress.

Unfortunaly, stress cannot be removed from our lives since a given level of stress is required in our life. In fact and upon detection of a threat, the brain activates the stress system that will mobilize the required energy so that the body is capable of facing the threat either by fighting it or by escaping it.

Despite the fact that, in western societies, life-threatening situations are not common, stress has become one of the key health factors in our society.

One of the reactions of the body to an occurrence of stress is the releasing of a molecule named cortisol. This molecule will enter the brain and affect the structures responsible for memory performance. One of the consequences of repetitive stress situations will be a loss of the knowledge of the existing stress situations. As a direct consequence, chronic stress situations may occur since repetitive stress may not be detected by our brain itself.

While some prior-art systems (C. Setz, B. Arnrich, J. Schumm, R. La Marca, G. Troster, U. Ehlert, *"Discriminating stress from load using a wearable EDA device,"* IEEE Transf Inf Technol Biomed 14 (2010) 410-7) are available for recording a level of stress, no feedback is provided back to the user, which is a serious limitation.

In addition, with prior-art systems, it is not possible to obtain or help a user create solutions for dealing with a stress, which is also a serious limitation.

There is a need for a method and system that will overcome at least one of the above-identified drawbacks.

Features of the invention will be apparent from review of the disclosure, drawings and description of the invention below.

BRIEF SUMMARY

According to a broad aspect, there is disclosed a method for helping a user to manage their stress using a smartphone, the method comprising receiving over time from the user, using the smartphone, a signal indicative of a level of stress; analyzing the received level of stress to detect a chronic stress; if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected; and providing the user with the action plan to thereby enable the user to manage their stress.

In accordance with an embodiment, the receiving over time of the signal indicative of a level of stress comprises installing an application on the smartphone and providing a signal indicative of a level of stress via the application installed.

In accordance with an embodiment, the installing of the application on the smartphone comprises providing an application and configuring the application.

In accordance with an embodiment, the providing of the application comprises downloading the application from a server via a data network.

In accordance with an embodiment, the configuring of the application is performed by one of the user and an administrator.

In accordance with an embodiment, the configuring of the application comprises providing an indication of a frequency for requesting the user to provide the signal indicative of a level of stress.

In accordance with an embodiment, the indication of a frequency is selected from a group consisting of once every hour, once every two hours, once every four hours and once per day.

In accordance with an embodiment, the indication of a frequency is selected for a given number of days in a week.

In accordance with an embodiment, the providing of a signal indicative of a level of stress comprises displaying a graphics object on a graphics user interface displayed by the application, the graphics object for selecting a value indicative of a level of stress.

In accordance with an embodiment, the graphics object comprises a wheel, further wherein the value indicative of the level of stress is comprised between 0 and 9.

In accordance with an embodiment, the providing of a signal indicative of a level of stress is performed following a request.

In accordance with an embodiment, the request is provided to the user using at least one of a visual signal, an audio signal and a haptic signal.

In accordance with an embodiment, the received signal indicative of a level of stress is greater than a given value, further wherein the method comprises providing the user with a strategy to decrease body signs of stress following the receiving of the received signal indicative of a level of stress.

In accordance with an embodiment, the analyzing of the received level of stress to detect a chronic stress is performed using a plurality of values indicative of a level of stress entered over time.

In accordance with an embodiment, the analyzing of the received level of stress to detect a chronic stress comprises isolating a recurrence in the plurality of values indicative of a level of stress entered over time.

In accordance with an embodiment, the analyzing of the received level of stress to detect a chronic stress is performed using a stress threshold value, a size of a time window for analyzing the plurality of values indicative of a level of stress and a minimum number of occurrences of values greater than the stress threshold value in the time window for analyzing the plurality of values indicative of a level of stress.

In accordance with an embodiment, the informing of the user of the detection of chronic stress comprises providing an alert message to the user using the smartphone.

In accordance with an embodiment, the alert message comprises at least one of a visual signal, an audio signal and a haptic signal.

In accordance with an embodiment, the providing of an alert message to the user using the smartphone comprises displaying an alert message on the smartphone.

In accordance with an embodiment, the informing the user of the detection comprises inviting the user to review at least one part of the plurality of values indicative of a level of stress.

In accordance with an embodiment, the inviting of the user to review the at least one part of the plurality of values indicative of a level of stress comprises performing an authentication using an access code and displaying at least one part of the plurality of values indicative of a level of stress to the user on the smartphone if the authentication is successful.

In accordance with an embodiment, the displaying of the at least one part of the plurality of values indicative of a level of stress to the user on the smartphone comprises generating a graph of at least one part of the plurality of values in a Cartesian coordinate system in which a an x-axis is used for displaying a temporal scale while an y-axis is used for displaying an intensity scale.

In accordance with an embodiment, the method further comprises identifying at least one location in the graph corresponding to presence of chronic stress.

In accordance with an embodiment, the determining of the source of chronic stress comprises informing the user on a difference between chronic stress and acute stress, the informing comprising displaying a video to the user on the smartphone of the user.

In accordance with an embodiment, the video is downloaded from a website.

In accordance with an embodiment, the determining of the source of chronic stress comprises providing an indication of a level of stress from the signal indicative of a level of stress received over time and detecting if the provided indication of a level of stress is greater than a given value, further comprising requesting the user to provide an indication of at least one characteristic of a corresponding situation responsible for the indication of a level of stress greater than the given value.

In accordance with an embodiment, the at least one characteristic of a corresponding situation responsible for the indication of a level of stress greater than the given value is selected from a group consisting of a situation perceived as new, a situation perceived as unpredictable, a situation perceived as threatening for the ego and a situation perceived as inducing a low sense of control.

In accordance with an embodiment, the enabling of the user to create an action plan associated with the source of the chronic stress detected comprises notifying the user for creating an action plan.

In accordance with an embodiment, the notifying the user for creating an action plan comprises providing at least one of a visual signal, an audio signal and a haptic signal.

In accordance with an embodiment, the enabling of the user to create an action plan associated with the source of the chronic stress detected comprises the user providing an indication of a situation generating stress, the user providing at least one characteristic of a corresponding situation responsible for generating stress and describing a strategy for responding to the provided at least one characteristic of a corresponding situation.

In accordance with one aspect, there is disclosed a processing device for helping a user to manage their stress, the processing device comprising a display device; a central processing unit; a communication port for connecting the processing device to another processing device via a data network; an input output port for enabling the user to interact with the processing device; and a memory unit comprising instructions for receiving over time from the user, using the input output port, a signal indicative of a level of stress; instructions for analyzing the received level of stress to detect a chronic stress; instructions for, if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected and providing the user with the action plan to thereby enable the user to manage their stress.

In accordance with another broad aspect, there is disclosed a computer-readable storage medium for storing computer-executable instructions which when executed cause a smartphone to perform a method for helping a user to

manage their stress, the method comprising receiving over time from the user, using the smartphone, a signal indicative of a level of stress; analyzing the received level of stress to detect a chronic stress; if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected and providing the user with the action plan to thereby enable the user to manage their stress.

An advantage of the method disclosed is that it may enable the collecting of stress data associated with a user over a period of time that may be configured according to a requirement.

Another advantage of the method disclosed herein is that it may enable a user to readily identify chronic stress and provide feedback on the chronic stress to the user.

Another advantage of the method disclosed herein is that it provides feedback data pertaining to stress data over time.

Another advantage of the method disclosed is that it enables a user to identify stress factors which result in a high level of stress.

Another advantage of the method disclosed is that it may help a user decrease their level of stress through providing them strategies to do it, on the spot.

Another advantage of the method disclosed is that it may help a user define, implement and readily access action plans which can be used for the purpose of managing stress.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be readily understood, embodiments of the invention are illustrated by way of example in the accompanying drawings.

Figure 1 is a diagram which shows an embodiment of a system for helping a user to detect and manage their stress using a smartphone.

Figure 2 is a flowchart which shows an embodiment of a method for helping a user to manage their stress using a smartphone.

Figure 3 is a flowchart which shows an embodiment for receiving over time a signal indicative of a level of stress.

Figure 4 is a flowchart which shows an embodiment for installing an application in a smartphone.

Figure 5 is a flowchart which shows an embodiment for informing a user of a detection of chronic stress.

Figure 6a is a flowchart which shows an embodiment for determining a source for the chronic stress.

Figure 6b is a flowchart which shows an embodiment for creating an action plan when a pattern of chronic stress is detected.

Figure 7 is a screenshot which shows an embodiment of a graphics user interface (GUI) for displaying stress data over time.

Figure 8 is a screenshot which shows an embodiment of a graphics user interface for displaying stress data over time with specific elements highlighted using a given color.

Figure 9a is a screenshot which shows an embodiment of a graphics user interface for providing parameters for detecting chronic stress.

Figure 9b is a screenshot which shows an embodiment of a graphics user interface for providing a minimum level of stress.

Figure 9c is a screenshot which shows an embodiment of a graphics user interface for providing a size of a time window for analyzing the plurality of values indicative of a level of stress interval limit.

Figure 10 is a screenshot which shows an embodiment of a graphics user interface for informing a user of a detection of chronic stress.

Figure 11 is a screenshot which shows an embodiment of a graphics user interface for inputting at least one of four possible characteristics of a situation.

Figure 12 is a diagram which shows an example of stress data with associated characteristics provided by the user.

Figure 13 is a diagram which shows, *inter alia*, two screenshots which show an embodiment of a graphics user interface for displaying stress data including characteristics associated therewith.

Figure 14 is a screenshot which shows three screenshots of a graphics user interface for, *inter alia,* informing a user of a suggestion to create an action plan for managing stress.

Figure 15 is a screenshot which shows an embodiment of a graphics user interface for building an action plan.

Figure 16 is a diagram which shows an embodiment of a processing device in which the method disclosed herein may be implemented.

Further details of the invention and its advantages will be apparent from the detailed description included below.

DETAILED DESCRIPTION

In the following description of the embodiments, references to the accompanying drawings are by way of illustration of an example by which the invention may be practiced. It will be understood that other embodiments may be made without departing from the scope of the invention disclosed.

Now referring to Fig. 1, there is shown an embodiment of a system 100 in which a method for helping a user to manage their stress using a smartphone may be implemented.

More precisely, the system 100 comprises a server 102, a data network 104 and a plurality of smartphones 106.

The server 102 is used for uploading data to and storing data from each of the plurality of smartphones 106, synchronizing data between the server 102 and each of the plurality of smartphones 106, and sharing and analyzing data from each of the plurality of smartphones 106; as further explained below.

The server 102 is operatively connected to each of the plurality of smartphones 106 via the data network 104.

In an embodiment, the server 102 is a computer which comprises a central processing unit (CPU), memory, and permanent storage, such as a hard disk drive. The server 102 is in a LAMP software stack configuration (Centos Linux operating system with an Apache HTTP Server, MySQL as a database software and PHP for producing dynamic web pages). It will be appreciated that the server 102 has a worldwide web accessible user interface programmed in one embodiment using PHP, CSS, and JavaScript that provides browser (e.g., Firefox, Internet explorer, Safari, Chrome) access to smartphone data.

The server 102 is operatively connected to the data network 104 using a network interface, not shown. The network interface comprises, in one embodiment, a physical Ethernet (IEEE 802.3) connected to the Internet.

As known to the skilled addressee, the Internet is a worldwide network of interconnected computer networks that operates using a standardized set of communications protocols identified as transmission control protocol/Internet protocol (TCP/IP).

It will be appreciated by the skilled addressee that various alternative embodiments may be provided for the server 102.

In particular, the server 102 may operate using another distribution of Linux, or another operating system such as for instance Unix, MAC OS X manufactured by Apple, or MS Windows manufactured by Microsoft. Alternatively, a web server such as MS Windows IIS, Lighttpd, or Oracle's Sun web server may be used. Alternatively, database such as Oracle, MS Windows SQL Server, PostgreSQL may be used. Still in another embodiment, programming languages such as Java, Perl, or Microsoft ASP C# may be used.

It will be appreciated that the server 102 may also comprise a cluster of computers with processing and database processes distributed over the computers.

The data network 104 is used for sharing data with at least the server 102 and each of the plurality of smartphones 106.

It will be appreciated that in an embodiment the data network 104 comprises the Internet and includes all networks that support the TCP/IP and may comprise at least one of a local area network (LAN), a metropolitan area network (MAN), a wide area network (WAN), a cellular network, etc.

In an embodiment, the data network 104 between the server 102 and the plurality of smartphones 106 comprises all wireless communication networks that support TCP/IP (e.g. CDMA, GSM, Wi-Fi, WiMAX, etc.)

Each of the plurality of smartphones 106 is used for sharing data via an application, as explained further below.

Each of the plurality of smartphones 106 is typically used by a user who is looking to detect and manage their stress using a smartphone.

It will be appreciated that the smartphones of the plurality of smartphones 106 may be of various types. In fact, each smartphone of the plurality of smartphones 106 may run a given operating system.

In an embodiment, each smartphone is an iPhone(TM) or iPAD(TM) running iOS and manufactured by Apple(TM).

It will be appreciated that a smartphone may alternatively run on an operating system selected from a group consisting of Blackberry OS, Android, Linux, Windows mobile, WebOS, Bada, Symbian OS, etc. It will be appreciated that each smartphone of the plurality of smartphones 106 is provided with an application as further explained below.

Now referring to Fig. 2, there is shown an embodiment of a method 200 for helping a user to manage their stress using a smartphone.

According to processing step 202, a signal indicative of a level of stress is received over time. It will be appreciated that the level of stress is related to a level of stress perceived by the user.

It will be appreciated that the signal indicative of a level of stress could alternatively be acquired via the smartphone by other systems such as sensor of stress-related physiological, vocal, behavioural or neuronal indicator from the user.

Now referring to Fig. 3, there is shown an embodiment for receiving over time a signal indicative of a level of stress.

According to processing step 302, an application is installed on the smartphone.

Referring to Fig. 4, there is shown an embodiment for installing the application on the smartphone.

According to processing step 402, the application is provided to a smartphone.

In an embodiment, the application is downloaded from a server via a data network. The skilled addressee will appreciate that the downloading may be performed according to various embodiments.

According to processing step 404, the application is configured by the user.

It will be appreciated that the application may alternatively be configured by an administrator managing the application.

The skilled addressee will appreciate that various elements of the application may be configured as explained further below.

For instance, a frequency for requesting the user to provide the signal indicative of a level of stress may be configured.

In such case and in accordance with one embodiment, the user is asked to enter how many times per day the application will capture and/or request the user to provide the signal indicative of a level of stress.

In an embodiment, the user selects the frequency from a group consisting of once every hour, once every two hours, once every four hours and once per day.

Still in an embodiment, it will be appreciated that the user may choose the frequency for a given number of days in a week.

Now referring back to Fig. 3 and according to processing step 304, a signal indicative of a level of stress is provided.

It will be appreciated by the skilled addressee that the signal indicative of a level of stress may be provided according to various embodiments.

In an embodiment, the signal indicative of a level of stress is provided via the graphics user interface of the smartphone of the user.

More precisely, the user is invited to select a value indicative of a level of stress using a graphics object displayed on a graphics user interface displayed by the application. In one embodiment, the graphics object comprises a wheel displayed on the graphics user interface of the application. In this embodiment, the user flicks or drags to spin the wheel until it displays a desired value beneath the clear selection bar that stretches across the middle of the picker.

In an embodiment, the value indicative of a level of stress is comprised between 0 and 9. Still in this embodiment, a 0 value is associated with a perceived no stress condition, while a 9 value is associated with a perceived extremely high level of stress.

The skilled addressee will appreciate that various alternative embodiments may be provided for providing the value indicative of a level of stress.

It will be therefore appreciated that the level of stress is provided over time in accordance with the frequency selected by the user.

Moreover, it will be appreciated that the signal indicative of a level of stress may be provided following a request made to the user.

It will be appreciated that the request may be provided to the user according to various embodiments. For instance, the request may be provided to the user using at least one of a visual signal, an audio indication and a haptic signal. The visual signal may comprise an element displayed on the graphics user interface of the smartphone. The audio signal may comprise a sound played by the smartphone. The haptic signal may comprise a vibration generated by the smartphone.

In an embodiment, the request is provided to the user using a given sound played by the smartphone and a visual indication informing the user that the application requires an indication of a level of stress.

It will be appreciated that in the case of a detection of a high level of stress, the user may be provided with a strategy to decrease body signs of stress following the receiving of the signal indicative of a level of stress.

The strategy may be one of the strategies that have been validated by studies using psychoneuroendocrinological methods, meaning the measure of stress hormones.

Those strategies have been justified for instance in Kirschbaum, C., Klauer, T., Filipp, S.H., and Hellhammer, D.H. (1995), *"Sex-specific effects of social support on cortisol and subjective responses to acute psychological stress,"* Psychosomatic Medicine, 57(1), 23 31; in Roy, M.P., Steptoe, A., and Kirschbaum, C. (1998), *"Life events and social support as moderators of individual differences in cardiovascular and cortisol reactivity,"* Journal of personality and social psychology, 75(5), 1273-1281; in Martikainen, S., Pesonen, A.-K., Lahti, J., Heinonen, K., Feldt, K., Pyhälä, R., et al. (2013), *"Higher Levels of Physical Activity Are Associated With Lower Hypothalamic-Pituitary-Adrenocortical Axis Reactivity to Psychosocial Stress in Children,"* The Journal of clinical endocrinology and metabolism. doi:10.1210/jc.2012-3745; in Rimmele, U., Zellweger, B.C., Marti, B., Seiler, R., Mohiyeddini, C., Ehlert, U., and Heinrichs, M. (2007), *"Trained men show lower cortisol, heart rate and*

psychological responses to psychosocial stress compared with untrained men," Psychoneuroendocrinology, 32(6), 627-635, doi:10.1016/j.psyneuen.2007.04.005; and in Martarelli, D., Cocchioni, M., Scuri, S., and Pompei, P. (2011), *"Diaphragmatic breathing reduces exercise-induced oxidative stress,"* Evidence-based complementary and alternative medicine: eCAM, 2011, 932430. doi:10.1093/ecam/nep169.

Still referring to Fig. 2 and according to processing step 204, the received level of stress is analyzed to detect a chronic stress.

It will be appreciated that the analysis is performed using a plurality of values indicative of a level of stress and entered by the user over time.

In an embodiment, the analysis comprises determining a pattern of chronic stress. The pattern of chronic stress may be detected by isolating a recurrence in the plurality of values indicative of a level of stress that have been provided by the user within a certain period of time.

In an embodiment, three parameters are used for determining a pattern of chronic stress.

A first parameter is a stress threshold value.

In an embodiment, the first parameter may be selected from a group consisting of a value higher than 0.

A second parameter comprises a size of a time window for analyzing the plurality of values indicative of a level of stress.

In an embodiment, the second parameter is selected from a group consisting of 1 week, 2 weeks, 3 weeks, 1 month and 2 months.

A third parameter comprises a minimum number of occurrences of values greater than the stress threshold value in the time window for analyzing the plurality of values indicative of a level of stress.

In an embodiment, the third parameter is selected from a group consisting of a value higher than 2.

Now referring to Fig. 9a and to Figs. 9b and 9c, there are shown examples of a graphics user interface for providing the first, the second and the third parameter for detecting chronic stress. For instance, the minimum level of stress is set in Fig. 9b and the size of a time window for analyzing the plurality of values indicative of a level of stress interval limit is set in Fig. 9c.

In an embodiment, an algorithm uses the first, the second and the third parameter for identifying a pattern of chronic stress.

For instance, it may be detected that the indication of a level of stress is greater in the afternoon than in the morning or that the indication of a level of stress is greater on Tuesday afternoon than during the rest of the week.

In the case where chronic stress is detected and in accordance with processing step 206, the user is informed of the detection.

Now referring to Fig. 5, there is shown an embodiment for informing the user of a detection of chronic stress.

According to processing step 502, the user is provided with an alert message on its smartphone. It will be appreciated that the alert message may be provided according to various embodiments.

For instance, the alert message may comprise at least one of a visual signal, an audio signal and a haptic signal.

The visual signal may comprise an alert message displayed on the graphics user interface of the smartphone.

The audio signal may comprise a sound played by the smartphone.

The haptic signal may comprise a vibration generated by the smartphone.

In an embodiment, the alert message comprises a visual indication that a possible chronic stress has been detected.

Now referring to Fig. 10, there is shown an embodiment of a graphics user interface for informing a user of a detection of chronic stress.

According to processing step 504, the user is invited to review the stress data, also referred to as data, an embodiment of which is the plurality of values indicative of a level of stress.

In an embodiment, the user is required to enter an access code in order to access the data. The skilled addressee will appreciate that requiring an access code for accessing the data may be pertinent since the data are confidential.

According to processing step 506, the data are displayed on the graphics user interface. It will be appreciated that the data may be displayed according to various embodiments.

In an embodiment, a graph is used to display the data. The graph is used for displaying a level of stress over time.

In an embodiment, a Cartesian coordinate system is used for displaying the data with a temporal scale on the x-axis and an intensity scale of stress on the y-axis.

Now referring to Fig. 7, there is shown an embodiment of a graphics user interface used for displaying stress data over time.

It will be appreciated that specific elements in the graph may be identified by highlighting at least one part of the graph using a red color, for instance.

In one embodiment, those specific elements consist of locations in the graph where a chronic stress has been detected.

Fig. 8 shows an embodiment of a graphics user interface used for displaying stress data over time with specific elements highlighted using a given color.

Now referring back to Fig. 2 and according to processing step 208, a source for the chronic stress is determined by the user.

Now referring to Fig. 6a, there is shown an embodiment for determining a source of chronic stress.

According to processing step 602, the user is informed on the differences between chronic stress and acute level of stress.

The user is informed on a way to control this chronic stress through the identification of its sources. In one embodiment a video is used for the purpose of informing the user.

In an embodiment, the user is informed on the differences between an acute level of stress and chronic stress and on the way to control it, using a video displayed on the smartphone. It will be appreciated that in one embodiment, the videos are stored on the smartphone. In an alternative embodiment, videos are downloaded from a server, or are streamed from a website.

According to processing step 604, an indication of a level of stress is provided. As mentioned above, it will be appreciated that the indication of a level of stress may be provided by the user according to various embodiments.

According to processing step 606, a test is performed in order to find out if the provided indication of a level of stress provided by the user is greater than a given value. The provided indication of a level of stress is obtained from the signal indicative of a level of stress received over time.

In an embodiment, the given value is equal to 6, but may be configured.

In the case where the indication of a level of stress provided by the user is greater than the given value, and in accordance with processing step 608, the user is required to provide a characteristic (also referred to as a stress factor) of a corresponding situation.

It will be appreciated that there are four characteristics in a situation that will contribute to the generation of stress (Mason, J. (1968), *"A review of psychoendocrine research on the pituitary-adrenal cortical system," Psychosomatic Medicine*, *30*(5), 576.; Dickerson, S.S., and Kemeny, M.E. (2004), *"Acute stressors and cortisol responses: a theoretical integration and synthesis of laboratory research, Psychological Bulletin*, *130*(3), 355-391. doi:10.1037/0033-2909.130.3.355; Lupien S.J., Ouellet-Morin, I., Hupbach, A., Walker, D, Tu, M,T., Buss, C., Pruessner, J., McEwen, B.S. (2006), *"Beyond the Stress Concept: Allostatic Load – A Development Biological and Cognitive Perspective,"* In: Cicchetti, D. (ed) Handbook Series on Developmental Psychopathology, 784-809).

A first characteristic of a situation that will contribute to the generation of stress is that the situation is perceived as new by the user.

A second characteristic of a situation that will contribute to the generation of stress is that the situation is perceived as unpredictable by the user.

A third characteristic of a situation that will contribute to the generation of stress is that the situation is perceived by the user as threatening to its ego (i.e., related to self-esteem).

A fourth characteristic of a situation that will contribute to the generation of stress is the fact the situation is perceived as inducing a low sense of control.

It will be appreciated that the providing of at least one characteristic associated with a situation may be performed according to various embodiments.

In an embodiment, four switches are displayed on a user interface and the user slides the control to select and reveal one of two values.

More precisely, each switch is used for selecting absence or presence of one of the four characteristics described above and as shown in Fig. 11.

Now referring to Fig. 12, there is shown an example of stress data with associated characteristics provided by the user.

Now referring to Fig. 13, there is shown a diagram which shows, *inter alia*, two screenshots which show an embodiment of a graphics user interface for displaying stress data including characteristics associated.

Now referring back to Fig. 6b, there is shown an embodiment for creating an action plan when a pattern of chronic stress is detected.

According to processing step 602, the user is informed on the differences between chronic stress and acute level of stress.

The user is informed on a way to control this chronic stress through the identification of its sources. In one embodiment a video is displayed on the smartphone for the purpose of informing the user.

As mentioned earlier and in an embodiment, the user is informed on the differences between an acute level of stress and chronic stress and on the way to control it, using a video displayed on the smartphone. In one embodiment, the videos are stored on the smartphone. In an alternative embodiment, videos are downloaded from a server, or streamed from a website.

According to processing step 604, an indication of a level of stress is provided by the user. As mentioned above, it will be appreciated that the indication of a level of stress may be provided by the user according to various embodiments.

According to processing step 612, a test is performed in order to find out if chronicity is detected in high stress.

In the case where chronicity is detected and according to processing step 210, the user is provided with means for creating an action plan.

It will be appreciated that the action plan may be created once chronic stress is detected.

For instance, a first parameter comprises a stress threshold value.

In an embodiment, the first parameter may be selected from a group consisting of a value higher than 0.

A second parameter comprises a size of a time window for analyzing the plurality of values indicative of a level of stress.

In an embodiment, the second parameter is selected from a group consisting of 1 week, 2 weeks, 3 weeks, 1 month and 2 months.

A third parameter comprises a minimum number of occurrences of values greater than the stress threshold value in the time window for analyzing the plurality of values indicative of a level of stress.

In an embodiment, the third parameter is selected from a group consisting of a value higher than or equal to 3.

The purpose of creating an action plan is to help the user to identify the situation responsible for the chronic stress, to identify the characteristics at the origin of the stressfulness of the situation (i.e., novelty, unpredictability, threat to ego and low sense of control) and to readily find possible solutions as explained further below.

The user will therefore enter a strategy for dealing with the given stress.

It will be appreciated that the user may be invited to create an action plan according to various embodiments. In one embodiment, the user may be notified to create an action plan. The notifying the user to create an action plan may comprise providing at least one of a visual signal, an audio signal and a haptic signal.

The visual signal may comprise an element displayed on the graphics user interface of the smartphone. The audio signal may comprise a sound played by the smartphone. The haptic signal may comprise a vibration generated by the smartphone.

In an embodiment, the invitation message comprises a visual indication.

Now referring to Fig. 14, there is shown an embodiment of a graphics user interface for inviting a user to create an action plan.

Now referring to Fig. 15, there is shown an example of a graphics user interface 1700 used for building an action plan.

The skilled addressee will appreciate that various alternative embodiments may be provided for building an action plan.

The graphics user interface 1700 comprises a first part 1702 in which the user is invited to describe the stressful situation the user is presently living, i.e., provide an indication of a situation generating stress.

The graphics user interface 1700 further comprises a second part 1704 in which the user is invited to select at least one of the four characteristics perceived associated with the situation.

The graphics user interface 1700 further comprises a third part 1706 in which the user is invited to enter a strategy for at least one of the selected characteristics of a corresponding situation responsible for generating stress.

It will be appreciated that various embodiments of the action plan may be provided.

According to processing step 212, the user is provided with the created action plan.

It will be appreciated that the user may access a plurality of created action plans.

For example, sources of stress, such as novelty, unpredictability, threats to ego and low sense of control, may change, and thus the strategies associated with each source of stress may change for a given situation. Those action plans may be used upon request from the user when a specific situation occurs which is of great advantage. The user is therefore provided with tools for managing a stress associated with a given situation.

In one embodiment, the user will also be able to find out if a given action plan was helpful or not and to use again this action plan if it has been helpful.

Now referring to Fig. 16, there is shown an embodiment of a processing device 1800 in which the method for helping a user to manage their stress using a smartphone may be advantageously used.

The processing device 1800 comprises a central processing unit 1802, a display device 1804, an input output (I/O) device 1806, communication ports 1808, a data bus 1810 and a memory 1812.

The central processing unit 1802, the display device 1804, the I/O device 1806, the communication port 1808 and the memory 1812 are operatively coupled using the data bus 1812.

More precisely, the central processing unit 1802 is adapted for processing data instructions.

The display device 1804 is used for displaying data to a user.

The communication port 1808 is adapted for operatively connecting the processing device 1800 to another processing device (not shown) via a data network (not shown).

The skilled addressee will appreciate that various embodiments of the communication port 1808 may be provided. Moreover, the skilled addressee will also appreciate that the communication port 1808 may operate according to various communication protocols, such as TCP/IP for instance.

The I/O device 1806 is used for enabling a user to interact with the processing device 1800. The skilled addressee will appreciate that various embodiments of the I/O device 1806 may be used.

The skilled addressee will also appreciate that various embodiments of the data bus 1810 may be provided.

It will also be appreciated that various embodiments of the memory 1812 may be provided.

Moreover, it will be appreciated that the memory 1812 may be used for storing, in an embodiment, an operating system 1814 and an application for helping a user to manage their stress using a smartphone 1816, wherein the application for helping a user to manage their stress using a smartphone 1816 is configured to be executed by the central processing unit 1802.

The application for helping a user to manage their stress using a smartphone 1816 comprises instructions for receiving over time from the user, using the smartphone, a signal indicative of a level of stress.

The application for helping a user to manage their stress using a smartphone 1816 further comprises instructions for analyzing the received level of stress to detect a chronic stress.

The application for helping a user to manage their stress using a smartphone 1816 further comprises instructions for, if a level of stress is greater than a given value, decreasing symptoms of stress by using scientific strategies.

The application for helping a user to manage their stress using a smartphone 1816 further comprises instructions for, if a chronic stress is detected, informing the user of the detection; instructions for determining a source for the chronic stress; instructions for enabling the user to create an action plan associated with the source of the chronic stress detected; instructions for providing the user with the action plan.

It will be also appreciated that a computer-readable storage medium is disclosed for storing computer-executable instructions which, when executed,

cause a smartphone to perform a method for helping a user to manage their stress, the method comprising receiving over time from the user, using the smartphone, a signal indicative of a level of stress; analyzing the received level of stress to detect a chronic stress; if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected; and providing the user with the action plan to thereby enable the user to manage their stress.

It will be appreciated that an advantage of the method disclosed is that it enables the collecting of stress data associated with a user over a period of time which may be configured according to a requirement.

Another advantage of the method disclosed herein is that it may enable a user to readily identify chronic stress and provide feedback on the chronic stress to the user.

Another advantage of the method disclosed herein is that it may provide feedback data pertaining to stress data over time.

Another advantage of the method disclosed is that it may enable a user to identify stress factors which result in a high level of stress in his/her own life.

Another advantage of the method disclosed is that it may help a user define, implement and readily access action plans which can be used for the purpose of managing stress.

Clause 1: A method for helping a user to manage their stress using a smartphone, the method comprising: receiving over time from the user, using the smartphone, a signal indicative of a level of stress; analyzing the received level of stress to detect a chronic stress; if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected; and providing the user with the action plan to thereby enable the user to manage their stress.

Clause 2: The method as claimed in clause 1, wherein the receiving over time of the signal indicative of a level of stress comprises installing an application on the smartphone and providing a signal indicative of a level of stress via the application installed.

Clause 3: The method as claimed in clause 2, wherein the installing of the application on the smartphone comprises providing an application and configuring the application.

Clause 4: The method as claimed in clause 3, wherein the providing of the application comprises downloading the application from a server via a data network.

Clause 5: The method as claimed in any ones of clauses 3 to 4, wherein the configuring of the application is performed by one of the user and an administrator.

Clause 6: The method as claimed in any ones of clauses 3 to 5, wherein the configuring of the application comprises providing an indication of a frequency for requesting the user to provide the signal indicative of a level of stress.

Clause 7: The method as claimed in clause 6, wherein the indication of a frequency is selected from a group consisting of once every hour, once every two hours, once every four hours and once per day.

Clause 8: The method as claimed in any ones of clauses 6 to 7, wherein the indication of a frequency is selected for a given number of days in a week.

Clause 9: The method as claimed in any ones of clauses 1 to 8, wherein the providing of a signal indicative of a level of stress comprises displaying a graphics object on a graphics user interface displayed by the application, the graphics object for selecting a value indicative of a level of stress.

Clause 10: The method as claimed in clause 9, wherein the graphics object comprises a wheel, further wherein the value indicative of the level of stress is comprised between 0 and 9.

Clause 11: The method as claimed in any ones of clauses 2 to 8, wherein the providing of a signal indicative of a level of stress is performed following a request.

Clause 12: The method as claimed in clause 11, wherein the request is provided to the user using at least one of a visual signal, an audio signal and a haptic signal.

Clause 13: The method as claimed in any ones of clauses 1 to 12, wherein the received signal indicative of a level of stress is greater than a given value, further comprising providing the user with a strategy to decrease body signs of stress following the receiving of the received signal indicative of a level of stress.

Clause 14: The method as claimed in any ones of clauses 9 to 10, wherein the analyzing of the received level of stress to detect a chronic stress is performed using a plurality of values indicative of a level of stress entered over time.

Clause 15: The method as claimed in clause 14, wherein the analyzing of the received level of stress to detect a chronic stress comprises isolating a recurrence in the plurality of values indicative of a level of stress entered over time.

Clause 16: The method as claimed in clause 15, wherein the analyzing of the received level of stress to detect a chronic stress is performed using a stress threshold value, a size of a time window for analyzing the plurality of values indicative of a level of stress and a minimum number of occurrences of values greater than the stress threshold value in the time window for analyzing the plurality of values indicative of a level of stress.

Clause 17: The method as claimed in any ones of clauses 1 to 16, wherein the informing of the user of the detection of chronic stress comprises providing an alert message to the user using the smartphone.

Clause 18: The method as claimed in clause 17, wherein the alert message comprises at least one of a visual signal, an audio signal and a haptic signal.

Clause 19: The method as claimed in clause 17, wherein the providing of an alert message to the user using the smartphone comprises displaying an alert message on the smartphone.

Clause 20: The method as claimed in any ones of clauses 9, 10, 14, 15, 16, wherein the informing the user of the detection comprises inviting the user to review at least one part of the plurality of values indicative of a level of stress.

Clause 21: The method as claimed in clause 20, wherein the inviting of the user to review the at least one part of the plurality of values indicative of a level of stress comprises performing an authentication using an access code and displaying at least one part of the plurality of values indicative of a level of stress to the user on the smartphone if the authentication is successful.

Clause 22: The method as claimed in clause 21, wherein the displaying of the at least one part of the plurality of values indicative of a level of stress to the user on the smartphone comprises generating a graph of at least one part of the plurality of values in a Cartesian coordinate system in which a an x-axis is used for displaying a temporal scale while an y-axis is used for displaying an intensity scale.

Clause 23: The method as claimed in clause 22, further comprising identifying at least one location in the graph corresponding to presence of chronic stress.

Clause 24: The method as claimed in any ones of clauses 1 to 23, wherein the determining of the source of chronic stress comprises informing the user on a difference between chronic stress and acute stress, the informing comprising displaying a video to the user on the smartphone of the user.

Clause 25: The method as claimed in clause 24, wherein the video is downloaded from a website.

Clause 26: The method as claimed in any ones of clauses 1 to 25, wherein the determining of the source of chronic stress comprises providing an indication of a level of stress from the signal indicative of a level of stress received over time and detecting if the provided indication of a level of stress is greater than a given value, further comprising requesting the user to provide an indication of at least one characteristic of a corresponding situation responsible for the indication of a level of stress greater than the given value.

Clause 27: The method as claimed in clause 26, wherein the at least one characteristic of a corresponding situation responsible for the indication of a level of stress greater than the given value is selected from a group consisting of a situation perceived as new, a situation perceived as unpredictable, a situation perceived as threatening for the ego and a situation perceived as inducing a low sense of control.

Clause 28: The method as claimed in clause 27, wherein the enabling of the user to create an action plan associated with the source of the chronic stress detected comprises notifying the user for creating an action plan.

Clause 29: The method as claimed in clause 28, wherein the notifying the user for creating an action plan comprises providing at least one of a visual signal, an audio signal and a haptic signal.

Clause 30: The method as claimed in any ones of clauses 1 to 29, wherein the enabling of the user to create an action plan associated with the source of the chronic stress detected comprises the user providing an indication

of a situation generating stress, the user providing at least one characteristic of a corresponding situation responsible for generating stress and describing a strategy for responding to the provided at least one characteristic of a corresponding situation.

Clause 31: A processing device for helping a user to manage their stress, the device comprising a display device; a central processing unit; a communication port for connecting the processing device to another processing device via a data network; an input output port for enabling the user to interact with the processing unit; and a memory unit comprising: instructions for receiving over time from the user, using the input output port, a signal indicative of a level of stress; instructions for analyzing the received level of stress to detect a chronic stress; instructions for, if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected; and providing the user with the action plan to thereby enable the user to manage their stress.

Clause 32: A computer-readable storage medium for storing computer-executable instructions which when executed cause a smartphone to perform a method for helping a user to manage their stress, the method comprising: receiving over time from the user, using the smartphone, a signal indicative of a level of stress; analyzing the received level of stress to detect a chronic stress; if a chronic stress is detected, informing the user of the detection; determining a source for the chronic stress; enabling the user to create an action plan associated with the source of the chronic stress detected and providing the user with the action plan to thereby enable the user to manage their stress.

Although the above description relates to a specific preferred embodiment as presently contemplated by the inventor, it will be understood that the invention in its broad aspect includes mechanical and functional equivalents of the elements described herein.

CLAIMS:

1. A method for helping a user to manage their stress using a smartphone, the method comprising:

receiving over time from the user, using the smartphone, a signal indicative of a level of stress;

analyzing the received level of stress to detect a chronic stress;

if a chronic stress is detected,

informing the user of the detection;

determining a source for the chronic stress;

enabling the user to create an action plan associated with the source of the chronic stress detected; and

providing the user with the action plan to thereby enable the user to manage their stress.

2. The method as claimed in claim 1, wherein the receiving over time of the signal indicative of a level of stress comprises:

installing an application on the smartphone; and

providing a signal indicative of a level of stress via the application installed.

3. The method as claimed in claim 2, wherein the installing of the application on the smartphone comprises:

providing an application; and

configuring the application.

4. The method as claimed in claim 3, wherein the providing of the application comprises downloading the application from a server via a data network.

5. The method as claimed in any ones of claims 3 to 4, wherein the configuring of the application is performed by one of the user and an administrator.

6. The method as claimed in any ones of claims 3 to 5, wherein the configuring of the application comprises providing an indication of a frequency for requesting the user to provide the signal indicative of a level of stress.

7. The method as claimed in claim 6, wherein the indication of a frequency is selected from a group consisting of once every hour, once every two hours, once every four hours and once per day.

8. The method as claimed in any ones of claims 6 to 7, wherein the indication of a frequency is selected for a given number of days in a week.

9. The method as claimed in any ones of claims 1 to 8, wherein the providing of a signal indicative of a level of stress comprises displaying a graphics object on a graphics user interface displayed by the application, the graphics object for selecting a value indicative of a level of stress.

10. The method as claimed in claim 9, wherein the graphics object comprises a wheel, further wherein the value indicative of the level of stress is comprised between 0 and 9.

11. The method as claimed in any ones of claims 2 to 8, wherein the providing of a signal indicative of a level of stress is performed following a request.

12. The method as claimed in claim 11, wherein the request is provided to the user using at least one of a visual signal, an audio signal and a haptic signal.

13. The method as claimed in any ones of claims 1 to 12, wherein the received signal indicative of a level of stress is greater than a given value, further comprising providing the user with a strategy to decrease body signs of stress following the receiving of the received signal indicative of a level of stress.

14. The method as claimed in any ones of claims 9 to 10, wherein the analyzing of the received level of stress to detect a chronic stress is performed using a plurality of values indicative of a level of stress entered over time.

15. The method as claimed in claim 14, wherein the analyzing of the received level of stress to detect a chronic stress comprises isolating a recurrence in the plurality of values indicative of a level of stress entered over time.

16. The method as claimed in claim 15, wherein the analyzing of the received level of stress to detect a chronic stress is performed using a stress threshold value, a size of a time window for analyzing the plurality of values indicative of a level of stress and a minimum number of occurrences of values greater than the stress threshold value in the time window for analyzing the plurality of values indicative of a level of stress.

17. The method as claimed in any ones of claims 1 to 16, wherein the informing of the user of the detection of chronic stress comprises providing an alert message to the user using the smartphone.

18. The method as claimed in claim 17, wherein the alert message comprises at least one of a visual signal, an audio signal and a haptic signal.

19. The method as claimed in claim 17, wherein the providing of an alert message to the user using the smartphone comprises displaying an alert message on the smartphone.

20. The method as claimed in any ones of claims 9, 10, 14, 15, 16, wherein the informing the user of the detection comprises inviting the user to review at least one part of the plurality of values indicative of a level of stress.

21. The method as claimed in claim 20, wherein the inviting of the user to review the at least one part of the plurality of values indicative of a level of stress comprises performing an authentication using an access code and displaying at least one part of the plurality of values indicative of a level of stress to the user on the smartphone if the authentication is successful.

22. The method as claimed in claim 21, wherein the displaying of the at least one part of the plurality of values indicative of a level of stress to the user on the

smartphone comprises generating a graph of at least one part of the plurality of values in a Cartesian coordinate system in which a an x-axis is used for displaying a temporal scale while an y-axis is used for displaying an intensity scale.

23. The method as claimed in claim 22, further comprising identifying at least one location in the graph corresponding to presence of chronic stress.

24. The method as claimed in any ones of claims 1 to 23, wherein the determining of the source of chronic stress comprises informing the user on a difference between chronic stress and acute stress, the informing comprising displaying a video to the user on the smartphone of the user.

25. The method as claimed in claim 24, wherein the video is downloaded from a website.

26. The method as claimed in any ones of claims 1 to 25, wherein the determining of the source of chronic stress comprises providing an indication of a level of stress from the signal indicative of a level of stress received over time and detecting if the provided indication of a level of stress is greater than a given value, further comprising requesting the user to provide an indication of at least one characteristic of a corresponding situation responsible for the indication of a level of stress greater than the given value.

27. The method as claimed in claim 26, wherein the at least one characteristic of a corresponding situation responsible for the indication of a level of stress greater than the given value is selected from a group consisting of a situation perceived as new, a situation perceived as unpredictable, a situation perceived as threatening for the ego and a situation perceived as inducing a low sense of control.

28. The method as claimed in claim 27, wherein the enabling of the user to create an action plan associated with the source of the chronic stress detected comprises notifying the user for creating an action plan.

29. The method as claimed in claim 28, wherein the notifying the user for creating an action plan comprises providing at least one of a visual signal, an audio signal and a haptic signal.

30. The method as claimed in any ones of claims 1 to 29, wherein the enabling of the user to create an action plan associated with the source of the chronic stress detected comprises the user providing an indication of a situation generating stress, the user providing at least one characteristic of a corresponding situation responsible for generating stress and describing a strategy for responding to the provided at least one characteristic of a corresponding situation.

31. A processing device for helping a user to manage their stress, the device comprising:

a display device;

a central processing unit;

a communication port for connecting the processing device to another processing device via a data network;

an input output port for enabling the user to interact with the processing unit; and

a memory unit comprising:

instructions for receiving over time from the user, using the input output port, a signal indicative of a level of stress;

instructions for analyzing the received level of stress to detect a chronic stress;

instructions for, if a chronic stress is detected,

informing the user of the detection;

determining a source for the chronic stress;

enabling the user to create an action plan associated with the source of the chronic stress detected; and

providing the user with the action plan to thereby enable the user to manage their stress.

32. A computer-readable storage medium for storing computer-executable instructions which when executed cause a smartphone to perform a method for helping a user to manage their stress, the method comprising:

receiving over time from the user, using the smartphone, a signal indicative of a level of stress;

analyzing the received level of stress to detect a chronic stress;

if a chronic stress is detected,

informing the user of the detection;

determining a source for the chronic stress;

enabling the user to create an action plan associated with the source of the chronic stress detected; and

providing the user with the action plan to thereby enable the user to manage their stress.

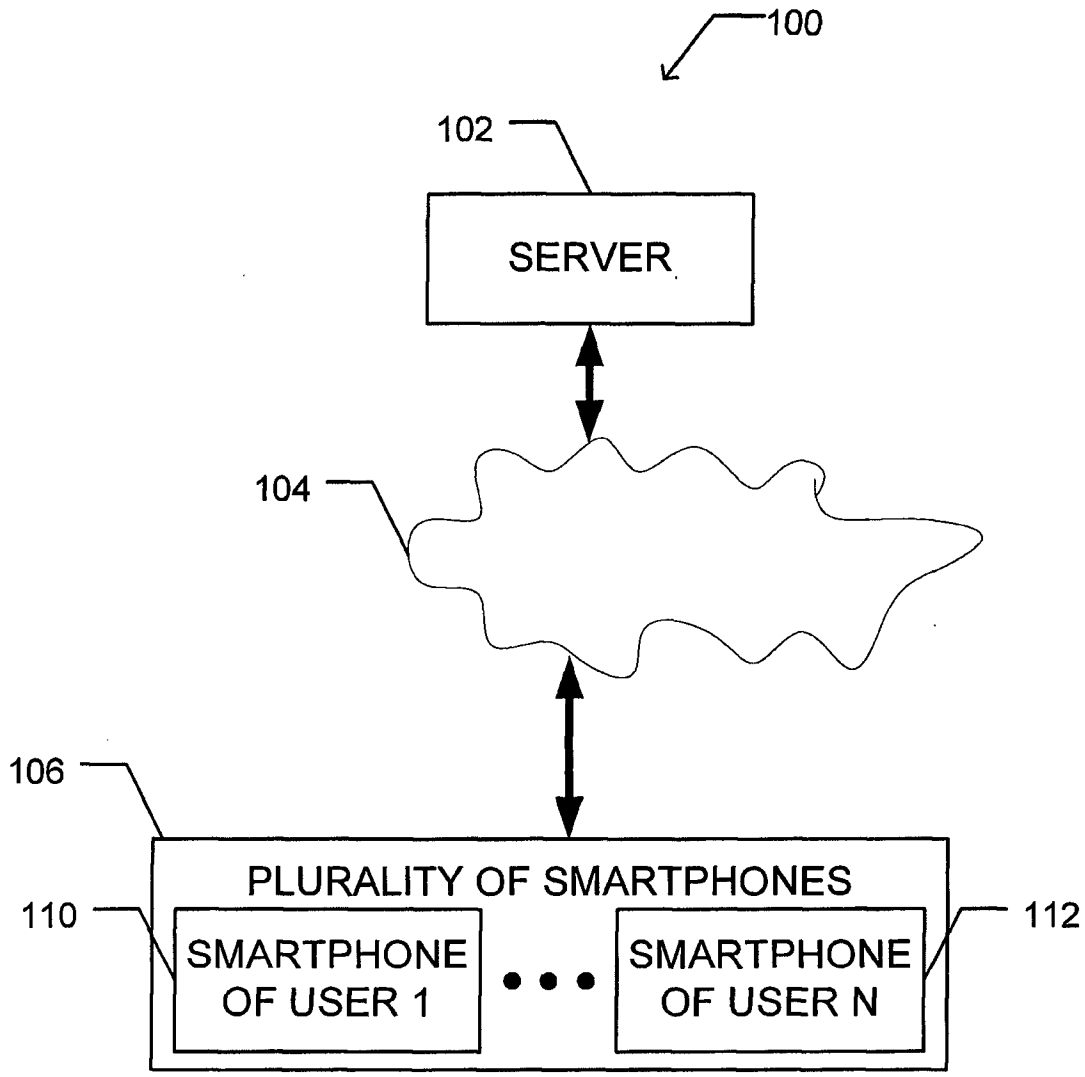
100
102
SERVER
104
106
PLURALITY OF SMARTPHONES
110
SMARTPHONE OF USER 1
SMARTPHONE OF USER N
112

FIG.1

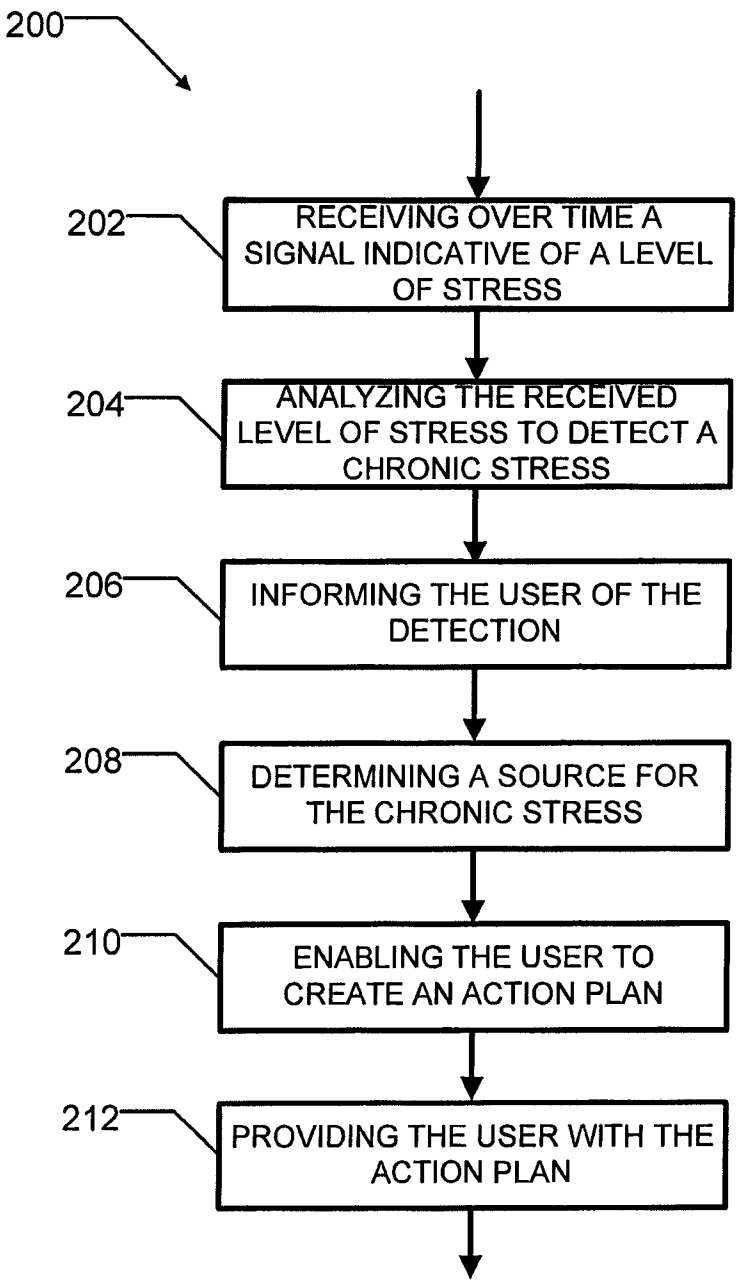
200
202
RECEIVING OVER TIME A SIGNAL INDICATIVE OF A LEVEL OF STRESS
204
ANALYZING THE RECEIVED LEVEL OF STRESS TO DETECT A CHRONIC STRESS
206
INFORMING THE USER OF THE DETECTION
208
DETERMINING A SOURCE FOR THE CHRONIC STRESS
210
ENABLING THE USER TO CREATE AN ACTION PLAN
212
PROVIDING THE USER WITH THE ACTION PLAN

FIG.2

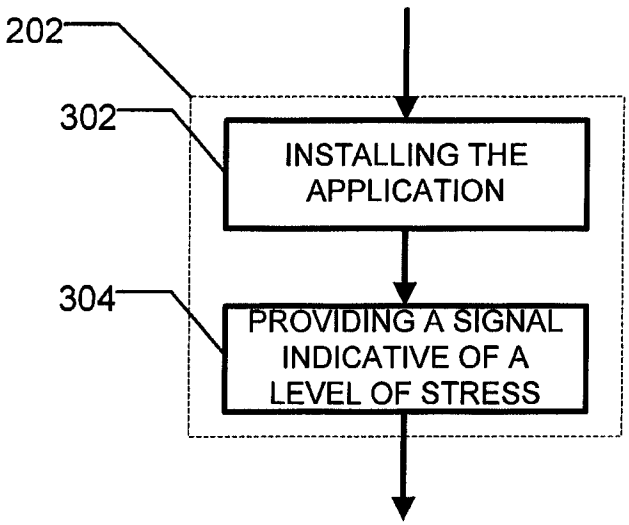
202
302
INSTALLING THE APPLICATION
304
PROVIDING A SIGNAL INDICATIVE OF A LEVEL OF STRESS

FIG.3

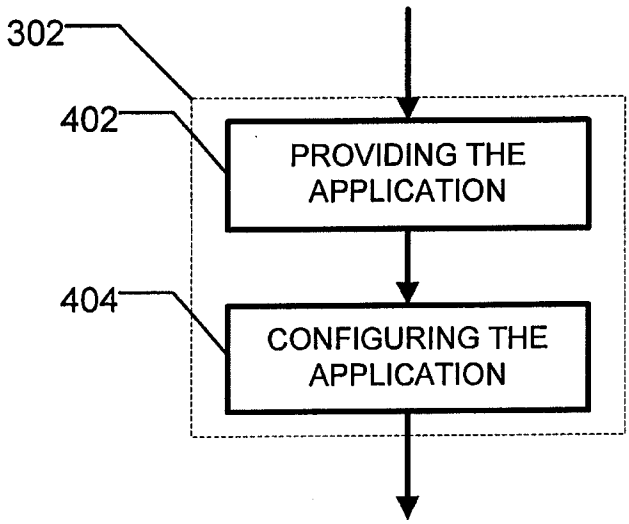
302
402
PROVIDING THE APPLICATION
404
CONFIGURING THE APPLICATION

FIG.4

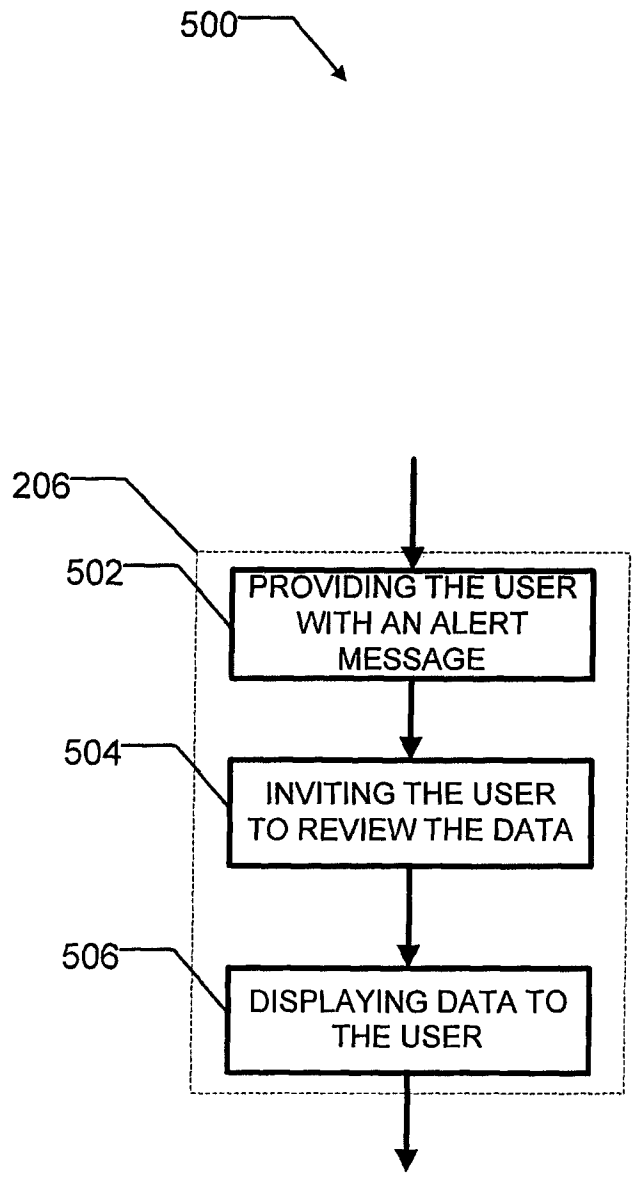
500
206
502
PROVIDING THE USER WITH AN ALERT MESSAGE
504
INVITING THE USER TO REVIEW THE DATA
506
DISPLAYING DATA TO THE USER

FIG.5

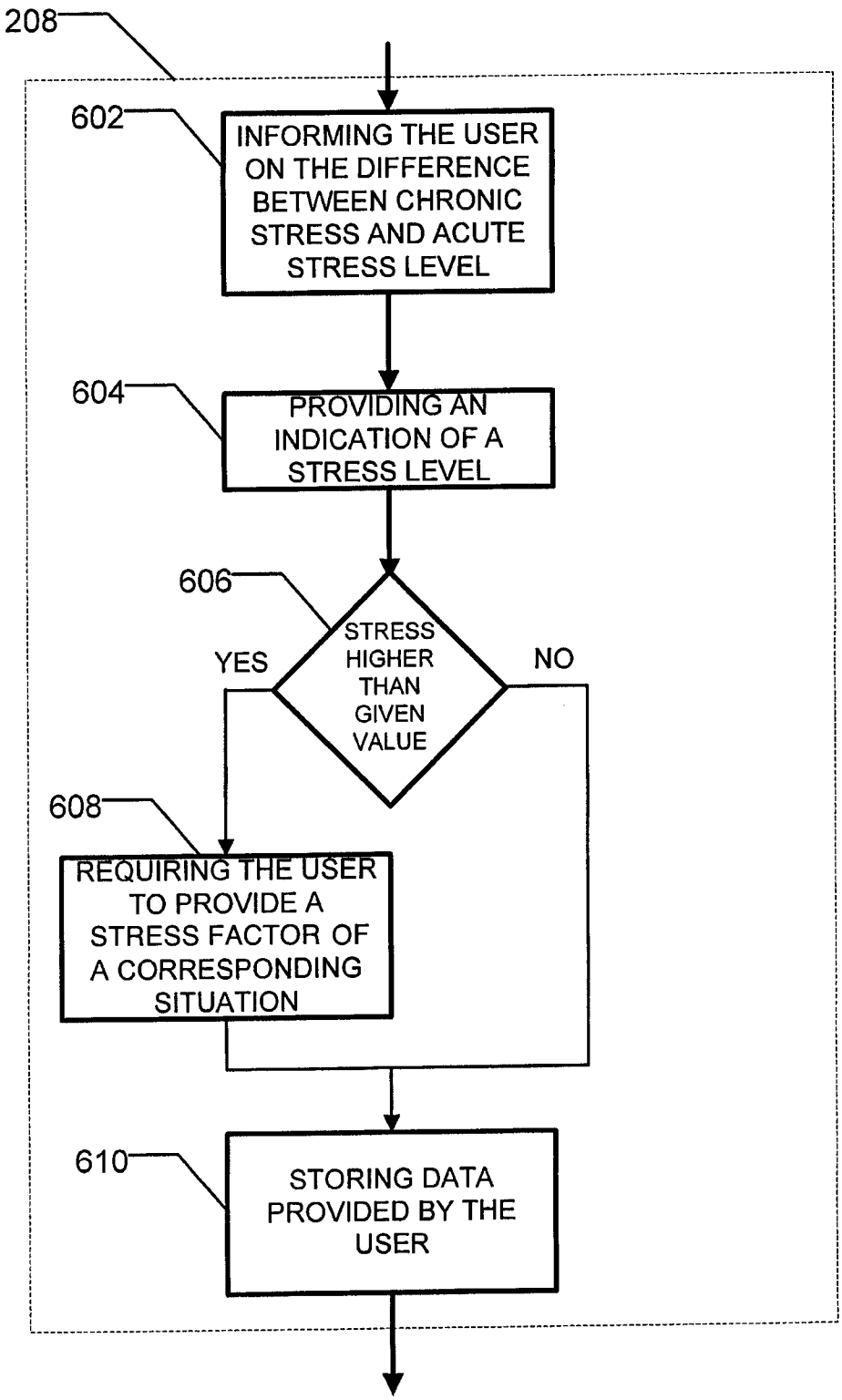
208
602
INFORMING THE USER ON THE DIFFERENCE BETWEEN CHRONIC STRESS AND ACUTE STRESS LEVEL
604
PROVIDING AN INDICATION OF A STRESS LEVEL
606
STRESS HIGHER THAN GIVEN VALUE
YES
NO
608
REQUIRING THE USER TO PROVIDE A STRESS FACTOR OF A CORRESPONDING SITUATION
610
STORING DATA PROVIDED BY THE USER

FIG.6A

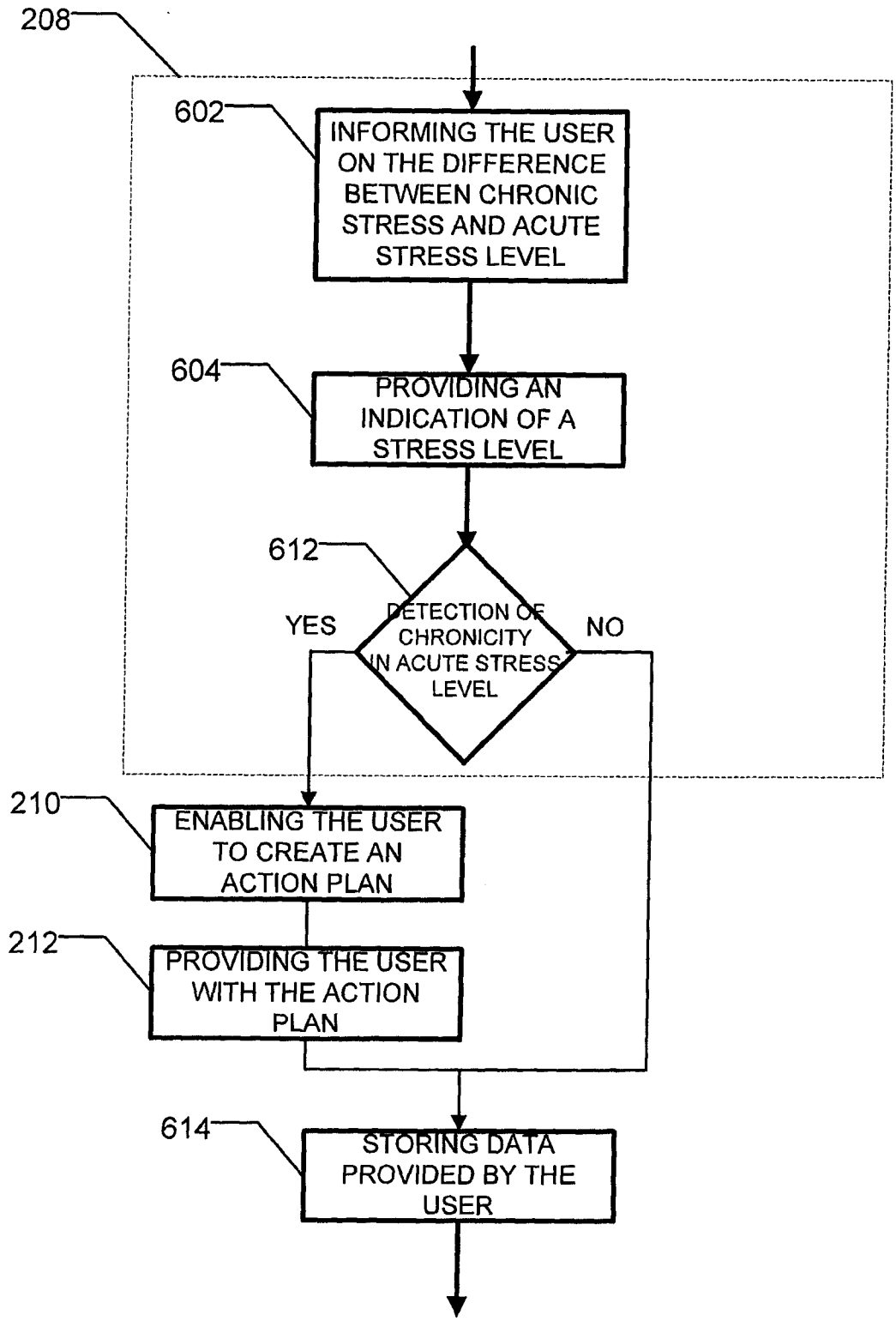
208
602
INFORMING THE USER ON THE DIFFERENCE BETWEEN CHRONIC STRESS AND ACUTE STRESS LEVEL
604
PROVIDING AN INDICATION OF A STRESS LEVEL
612
DETECTION OF CHRONICITY IN ACUTE STRESS LEVEL
YES
NO
210
ENABLING THE USER TO CREATE AN ACTION PLAN
212
PROVIDING THE USER WITH THE ACTION PLAN
614
STORING DATA PROVIDED BY THE USER

FIG.6B

identification	day	time	intensity
id23	18/09/2011	08:00	0
id23	18/09/2011	09:00	0
id23	18/09/2011	10:00	6
id23	18/09/2011	11:00	4
id23	18/09/2011	12:00	2
id23	18/09/2011	13:00	2
id23	18/09/2011	14:00	0
id23	18/09/2011	15:00	0
id23	18/09/2011	16:00	0
id23	18/09/2011	17:00	6

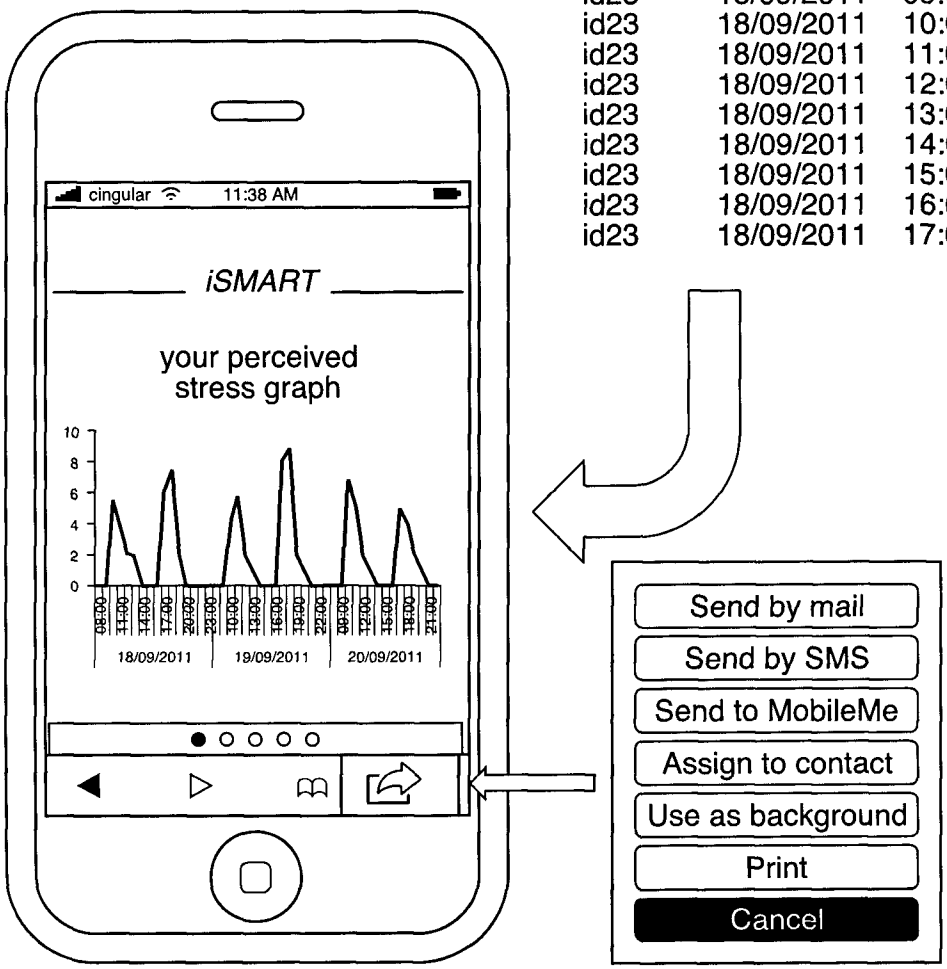

FIG.7

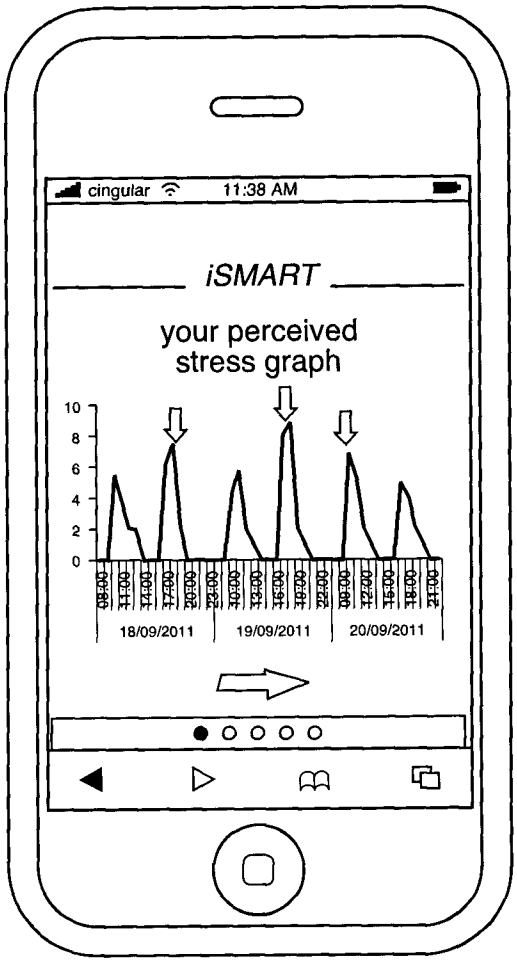
cingular
11:38 AM
iSMART
your perceived
stress graph
10
8
6
4
2
0
18/09/2011
19/09/2011
20/09/2011

FIG.8

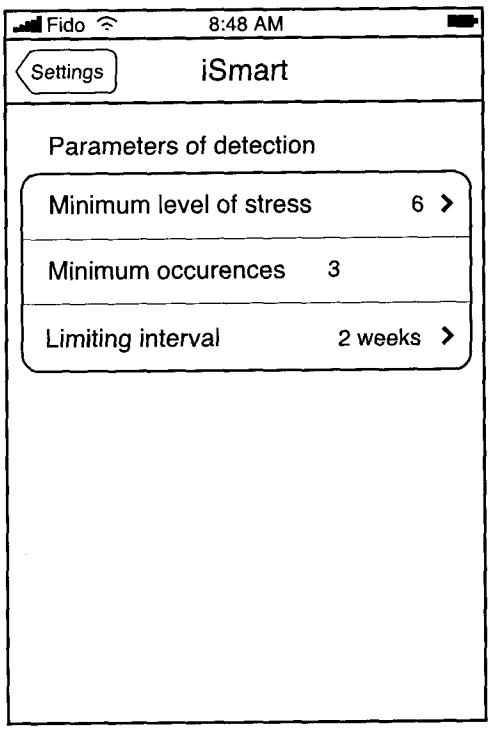

FIG.9a

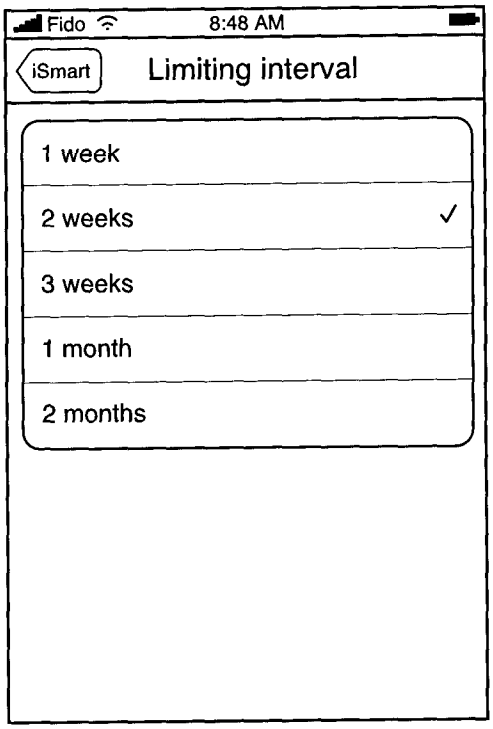

FIG.9c

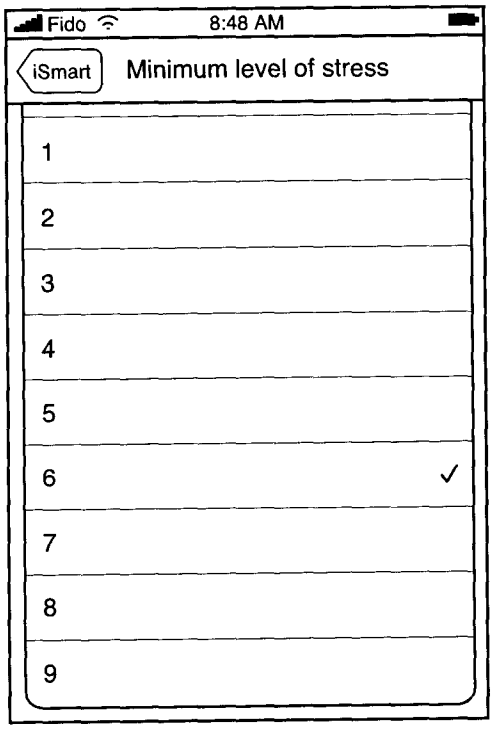

FIG.9b

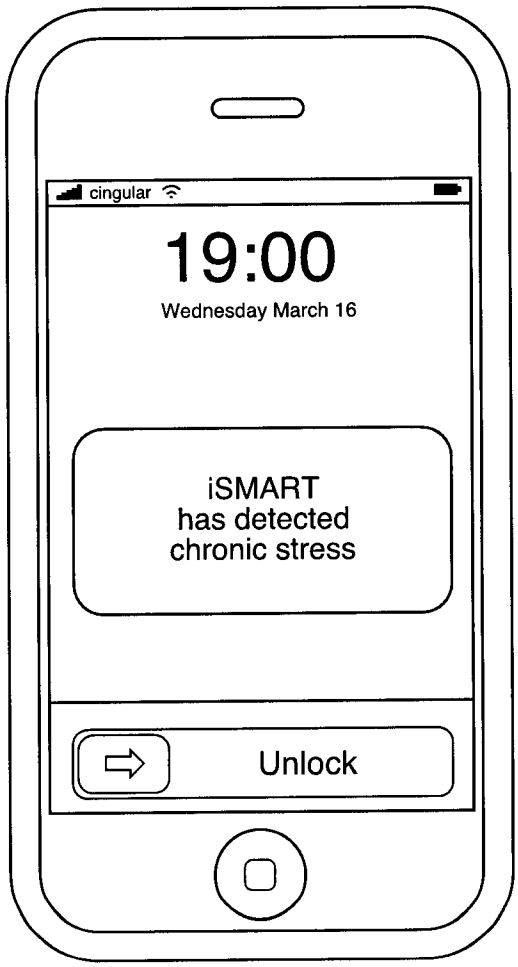
cingular
19:00
Wednesday March 16
iSMART
has detected
chronic stress
Unlock

FIG.10

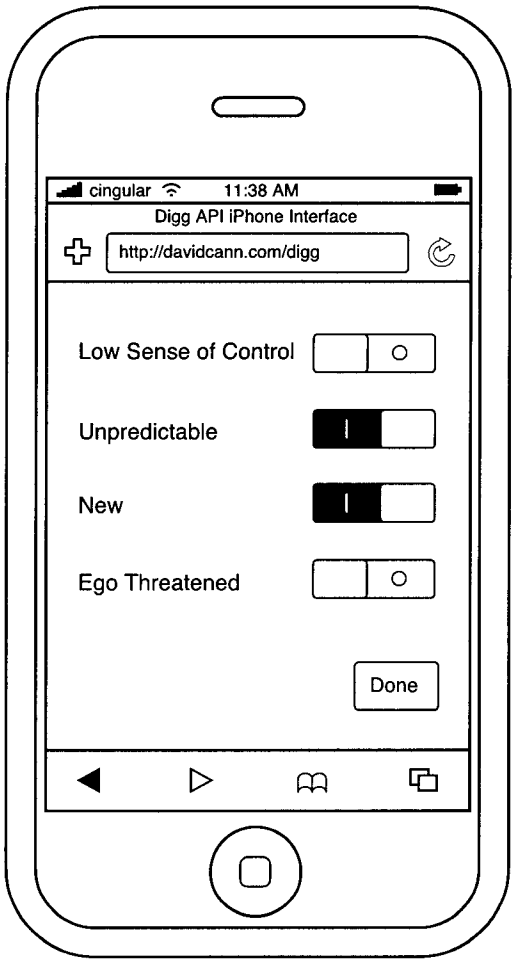
cingular
11:38 AM
Digg API iPhone Interface
http://davidcann.com/digg
Low Sense of Control
Unpredictable
New
Ego Threatened
Done

FIG.11

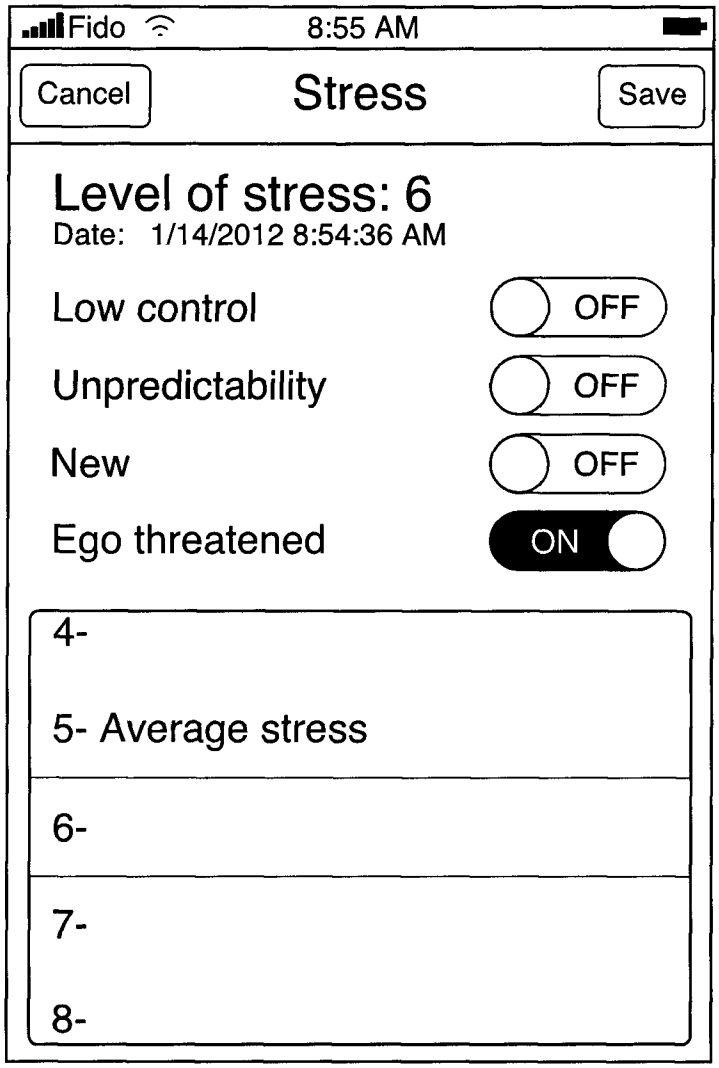
Fido
8:55 AM
Cancel
Stress
Save
Level of stress: 6
Date: 1/14/2012 8:54:36 AM
Low control
OFF
Unpredictability
OFF
New
OFF
Ego threatened
ON
4-
5- Average stress
6-
7-
8-

FIG.12

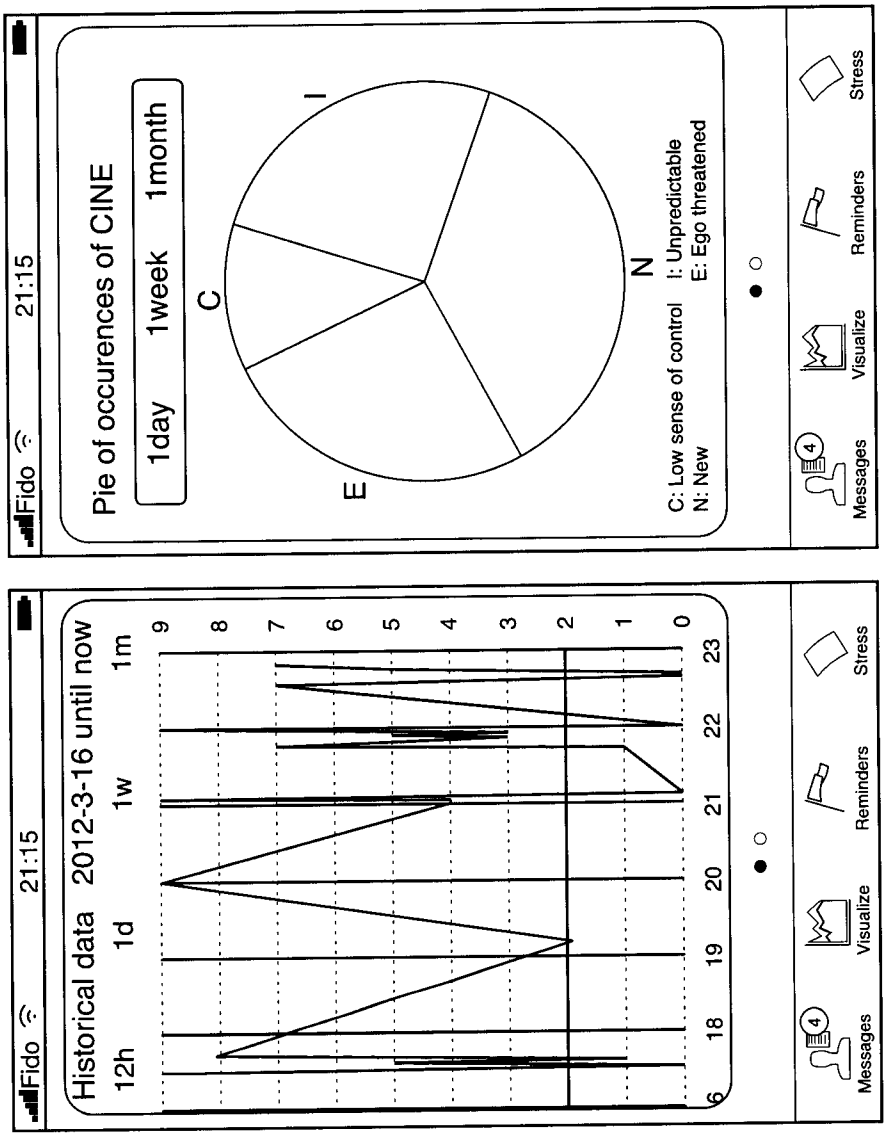
Fido
21:15
Historical data 2012-3-16 until now
12h 1d 1w 1m
9 8 7 6 5 4 3 2 1 0
6 18 19 20 21 22 23
Messages Visualize Reminders Stress
Fido
21:15
Pie of occurences of CINE
1day 1week 1month
C
I
E
N
C: Low sense of control I: Unpredictable
N: New E: Ego threatened
Messages Visualize Reminders Stress

FIG.13

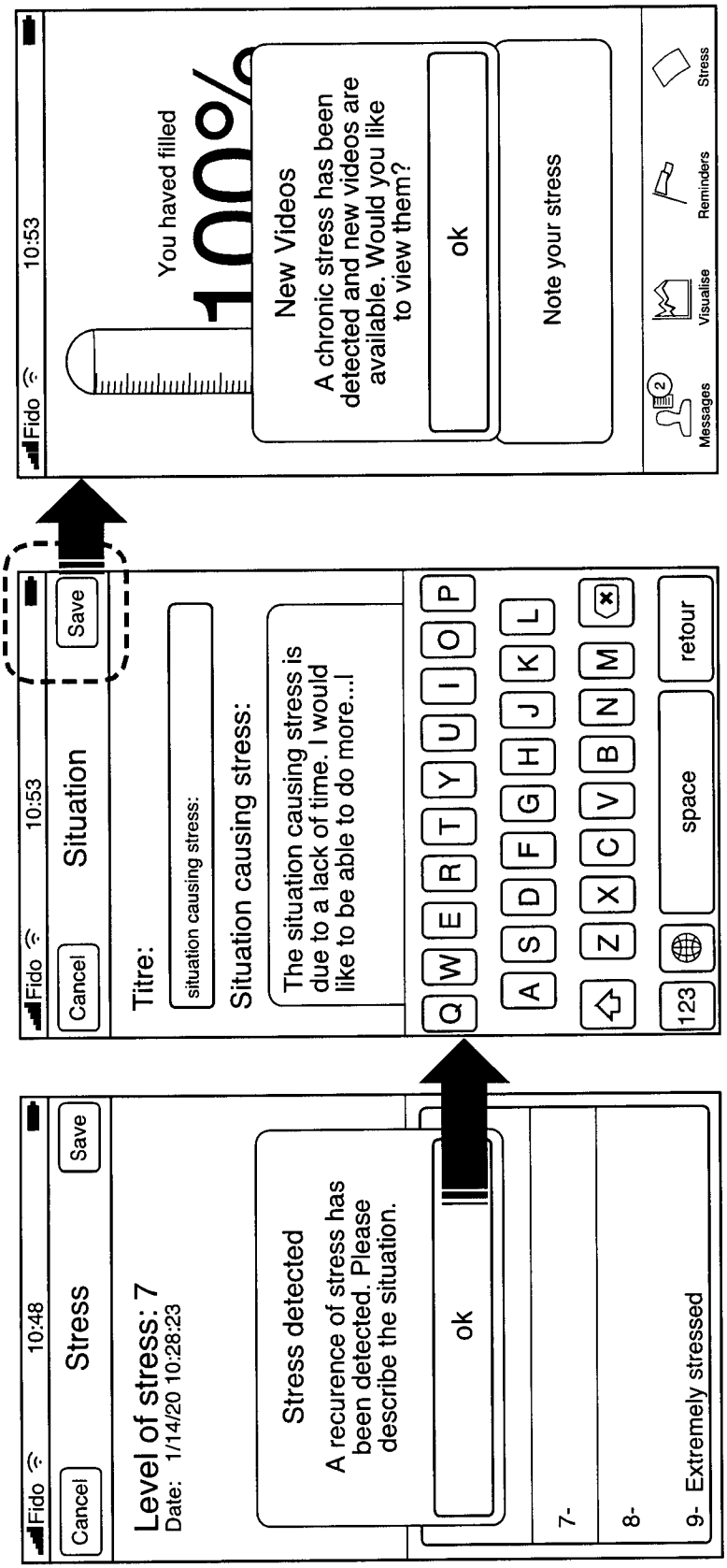
Fido
10:48
Cancel
Stress
Save
Level of stress: 7
Date: 1/14/20 10:28:23
Stress detected
A recurence of stress has been detected. Please describe the situation.
ok
7-
8-
9- Extremely stressed
Fido
10:53
Cancel
Situation
Save
Titre:
situation causing stress:
Situation causing stress:
The situation causing stress is due to a lack of time. I would like to be able to do more...!
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
space
retour
Fido
10:53
You haved filled
100%
New Videos
A chronic stress has been detected and new videos are available. Would you like to view them?
ok
Note your stress
Messages
Visualise
Reminders
Stress

FIG.14

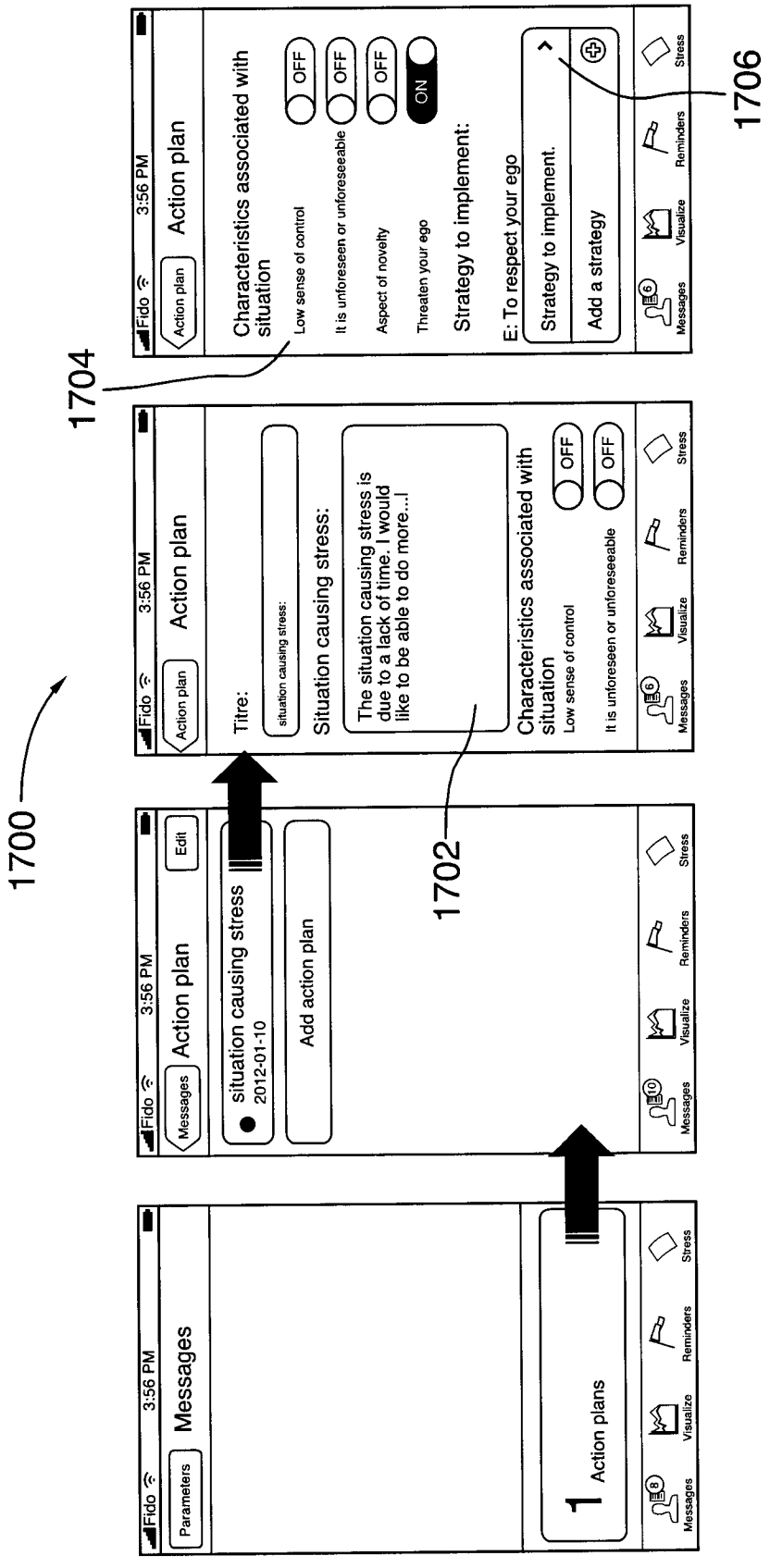
1700
1702
1704
1706
Fido
3:56 PM
Parameters
Messages
1 Action plans
Edit
situation causing stress
2012-01-10
Add action plan
Action plan
Titre:
situation causing stress:
Situation causing stress:
The situation causing stress is due to a lack of time. I would like to be able to do more...!
Characteristics associated with situation
Low sense of control
It is unforeseen or unforeseeable
OFF
Characteristics associated with situation
Aspect of novelty
Threaten your ego
ON
Strategy to implement:
E: To respect your ego
Strategy to implement.
Add a strategy
Messages
Visualize
Reminders
Stress

FIG.15

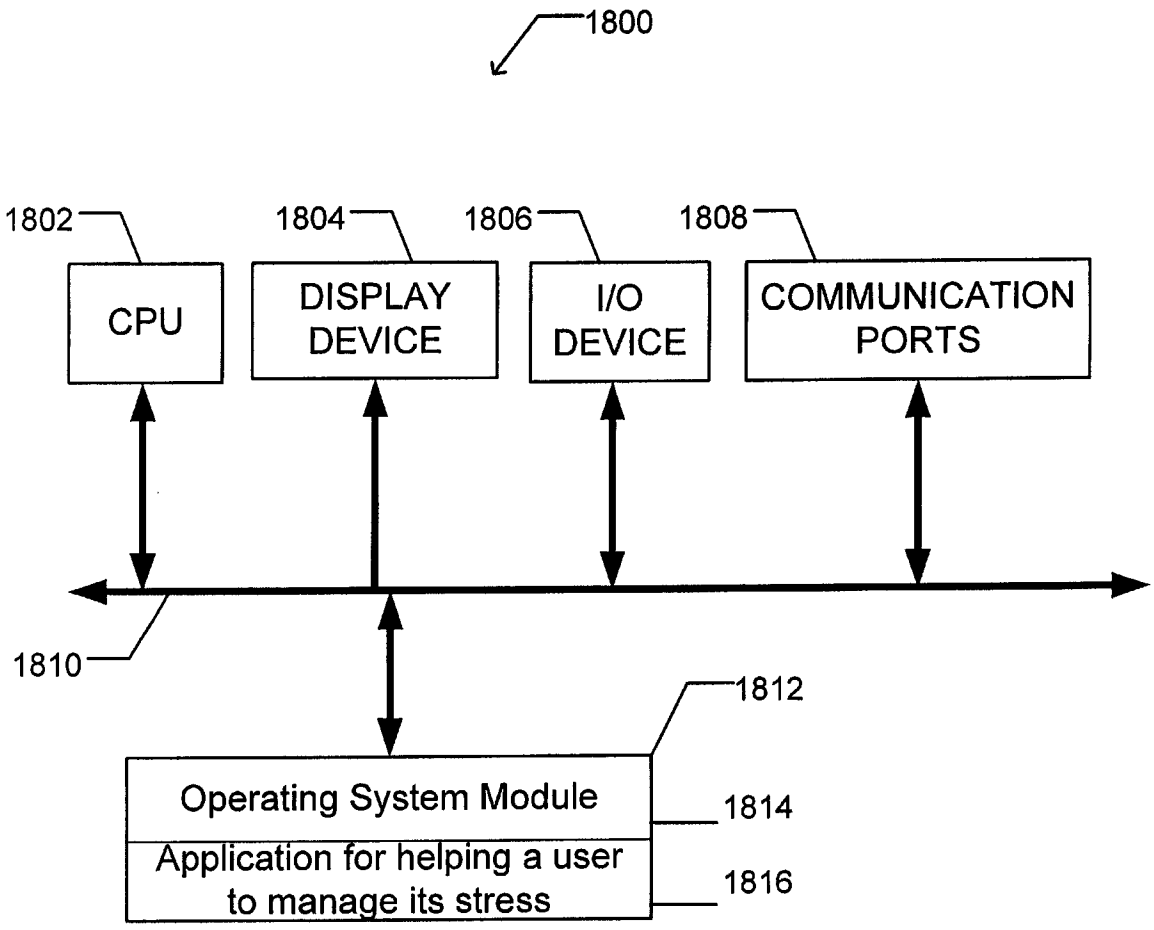
1800
1802
1804
1806
1808
CPU
DISPLAY DEVICE
I/O DEVICE
COMMUNICATION PORTS
1810
1812
Operating System Module
1814
Application for helping a user to manage its stress
1816

FIG.16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2013/000325

A. CLASSIFICATION OF SUBJECT MATTER

IPC: ***A61B 5/16*** (2006.01) , ***G06F 19/00*** (2011.01) , ***H04L 12/16*** (2006.01) , ***H04W 4/00*** (2009.01)

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)

IPC: ***A61B 5/16*** , ***G06F 19/00*** , ***H04L*** , ***H04W***

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

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Epodoc, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	US 2012289790 A1 (JAIN et al.) 15 November 2012 (15-11-2012) + entire document, particularly para. 68–76 +	1–32
A	US 2010123577 A1 (CHANG) 20 May 2010 (20-05-2010) + entire document +	1–32
X	REID et al., "A mobile phone application for the assessment and management of youth mental health problems in primary care: a randomised controlled trial", *BMC Family Practice*, **12**:131,, pages 1–13, 29 November 2011 (29-11-2011) http://www.biomedcentral.com/1471-2296/12/131	1–32
X	REID et al., "A mobile phone program to track young people's experiences of mood, stress and coping: development and testing of the *mobiletype* program", *Soc. Psychiatry Psychatri. Epidemiol.*, vol. 44, pages 501–507, Published online: 14 November 2008 (14-11-2008), doi: 10.1007/s00127-008-0455-5	1–32
A	SUN et al., "Physical activity monitoring with mobile phones", *ICOST 2011, LNCS 6719*, pages 104–111, 20–22 June 2011 (22-06-2011)	1–32

[ ] 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 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

Date of the actual completion of the international search	Date of mailing of the international search report
10 May 2013 (10-05-2013)	18 July 2013 (18-07-2013)

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Canadian Intellectual Property Office
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50 Victoria Street
Gatineau, Quebec K1A 0C9
Facsimile No.: 001-819-953-2476

Authorized officer

Valérie Dubé (819) 934-4261

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2013/000325

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US2012289790A1	15 November 2012 (15-11-2012)	JP2012239889A	10 December 2012 (10-12-2012)
US2010123577A1	20 May 2010 (20-05-2010)	CN101739384A	16 June 2010 (16-06-2010)
		EP2189113A2	26 May 2010 (26-05-2010)
		EP2189113A3	22 February 2012 (22-02-2012)
		JP2010119841A	03 June 2010 (03-06-2010)
		US8258946B2	04 September 2012 (04-09-2012)