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(54) **METHOD FOR SENDING AN ELECTRONIC NOTIFICATION**

VERFAHREN ZUM SENDEN EINER ELEKTRONISCHEN BENACHRICHTIGUNG

PROCÉDÉ D'ENVOI D'UNE NOTIFICATION ÉLECTRONIQUE

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EP 3 933 795 B1

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Description

[0001] The present invention relates to a method for sending an electronic notification to a recipient and a system adapted to carry out the method for sending an electronic notification to the recipient.

[0002] The number of people in need of care or surveillance and/or living alone is currently growing considerably and, according to forecasts, will continue to do so in the future. Accidents in the home and deteriorating health conditions therefore represent a considerable risk to health and life.

[0003] Personal emergency response systems are known which can be utilized by persons living alone. The personal emergency response systems usually alert appropriate persons in case an emergency has been determined. However, most of the systems rely on a specific sensor or a pushbutton transmitter carried by the person living alone so that the specific sensor requires careful installation as well as a test for the sensor in pre-determined time intervals and/or the pushbutton transmitter must be carried at all times by the person living alone and in addition the person living alone must be able to push the pushbutton in case of an emergency. Thus, the specific sensor system and/or the pushbutton transmitter have the drawback that the system is not flexible, is not easy to use and/or a malfunctioning cannot easily be recognized.

[0004] DE 10 2017 000838 A1 describes monitoring a person in a household using existing sensor readings from power or gas supplies and potentially also additional activity sensors (motion, CO₂, etc.). The person is notified on a mobile device and can confirm or reject the alarm. Upon confirmation alarm messages are sent to external recipients.

[0005] It is an object of the present invention to provide a method for sending an electronic notification to a recipient, a system being adapted to carry out the method for sending an electronic notification to a recipient, which is flexible to use, easy to handle and/ or overcomes at least one of the above mentioned drawbacks.

[0006] The gist of the present invention is to categorize information about a person living in a household into different categories and to obtain at least information of three of the different categories. The information of each of the categories is weighted. The weighting of the information can be carried out by weighting the information within the category (weighting within the category) and/or by weighting the information with regard to information of at least one other category (weighting outside the category).

[0007] The information is put into relation to each other and this is used to obtain an assumed status of the person and/or the household. Different categories can be considered. Especially, the categories can be chosen as information of different sources which are not related or not strictly related to one another. In case different sources are considered the assumed status of the person is more reliable and accurate. All information can be weighted in a score or point system so that the information corresponds to a number of points, which can be integrated or accumulated. The sum can indicate a status of the person. Malfunctioning can be substantially excluded by obtaining information from different categories and the method, the system and/or the use can be made more flexible and/or more easy to handle.

[0008] It is possible that the status of the person can be more specifically analyzed and/or evaluated. In case of a serious problem a recipient can be informed about the assumed status of the person. The notification can indicate a specific health problem, for example the notification can indicate whether activities of the person have not taken place as usual (e.g.: medication has not been taken, garbage can was not emptied, person is still in bed), whether the state of health has deteriorated or improved, and/or whether the person has left the household (which is of importance in case of the medical disorder dementia). The notification may also indicate whether the assumed status may lead to a problem for the person's health, the household or for other people. Having considered at least two of the different categories a security status for the person, the family of the person, a company taking care of the person and/or neighbors can be obtained.

[0009] The invention provides a method and a system as defined in independent claims 1 and 12.

[0010] In accordance with the description, the term "electronic notification" encompasses inter alia a text message, a voice message and/or a signal which can be understood by the recipient and the recipient can act accordingly in response to the assumed status of the person.

[0011] In accordance with the description, the term "recipient" encompasses inter alia a natural person, a company, an organization or a device related to those terms. The recipient can be stored in a table indicating a real name and/or a nick name together with a telephone number, e-mail address, or token for his device (i.e. smartphone) or the like which is used to send the notification to.

[0012] In accordance with the description, the term "assumed status of a person" encompasses inter alia an evaluation about the person's doing or behavior and allows a first approach to analyze whether the person is in a healthy/"good" condition or in an unhealthy/"bad" condition, wherein in case the person is assumed to be in an unhealthy/bad condition, the unhealthy/bad condition can be evaluated to be of minor, major or critical severity. The obtained assumed status of the person may also be related to the status of the household. For example, a person suffering from dementia may forget to turn off the water or to forget to empty a garbage can so that the household may become deteriorated.

[0013] In accordance with the description, the term "person" encompasses inter alia an elderly person, a person of "bad" mental and/or "bad" physical health (suffering from a medical disorder or a disease or being bound to the bed) or

a person that would like to receive information about its status or take part in a care program. Especially, the person can be a person that lives alone.

[0014] In accordance with the description, the term "household" encompasses inter alia a house, a flat, and a number of rooms, including one room. The household can be a room or apartment in a care home or a retirement home.

[0015] The term "generating the notification" in accordance with the description encompasses inter alia a generation in its broadest sense. However, the term encompasses inter alia as well the selection or use of already present or stored parts or fragments of a notification. Especially, the term generating can mean that an already present notification is selected and personalized. The term generating can address the issue that the notification has a personal appearance and the name of the recipient is mentioned and addressed in the notification.

[0016] The term "selecting the notification" in accordance with the description encompasses inter alia a selection of already present or stored notifications or a selection of already present or stored fragments of a notification that can be selected to send the notification to the recipient.

[0017] The term "actual information" is an information that can be changed or is changed by a person by actions of the person and/or actions within the household. The actual information is related to the person's doing within the household. The kind of information is specified and explained later with regard to the categories which are considered to obtain the assumed status of the person.

[0018] The term "plurality" in accordance with the description encompasses inter alia a number of 2, 3, 4 or more.

[0019] The term "predetermined time interval" in accordance with the description inter alia encompasses a time interval in which the information for evaluating the assumed status of the person household is obtained. Preferably, the information is retrieved at the beginning of the time interval. Thus, a retrieving of the information can start at the beginning of the time interval. Preferably, the time interval can have a time length of several minutes. The time interval can have a length of 60, 45, 30, 20, 15, 10 or 5 minutes. In accordance with the invention it was for the first time considered to use a time interval in which the information of the different categories is evaluated once to obtain the status of the person. A continuous evaluation can be obtained in which there is no need for a continuous retrieving or handling of data. Instead, time intervals can be selected which are of relevance for the person in question. Some medical disorders or mental or physical diseases may allow a time interval which is bigger than other disorders or diseases which require a time interval which is smaller.

[0020] The term "actual value of the information" in accordance with the description encompasses inter alia the value of information which has been obtained within the predetermined time interval. With regard to the information and the categories the actual value of the information can be a nominal or Boolean formatted information so that the actual value may correspond to "yes" or "no", which may be represented by "1" or "0". The actual value of the information may also be a number or a quantity or amount in ordinal or metric format which depends on the information and/or the category which will be explained later with regard to the categories.

[0021] The term "nominal value of the information" in accordance with the description encompasses inter alia a value that the information should have within the considered time interval. The nominal value of the information can be a binary information, an amount or number, or a range of values. The nominal value can be given by at least one threshold. The nominal value can be obtained by information collected in the past, predicted, fuzzy logic, a learning system or information given by the person. Especially, the nominal value of the information can be represented in a table or as a function, wherein the nominal value can depend on the specific day of the week or the time of the day.

[0022] The term "weighted" in accordance with the description encompasses inter alia the use of a score or point system in which the difference of the actual value and the nominal value corresponds to points. The amount of points indicates the amount of difference, therefore, a small difference between the actual value and the nominal value corresponds to a small number of points, whereas a big difference between the nominal value and the actual value of the information corresponds to a big number of points. The "weighting" of the information can be represented by a table which may differ for each of the information and/or categories. The weighting can be performed by a one or more dimensional function. The function can be based on an absolute difference between the actual value of the information and the nominal value of the information. Additionally, it is possible that the function can be based on a relative difference between the actual value of the information and the nominal value of the information. The function can use an average of the actual value of the information obtained within a time interval.

[0023] The term "put into relation" in accordance with the description encompasses inter alia consideration of all the information retrieved within the predetermined time interval. Preferably, the information considered within the predetermined time interval is summed up after each of the information has obtained a score of points which corresponds to the difference between the nominal value and the actual value of the information. It may be possible that the information for each of the categories is summed up and it is decided whether the sum for each of the categories is above a threshold for the respective category. In case that the sum is above a threshold for a pre-determined number of categories an importance or severity level is reached. It may be possible that the information of each of the categories is summed up and these sums are summed up for considering the importance or severity level.

[0024] The term "consumption of at least power, water and/or gas in the household" in accordance with the description

encompasses inter alia the information about the respective consumption which can be retrieved by a smart meter or a reading head, which is already present in the household for purposes of payment of power, water and/or gas consumption.

[0025] The term "sensor located in the household and/or carried by the person" in accordance with the description encompasses inter alia at least one sensor which can provide at least one of the following: motion detection of the person, person's temperature, the temperature in the household and the humidity in the household.

[0026] The term "health data of the person" in accordance with the description encompasses inter alia information about mental or physical health of the person. Especially in case the person suffers from a medical disorder, for example dementia, the health data may contribute by a big number of points to the assumed status of the person since this kind of medical disorder may require that even small deviations of the activities of the person have to be looked for by medical service or even person's relatives.

[0027] The term "smart device" in accordance with the description inter alia encompasses at least a device having a transmission system to transmit a signal. Preferably, the signal indicates whether the device has been used. More preferably, the smart device and/or the signal can be reset after the information/signal was received as actual value of the respective information. The smart device can be a box for drugs or medication or a garbage can.

[0028] The term "interaction of the person with regard to an interactive device" in accordance with the description encompasses inter alia any interaction that has taken place with regard to the interactive device. Preferably, the interactive device receives a message (an audio signal, an audio message, a text message, a video message) for the person and the person can answer the message. Answering the message can take place via a plurality of possibilities: by pressing at least one button or touch screen, by sending a text message, and/or by sending a voice message. Preferably, the interaction of the person with the interactive device can also be considered when the person starts the communication with interactive device, so that the person sends a message and the person receives a response to the message sent. According to the invention it has been found for the first time that a use of an interactive device is information itself which is worth to be considered in view of the health of the person.

[0029] For each of the categories it is preferred that for the latest time interval the difference is detected between the actual value and the nominal value. The difference for the latest time interval can be transferred into points in accordance with a score or point system. For each of the categories the points are summed up for the latest time interval.

[0030] To obtain a reliable assumed status of the person multiple sources are preferred for each category. Thus, not only a single information per category is preferably considered but a number of information for each category. The present invention considers in the consumption category (a) the consumption of water and power, in the category referring to the sensors (b) the motion or movement of the person as well as the temperature and the humidity are considered, and in the interaction or environment category (e) the interaction or activities with a specific application, with general mobile application, and active notifications are considered.

[0031] In a preferred embodiment the recipient is selected from the following group: at least one person living in the household, at least one mobile nursing service, at least one senior citizens' home assistance service, at least one relative of the person, at least one emergency medical service, at least one neighbor and/or at least one person appointed by the person or at least one court. The members of the group can be notified in accordance with the assumed status of the person or the assumed status of the household. The recipient can be selected from a subgroup of a group of members selected from the person which lives alone in the household.

[0032] In a preferred embodiment, the notification is sent to one recipient at a time or multiple recipients at a time and in case that the recipient does not acknowledge or answer the notification within a pre-determined timespan, the notification or a modified notification is sent to a further recipient or a group of recipients. In this way, it is possible to ensure that the notification does not remain undetected or unanswered, as a chain of recipients can be processed to whom the notification or a modified notification is sent. Preferably, a list of recipients can be used or stored. The notification/modified notification can be sent to all the recipients in the list using the order of the recipients in the list. Therefore, it is possible that the person is the recipient of a first notification indicating a status of the person. For example, the person can be asked whether the person feels fine. The person can then acknowledge the notification or forward the notification to a further recipient. If the recipient does not acknowledge or answer the notification, the notification or modified notification will be automatically forwarded to the next recipient in the list. Further, it may be possible that not only one recipient in the list is notified at a specific time but a number of recipients. Preferably, in case that a notification is sent to a number of recipients at one time, the recipients will be informed in the notification that further a notification was sent to a number of recipients, and preferably, the recipients may be informed about the names of the further recipients.

[0033] The term "modified" notification in accordance with the description encompasses inter alia that the notification about the status itself may be unchanged but the name of the respective recipient is amended. Further, the term "modified" encompasses inter alia the possibility that the assumed status in the notification is mentioned or the assumed status is omitted, so that in the latter case the notification may read: "... please inform yourself about the state of health of person X by visiting person X ...", whereas in the former case the notification may read: "... person X suffering from dementia has left the household ...".

[0034] In a preferred embodiment, an importance or severity level is selected for the notification based on the weighted

information put into relation, the importance or severity level is used to select the recipient and/or a pre-determined timespan in which the notification or a modified notification is sent to a further recipient. By using an importance or severity level the method can become even more flexible because the adequate recipients and/or the time span for sending a (modified) notification to a further recipient can be correspondingly selected. The importance or severity level can be determined in accordance with the following table.

Household categories available	Minor Level	Major Level	Critical Level
3 Categories	1 category above threshold and 2 categories below threshold	2 categories above threshold and 1 category below threshold	3 categories above threshold and 0 categories below threshold
2 Categories	1 category above threshold and 1 categories below threshold	2 categories above threshold and 0 categories below threshold	N/A
1 Category	N/A	1 category above threshold	N/A

[0035] In a preferred embodiment, the notification is sent in case that not all information of the categories could be retrieved within the at least one time interval. This can be used as an emergency notification in case that retrieving the information within the time interval is not possible.

[0036] In a preferred embodiment, the notification is generated and/or selected based on actual information of the plurality of different categories relating to a plurality of time intervals. By using a plurality of time intervals it becomes possible to equalize the information and to observe a bigger time span in the person's activity/doing. Preferably, the last four time intervals can be used, in case that the time interval is in the range of 5 minutes to 30 minutes, preferably in the range of 7 minutes to 27 minutes, preferably in the range of 10 minutes to 25 minutes, preferably in the range of 10 minutes to 20 minutes, so that the information which is considered to obtain the assumed status of the person is about 1 hour.

[0037] The consumption of water, power and or gas is measured within the time interval and an actual value for the consumption obtained. The measured consumption for the time interval is compared with a nominal value for this respective time interval and the difference evaluated. Therefore, it is determined whether or not a normal activity of the person is present and/or the person is actively consuming water, power and or gas on the basis of a current consumption profile. The measuring device can, in particular, be an electricity meter, a water meter and/or a gas meter or a combination of the latter. These meters can output consumption values with a sufficiently good time resolution, for example at least with a minute resolution, from which consumption value curves over time and within the time interval can be derived. A measured consumption value describes an actual information with regard to the consumption during the measurement, i.e. the time interval. The nominal consumption values can be represented by a reference profile, described by reference data, which can be available in a storage device. The reference profile covers all time durations usable in the method. As profile data, these represent consumption profiles at least for water and electricity/power. The reference profile describes the normal activity of the person in the household.

[0038] By deriving the difference of nominal value and actual value it is possible to determine whether and, in particular, to what extent there are deviations from normal activity. With regard to the power consumption the difference between the actual value and the nominal value is calculated. Further, the relative difference is calculated by a multiplying the difference by 100 and division by the actual value.

[0039] A score or point system can be used which ranges from 0 to 100 and transforms the difference into points.

[0040] In further embodiments, the at least one sensor is a sensor further adapted for a) detecting a motion or movement in the household and/or b) detecting the location of the person. By the at least one sensor an activity of the person is determined. The motion detection and the temperature and the humidity sensor can be used together to obtain a reliable information about the activity of the person.

[0041] In a preferred embodiment, the health data of the person refers to a disease, a handicap and/or an impairment of health of the person.

[0042] In a preferred embodiment, the smart device is a) a box or container comprising at least one drug for the person, b) a garbage can, c) a device for determining the lung function and/or d) a device for determining the heart function. Smart devices can be used which can be incorporated in daily live of the person. This is a further approach to increase reliability and further improve in taking care of the person in the household. The smart device may be an invention itself.

[0043] According to the invention the interactive device is a telephone, a smart phone, a tablet, a laptop, a computer, a tablet computer or the like. This offers the possibility to use an interactive device which is already present in the person's household and which is used to run a program on the interactive device (an application) which carries out the method. Especially, the interactive device runs a program for carrying out the method and the interactive device can send the notifications.

[0044] According to the invention the method is carried out on an interactive device having a processor and memory. The electronic device is in a most preferred embodiment located in the household of the person. This provides the possibility that the data obtained during the method cannot be fetched easily by a third party. Further, no hardware having a high performance level which is centrally located is necessary for carrying out the method. It is the contribution of the invention that simple hardware can be used. Especially, an electronic device already present in the household can be used, for example a smart phone. As smart phones have a high performance level the method can be carried out by a smart phone of the person. Further, a smart phone provides the possibility that an algorithm carrying out the method can be maintained easily by updates or patches which can be retrieved by the telephone or network communication. In addition, the smart phone is already adapted to send messages so that carrying out the method on a smart phone is simple. Moreover, a smart phone offers the possibility to track a person in case that the person has left the household and tracking seems to be necessary in case the person suffers for example from dementia

[0045] In a most preferred embodiment, the method can be carried out or performed by an application on a smart phone. The application on the smart phone of the person can be a different application than the application on a smart phone of a recipient. The application of the smart phone of the person can fetch or retrieve the information in the household, whereas this is not necessary for the application on the smart phone of the recipient. The application of the smart phone of the recipient can be reduced to an algorithm which detects the notification and further detects whether the notification is acknowledged and in case it is not acknowledged within the pre-determined time span, the notification or a modified notification is forwarded to the next recipient in the list or chain

[0046] Further advantages and details of the present invention result from the following figures describing examples with regard to the invention.

Fig. 1 shows a flow chart in which a method for sending an electronic notification is incorporated; and

Fig. 2 shows an example of sending a notification to recipients.

[0047] Fig. 1 shows a flow chart with regard to a method for sending an electronic notification to a recipient, wherein the notification relates to an assumed status of a person living in a household. The steps of the flow chart are in general continuously repeated after a pre-determined time interval. The time interval used in the shown embodiment is 15 minutes (S1) but can be shifted to other time intervals ranging from 1 to 30 minutes.

[0048] First a query is started to find out information of the night switch of the household (S2) and determine whether a night switch is activated, i.e. the current time between night switch interval is determined and whether the night switch is active (S3). In the affirmative case, no further query is not carried out and no information is retrieved (S4).

[0049] In case the night switch is not active, a query is started to call current absence information of the person in the household (S5). If the result of the query (S6) is affirmative, i.e. the person of the household is absent, the query of data or information is aborted or terminated (S7). If the query results in a negative answer to the absence of the person in the household, information is retrieved (S8), whether there are already current notifications sent to recipients. In the affirmative, no further query or retrieving of data is necessary and the procedure is terminated or aborted (S9).

[0050] If no notification is actually sent with regard to the status of the person in the household, information is retrieved (S10). The information refers to a plurality of different categories relating to at least a pre-determined time interval (S11). The categories considered in the example of Fig. 1 are consumption of water and power/energy of the person living in the household, a value of at least one sensor located in the household and/or carried by the person which refers to the movement of the person and the temperature and humidity in the household (S13). Further, information with regard to the category "interaction of the person with regard to an interactive device" is obtained (S14).

[0051] For each of the actual information of the categories the following steps are carried out within a time interval of 15 minutes:

- i) an actual value of the information is compared with a nominal value of the information,
- ii) the difference between the actual value of the information and the nominal value of the information is weighted to obtain weighted actual information.

[0052] For each of the categories, points are determined indicating the difference between the actual value of the information and the nominal value of the information. The points of the information within one category are summed up and it is determined whether the sum of points for each of the categories is above a threshold (S15, S16, S17). Further, the weighted information of the actual information of the plurality of different categories is put into relation to obtain the

assumed status of the person or the household (S18), wherein it is determined for example how many of the categories have a sum which exceeds the threshold.

[0053] In dependency of the sum of each category, a notification is sent to a recipient (S19). In case no category has a sum, which is above the threshold, no notification will be sent.

[0054] Fig. 2 shows an example of sending a notification to recipients. One recipient, in the example beginning with the person living in the household is sent a notification. In case the person acknowledges the notification, no further notification is sent to another recipient. However, if the notification is not acknowledged, preferably in a pre-determined time span, the notification or a modified notification is sent to further recipient. In the embodiment shown in Fig. 2 a care provider may be the last recipient in the chain of recipients in case the other recipients have not acknowledged the notification.

Claims

1. Method for sending an electronic notification to a recipient, the notification relating to an assumed status of a person living in a household, wherein the method comprises:
generating and/or selecting the notification based on actual information referring to at least three categories relating to at least a pre-determined time interval, wherein, within the time interval

- i) an actual value of the information for each of the three categories is compared with a nominal value of the information,
- ii) the difference between the actual value of the information and the nominal value of the information for each of the three categories is weighted to obtain weighted actual information, and
- iii) the weighted information of the actual information of the three categories is put into relation to obtain the assumed status of the person or the household,

wherein the at least three categories are:

- a) information about consumption of at least power, water and/or gas in the household,
- b) a value of at least one sensor located in the household which is the temperature in the household and/or the humidity in the household, and
- c) information about interaction of the person with regard to an interactive device, wherein the interactive device is a telephone, a smart phone, a tablet, a laptop, a computer or a tablet computer and the interactive device runs a program for carrying out the method and the interactive device is adapted to send the notifications.

2. Method according to claim 1, wherein, further categories are:

- d) information about the health data of the person, and/or
- e) information obtained by at least a smart device located in the household.

3. Method according to claim 1 or 2, wherein the recipient is selected from the following group: at least one person living in the household, at least one mobile nursing service, at least one senior citizens' home assistance service, at least one relative of the at least one person living in the household, at least one emergency medical service, at least one neighbor and/or at least one person appointed by the person and/or at least one court.

4. Method according to anyone of claims 1 to 3, wherein the notification is sent to one or multiple recipients at a time and in case that the recipient does not acknowledge or answer the notification within a pre-determined timespan, the notification or a modified notification is sent to a further recipient or recipient group.

5. Method according to anyone of claims 1 to 4, wherein an importance or severity level is selected for the notification based on the weighted information put into relation, the importance or severity value is used to select the recipient and/or a pre-determined timespan in which the notification or a modified notification is sent to a further recipient.

6. Method according to anyone of claims 1 to 5, wherein the notification is sent in case that not all information of the categories could be retrieved within the at least one time interval.

7. Method according to anyone of claims 1 to 6, wherein the notification is generated and/or selected based on actual information of the plurality of different categories relating to a plurality of time intervals.

8. Method according to anyone of claims 1 to 7, wherein the at least one sensor is a sensor further adapted for a) detecting a motion or movement in the household and/or b) detecting the location of the person.
9. Method according to anyone of claims 1 to 8, wherein the difference between the actual value of the information and the nominal value of the information is weighted by a transformation into points based on a pre-determined function.
10. Method according to anyone of claims 1 to 9, wherein the health data of the person refers to a disease, a disorder, a handicap and/or an impairment of health of the person.
11. Method according to anyone of claims 1 to 10, wherein the smart device is a) a box or container comprising at least one drug for the person, b) a garbage can, c) a device for determining the lung function and/or d) a device for determining the heart function.
12. System comprising an interactive device for generating and/or selecting an electronic notification and sending the notification, the interactive device comprising a processor and being adapted to carry out the method according to any one of claims 1 to 11.

Patentansprüche

1. Verfahren zum Senden einer elektronischen Benachrichtigung an einen Empfänger, wobei die Benachrichtigung einen vermuteten Zustand einer in einem Haushalt lebenden Person betrifft, wobei das Verfahren aufweist:

Generieren und/oder Auswählen der Benachrichtigung auf Basis von Ist-Information bezüglich mindestens dreier Kategorien, die mindestens ein vorgegebenes Zeitintervall betrifft, wobei innerhalb des Zeitintervalls

- i) für jede der drei Kategorien ein Istwert der Information mit einem Sollwert der Information verglichen wird,
- ii) für jede der drei Kategorien die Differenz zwischen dem Istwert der Information und dem Sollwert der Information gewichtet wird, um eine gewichtete Ist-Information zu erhalten, und
- iii) die gewichteten Informationen der Ist-Informationen der drei Kategorien ins Verhältnis gesetzt werden, um den vermuteten Zustand der Person oder des Haushalts zu erhalten,

wobei die mindestens drei Kategorien sind:

- a) Informationen über den Verbrauch von zumindest Strom, Wasser und/oder Gas in dem Haushalt,
- b) ein Wert von mindestens einem in dem Haushalt befindlichen Sensor, welcher die Temperatur in dem Haushalt und/oder die Feuchtigkeit in dem Haushalt ist, und
- c) Informationen bezüglich einer Interaktion der Person in Bezug auf ein interaktives Gerät,

wobei das interaktive Gerät ein Telefon, ein Smartphone, ein Tablet, ein Laptop, ein Computer oder ein Tabletcomputer ist und das interaktive Gerät ein Programm zur Implementierung des Verfahrens ausführt und das interaktive Gerät zum Senden der Benachrichtigungen eingerichtet ist.

2. Verfahren nach Anspruch 1, wobei weitere Kategorien die folgenden sind:

- d) Informationen bezüglich der Gesundheitsdaten der Person und/oder
- e) durch mindestens ein in dem Haushalt befindliches smartes Gerät beschaffte Informationen.

3. Verfahren nach Anspruch 1 oder 2, wobei der Empfänger aus der folgenden Gruppe ausgewählt ist: mindestens eine in dem Haushalt lebende Person, mindestens ein mobiler Pflegedienst, mindestens ein Altenpflegeheim-Unterstützungsservice, mindestens ein/e Verwandte/r der mindestens einen in dem Haushalt lebenden Person, mindestens ein medizinischer Notfalldienst, mindestens ein/e Nachbar/in und/oder mindestens eine durch die Person und/oder durch ein Gericht beauftragte Person.

4. Verfahren nach einem der Ansprüche 1 bis 3,

wobei die Benachrichtigung an einen Empfänger oder an mehrere Empfänger gleichzeitig gesendet wird und wobei, falls der Empfänger die Benachrichtigung nicht innerhalb eines vorgegebenen Zeitraums bestätigt oder beantwortet, die Benachrichtigung oder eine modifizierte Benachrichtigung an einen weiteren Empfänger oder eine weitere Gruppe von Empfängern gesendet wird.

5. Verfahren nach einem der Ansprüche 1 bis 4,

wobei für die Benachrichtigung ein Relevanz- oder Ernsthaftigkeitsgrad anhand der ins Verhältnis gesetzten gewichteten Information ausgewählt wird, wobei ein Relevanz- oder Ernsthaftigkeitswert verwendet wird, um den Empfänger und/oder einen vorgegebenen Zeitraum auszuwählen, in dem die Benachrichtigung oder eine modifizierte Benachrichtigung an einen weiteren Empfänger gesendet wird.

6. Verfahren nach einem der Ansprüche 1 bis 5,

wobei die Benachrichtigung gesendet wird, wenn nicht alle Informationen bezüglich der Kategorien innerhalb des mindestens einen Zeitintervalls beschafft werden konnten.

7. Verfahren nach einem der Ansprüche 1 bis 6,

wobei die Benachrichtigung anhand einer sich auf eine Vielzahl von Zeitintervallen beziehende Ist-Information bezüglich der Vielzahl von verschiedenen Kategorien generiert und/oder ausgewählt wird.

8. Verfahren nach einem der Ansprüche 1 bis 7,

wobei der mindestens eine Sensor ein Sensor ist, der außerdem eingerichtet ist zur

- a) Detektion einer Positionsänderung oder einer Bewegung in dem Haushalt und/oder
- b) Detektion des Aufenthaltsorts der Person.

9. Verfahren nach einem der Ansprüche 1 bis 8,

wobei die Differenz zwischen dem Ist-Wert der Information und dem Soll-Wert der Information mittels einer auf einer vorgegebenen Funktion basierenden Transformation in Punkte gewichtet wird.

10. Verfahren nach einem der Ansprüche 1 bis 9,

wobei die Gesundheitsdaten der Person sich auf eine Krankheit, eine Störung, eine Behinderung und/oder eine gesundheitliche Beeinträchtigung der Person beziehen.

11. Verfahren nach einem der Ansprüche 1 bis 10,

wobei das smarte Gerät ausgebildet ist als

- a) eine Box oder ein Behälter, die/der mindestens ein Medikament für die Person enthält, b) ein Abfallbehälter,
- c) ein Gerät zur Ermittlung der Lungenfunktion und/oder d) ein Gerät zur Ermittlung der Herzfunktion.

12. System, welches ein interaktives Gerät zum Generieren und/oder Auswählen einer elektronischen Benachrichtigung und zum Senden der Benachrichtigung aufweist,

wobei das interaktive Gerät einen Prozessor aufweist und dazu eingerichtet ist, das Verfahren nach einem der Ansprüche 1 bis 11 auszuführen.

Revendications

1. Procédé pour envoyer une notification électronique à un receveur, ladite notification se rapportant à un état présumé d'une personne qui vive dans un ménage, le procédé comprenant :

générer et/ou sélectionner la notification à partir des informations réelles référant à au moins trois catégories se rapportant à au moins un intervalle temporel prédéterminé, où dans l'intervalle temporel

- i) pour chacune des trois catégories une valeur réelle de l'information est comparée à une valeur nominale

de l'information,

ii) pour chacune des trois catégories la différence entre la valeur réelle de l'information et la valeur nominale de l'information est pondérée pour obtenir de l'information réelle pondérée, et

iii) les informations pondérées des informations réelles des trois catégories sont mises en perspective pour obtenir l'état présumé de la personne ou du ménage,

les au moins trois catégories étant :

a) de l'information sur la consommation d'au moins un de l'électricité, de l'eau et/ou du gaz dans le ménage,

b) une valeur d'au moins un capteur localisé dans le ménage, qui est la température dans le ménage et/ou l'humidité dans le ménage, et

c) de l'information sur une interaction de la personne par rapport à un dispositif interactif,

où le dispositif interactif est un téléphone, un smartphone, une tablette numérique, un ordinateur portable, un ordinateur ou une tablette PC, et

le dispositif interactif exécute un programme pour implémenter le procédé et le dispositif interactif est conçu pour envoyer les notifications.

2. Procédé selon la revendication 1,

où des catégories additionnelles sont :

d) de l'information sur les données de santé de la personne et/ou

e) de l'information obtenue par au moins un dispositif intelligent localisé dans le ménage.

3. Procédé selon la revendication 1 ou 2,

où le receveur est sélectionné du groupe suivant :

au moins une personne qui vive dans le ménage, au moins un service mobile de soins infirmiers, au moins un service d'assistance de résidence pour personnes âgées, au moins un service médical d'urgence, au moins un/e voisin/e et/ou au moins une personne nommée par la personne et/ou par au moins un tribunal.

4. Procédé selon l'une des revendications 1 à 3,

où la notification est envoyée à un receveur ou à une pluralité de receveurs simultanément et

si le receveur ne confirme la notification ni répond à la notification dans un intervalle temporel prédéfini, la notification ou une notification modifiée est envoyée à un receveur de plus ou un groupe de receveurs de plus.

5. Procédé selon l'une des revendications 1 à 4,

où un niveau d'importance et/ou de sévérité est sélectionné pour l'information sur la base de l'information pondérée mise en perspective,

où la valeur d'importance et/ou de sévérité est utilisée pour sélectionner le receveur et/ou un intervalle temporel prédéfini dans lequel la notification ou une notification modifiée est envoyée à un receveur de plus.

6. Procédé selon l'une des revendications 1 à 5,

où la notification est envoyée au cas où il n'a pas été possible d'obtenir toute l'information des catégories dans l'au moins un intervalle temporel.

7. Procédé selon l'une des revendications 1 à 6,

où la notification est générée et/ou sélectionnée sur la base d'information réelle de la pluralité de catégories différentes qui concerne une pluralité d'intervalles temporels.

8. Procédé selon l'une des revendications 1 à 7,

où l'au moins un capteur est un capteur additionnellement conçu pour

a) détecter un changement positionnel ou un mouvement dans le ménage et/ou

b) détecter la localisation de la personne.

9. Procédé selon l'une des revendications 1 à 8,
où la différence entre la valeur réelle de l'information et la valeur nominale de l'information est pondérée par une
transformation en points sur la base d'une fonction prédéterminée.

5 10. Procédé selon l'une des revendications 1 à 9,
où les données de santé de la personne concernent une maladie, un trouble, un handicap et/ou une déficience de
santé de la personne.

10 11. Procédé selon l'une des revendications 1 à 10,
où le dispositif intelligent est

a) une boîte ou un récipient contenant au moins un médicament pour la personne,

b) une poubelle,

15 c) un dispositif pour déterminer le fonctionnement des poumons et/ou

d) un dispositif pour déterminer le fonctionnement du coeur.

12. Système comprenant un dispositif interactif pour générer et/ou sélectionner une notification électronique et pour
envoyer ladite notification,
le dispositif interactif comprenant un processeur et étant conçu pour implémenter le procédé selon l'une des reven-
20 dications 1 à 11.

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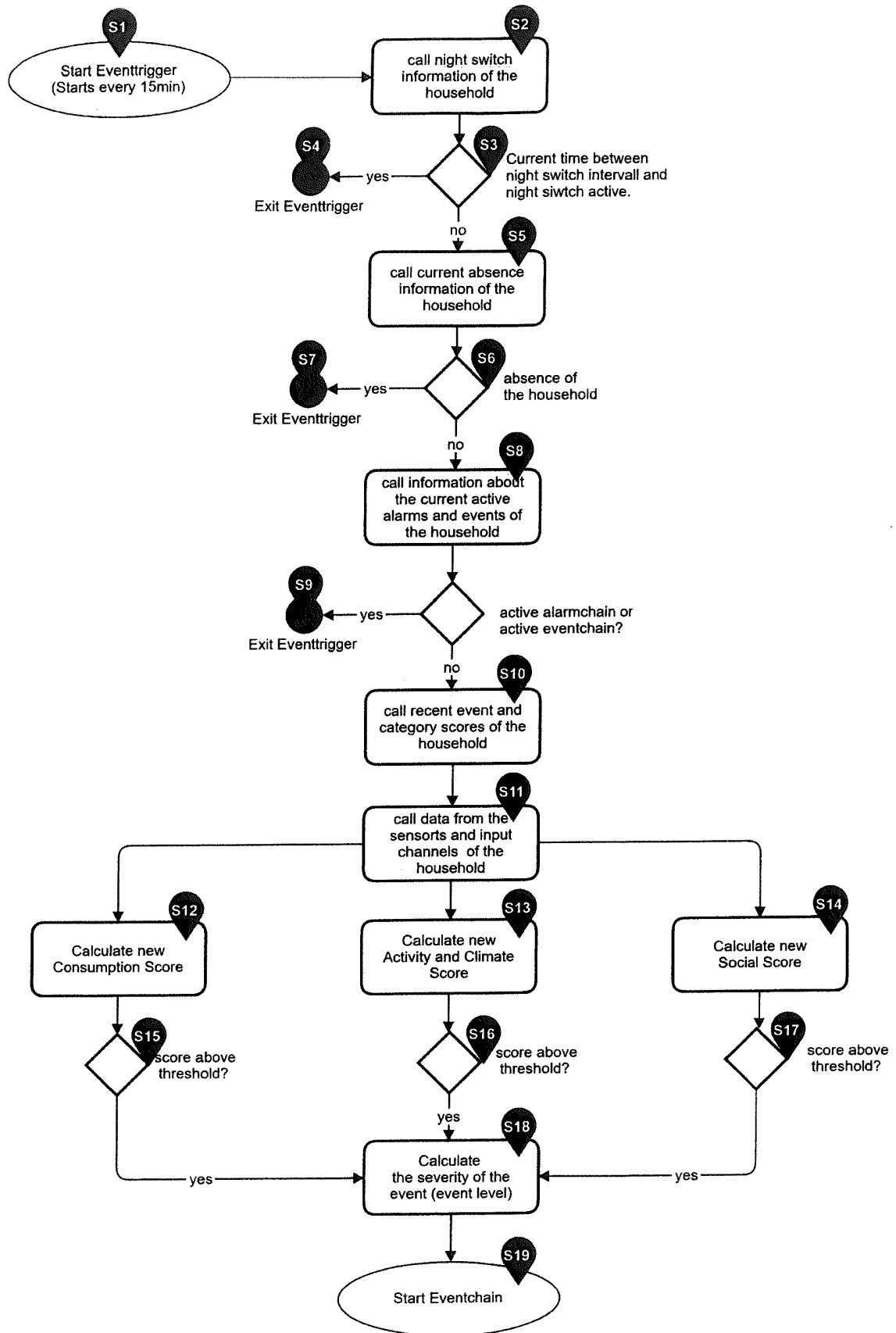


Fig. 1

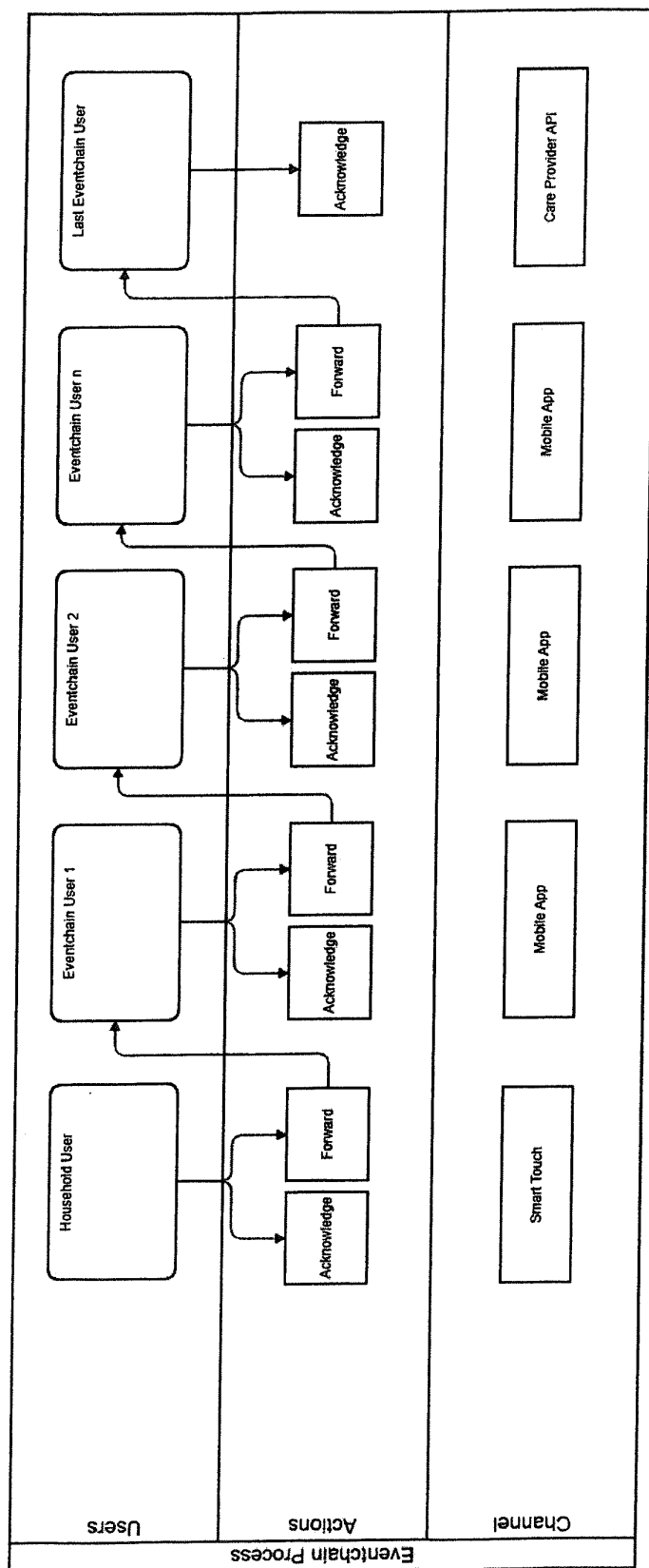


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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