US 20190328227A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2019/0328227 A1**

EADES et al. (43) **Pub. Date: Oct. 31, 2019**

(54) **INTERACTIVE SCHEDULER AND MONITOR**

(71) Applicant: **ICAN INTERACTIVE INC.**, Maple (CA)

(72) Inventors: **STEPHEN EADES**, Maple (CA); **ROSS BIGELOW**, Barrie (CA); **TRISTAN WILSON**, Wairton (CA); **WESLEY FLYNN**, Stayner (CA)

(21) Appl. No.: **16/398,392**

(22) Filed: **Apr. 30, 2019**

Related U.S. Application Data

(60) Provisional application No. 62/664,433, filed on Apr. 30, 2018.

Publication Classification

(51) **Int. Cl.**

A61B 5/00 (2006.01)

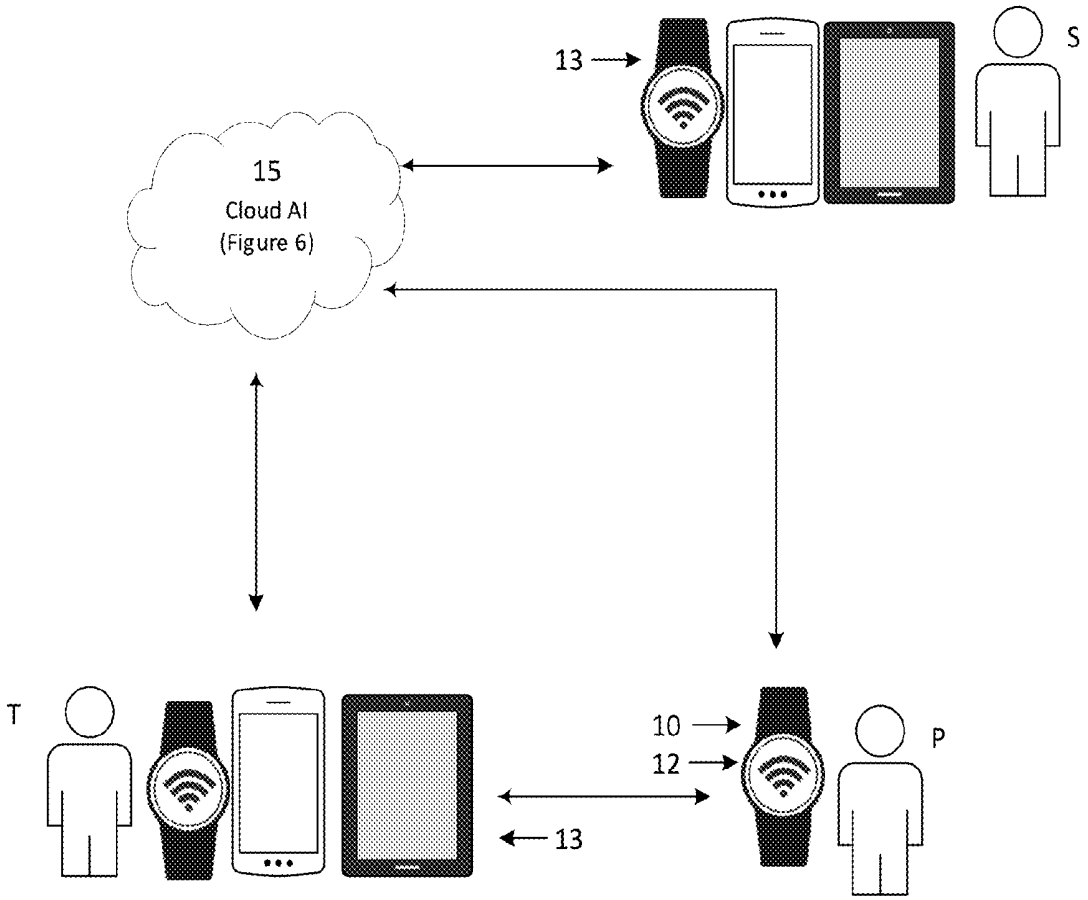
G16H 10/60 (2006.01)

(52) **U.S. Cl.**

CPC ***A61B 5/002*** (2013.01); ***A61B 5/0024*** (2013.01); ***G16H 10/60*** (2018.01); ***A61B 5/743*** (2013.01); ***A61B 5/72*** (2013.01)

(57) **ABSTRACT**

A personal management device includes a programmable scheduler to permit a user's schedule for a designated period to be recorded. A clock function provides prompts for each scheduled activity at an appropriate time. The device also includes a monitor of biological indicators and upon attainment of threshold levels indicative of onset of anxiety, interrupts the scheduled activity to implement a coping strategy.



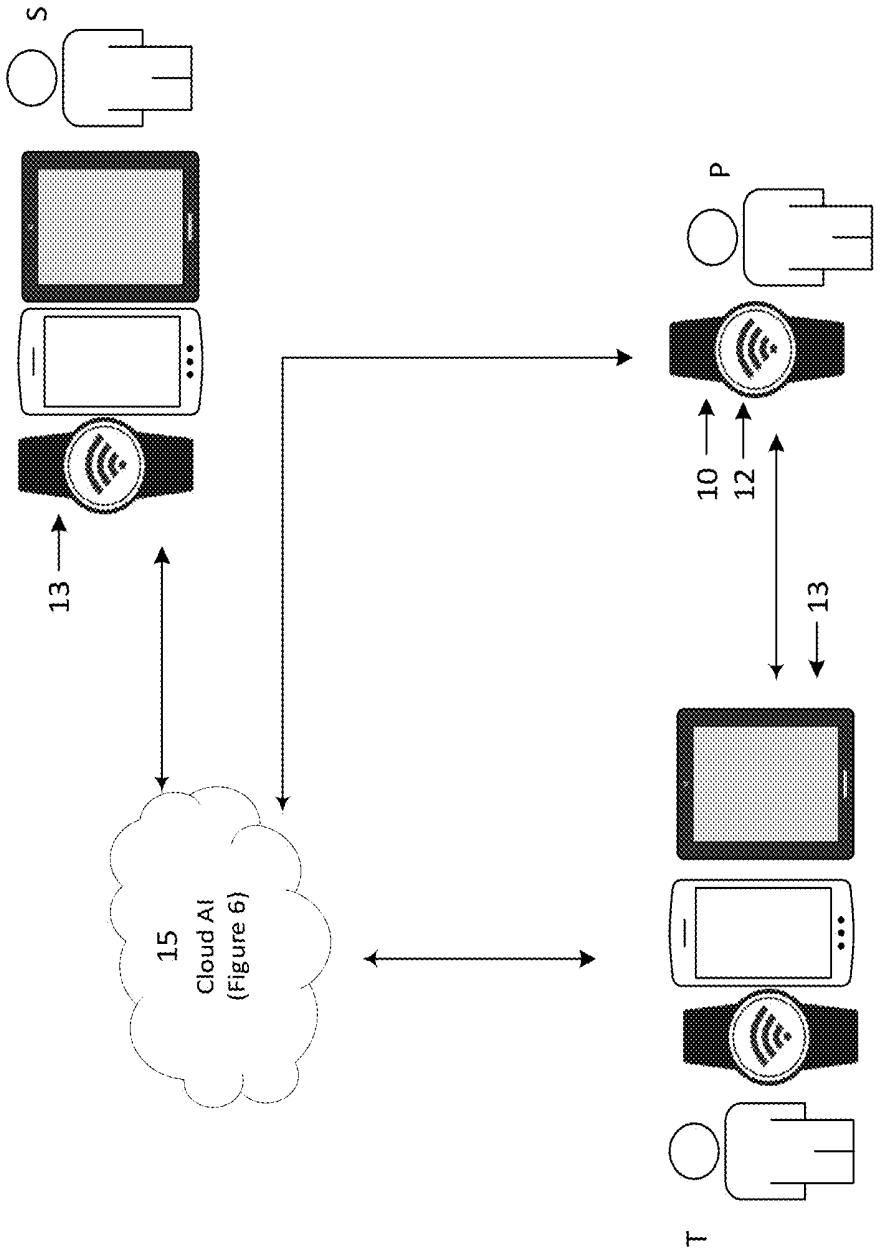


Figure 1

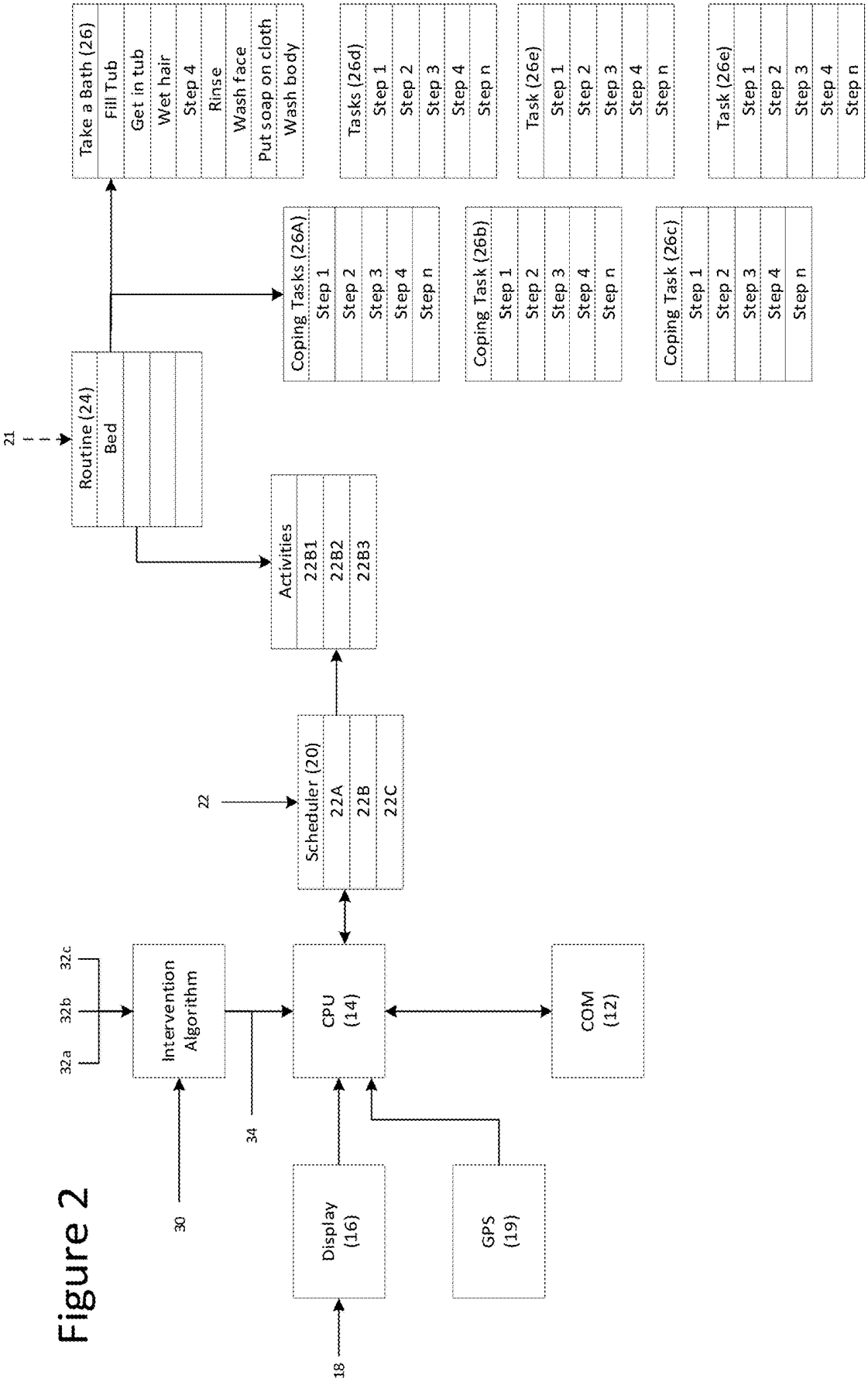

Take a Bath (26)
Fill Tub
Get in tub
Wet hair
Step 4
Rinse
Wash face
Put soap on cloth
Wash body
Tasks (26d)
Step 1
Step 2
Step 3
Step 4
Step n
Task (26e)
Step 1
Step 2
Step 3
Step 4
Step n
Task (26e)
Step 1
Step 2
Step 3
Step 4
Step n
Coping Tasks (26A)
Step 1
Step 2
Step 3
Step 4
Step n
Coping Task (26b)
Step 1
Step 2
Step 3
Step 4
Step n
Coping Task (26c)
Step 1
Step 2
Step 3
Step 4
Step n
Routine (24)
Bed
21
Activities
22B1
22B2
22B3
22
Scheduler (20)
22A
22B
22C
32a
32b
32c
Intervention Algorithm
CPU (14)
COM (12)
30
34
Display (16)
GPS (19)
18

Figure 2

Figure 3

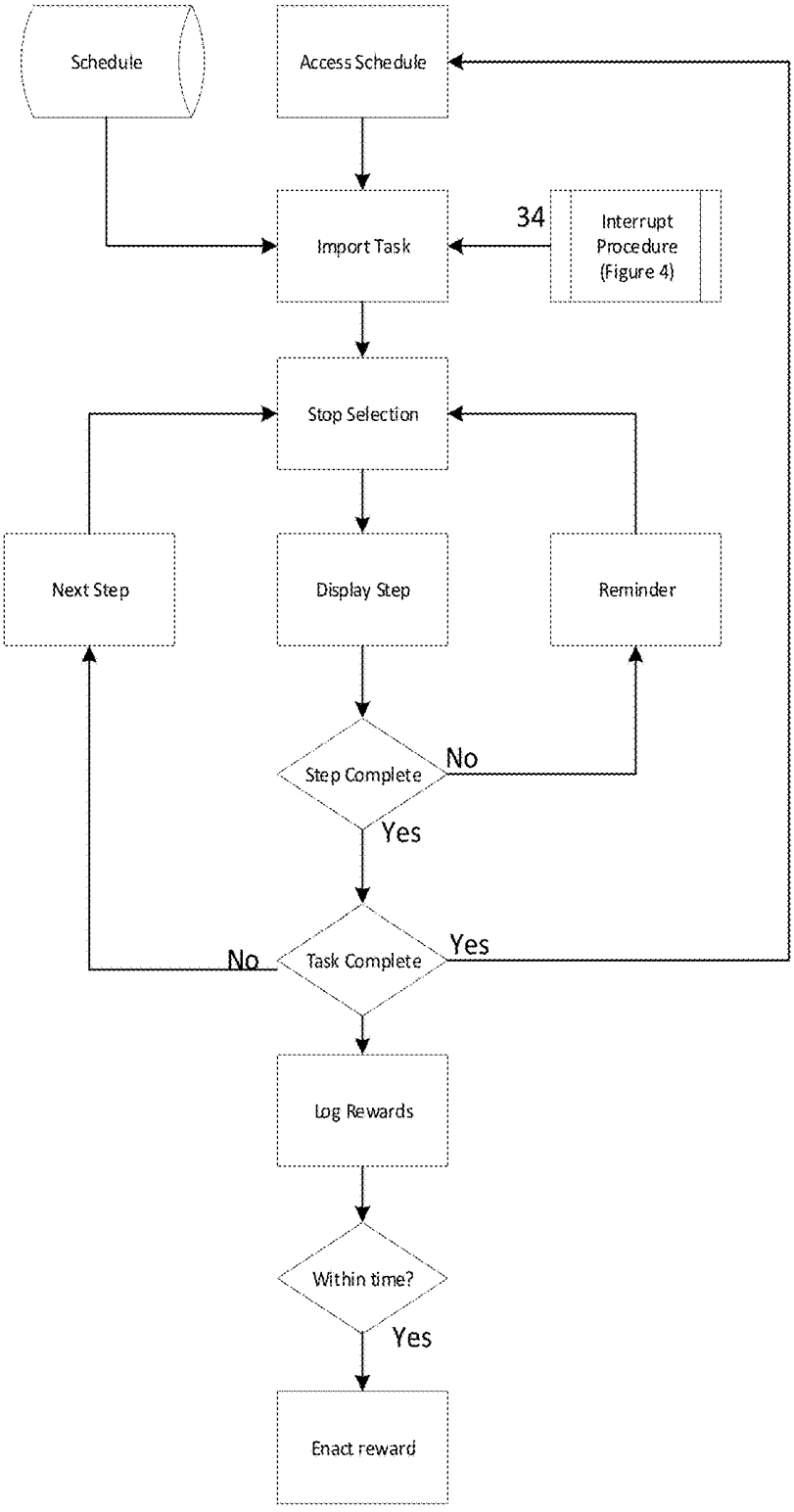

Schedule
Access Schedule
Import Task
34
Interrupt Procedure (Figure 4)
Stop Selection
Next Step
Display Step
Reminder
Step Complete
No
Yes
Task Complete
No
Yes
Log Rewards
Within time?
Yes
Enact reward

Figure 4

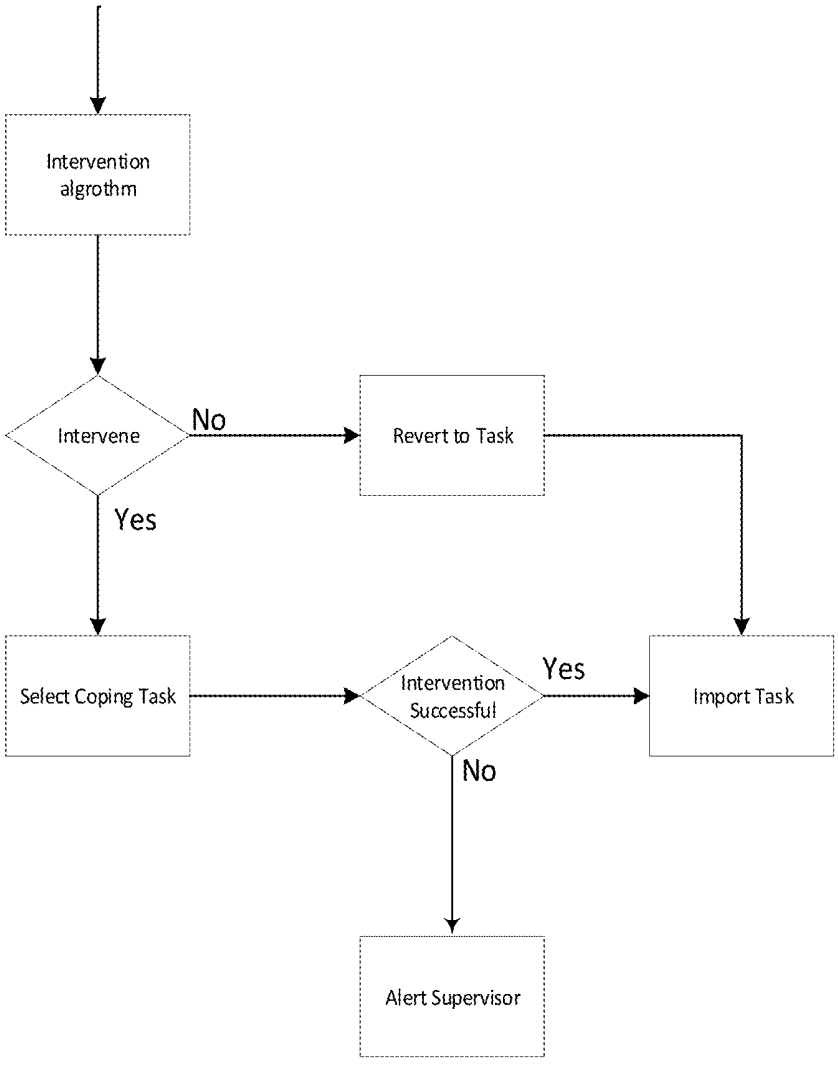

Intervention algrothm
Intervene
No
Revert to Task
Yes
Select Coping Task
Intervention Successful
Yes
Import Task
No
Alert Supervisor

Figure 5

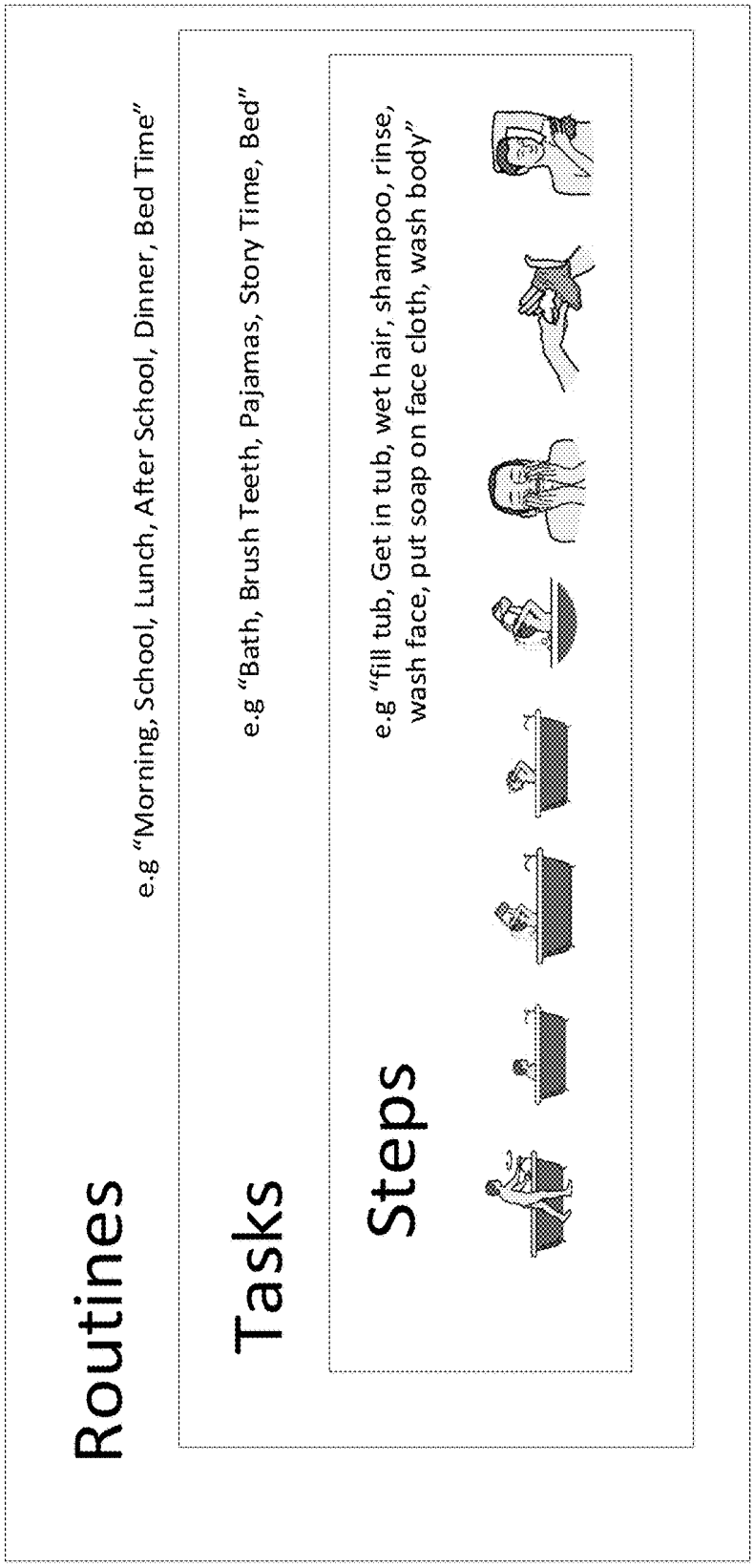

Routines
e.g "Morning, School, Lunch, After School, Dinner, Bed Time"
Tasks
e.g "Bath, Brush Teeth, Pajamas, Story Time, Bed"
Steps
e.g "fill tub, Get in tub, wet hair, shampoo, rinse, wash face, put soap on face cloth, wash body"

Figure 6

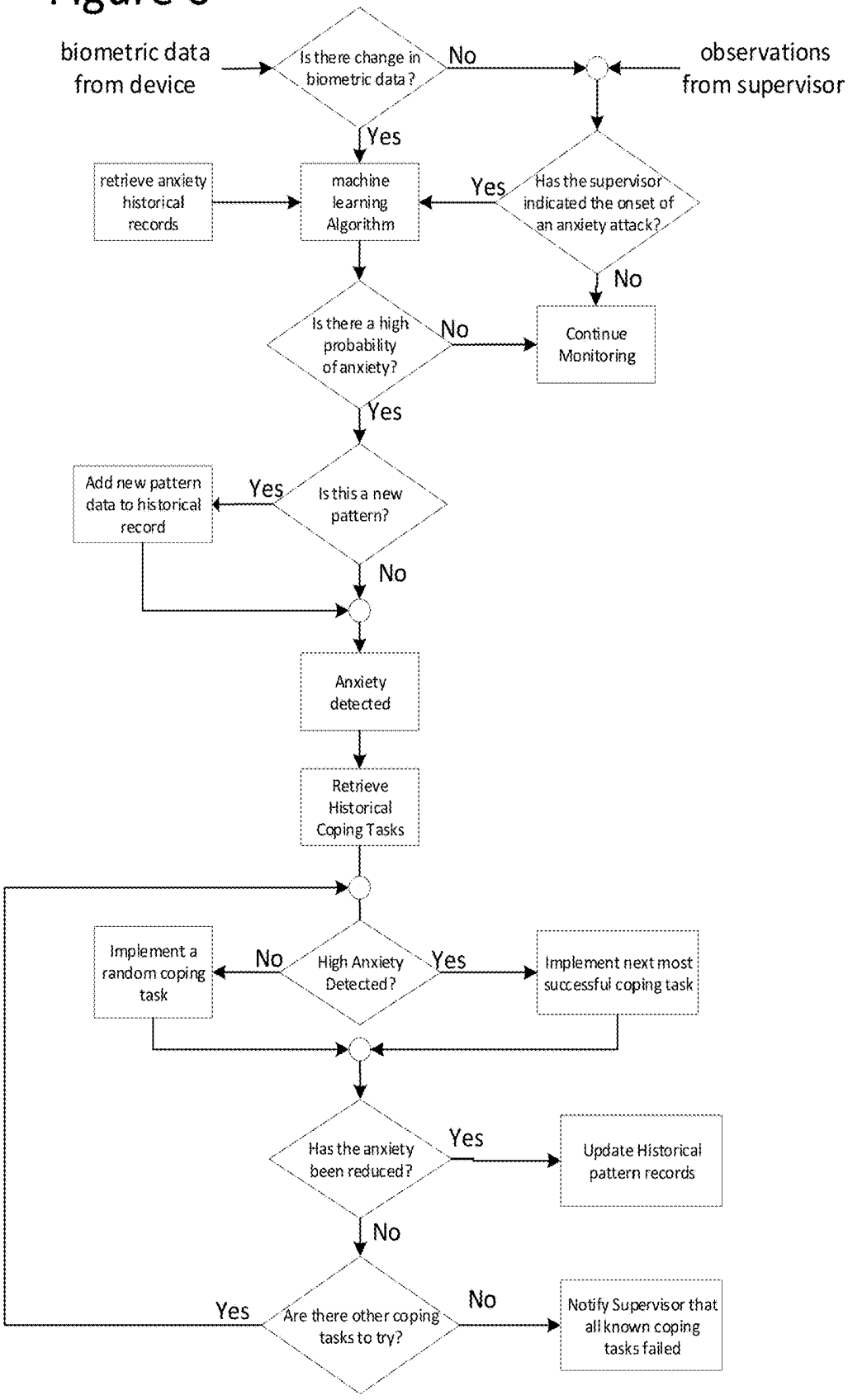
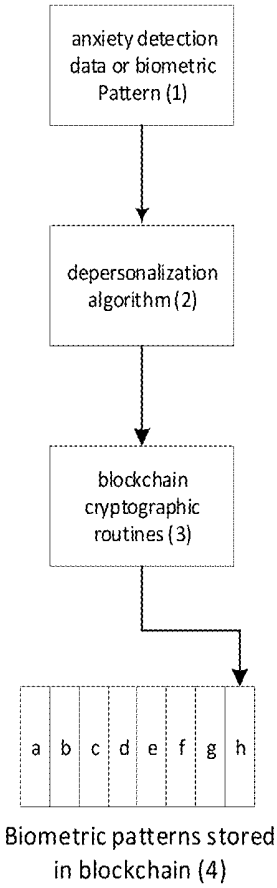

biometric data from device
Is there change in biometric data?
No
observations from supervisor
Yes
retrieve anxiety historical records
machine learning Algorithm
Yes
Has the supervisor indicated the onset of an anxiety attack?
No
Is there a high probability of anxiety?
No
Continue Monitoring
Yes
Add new pattern data to historical record
Yes
Is this a new pattern?
No
Anxiety detected
Retrieve Historical Coping Tasks
Implement a random coping task
No
High Anxiety Detected?
Yes
Implement next most successful coping task
Has the anxiety been reduced?
Yes
Update Historical pattern records
No
Yes
Are there other coping tasks to try?
No
Notify Supervisor that all known coping tasks failed

Figure 7


anxiety detection data or biometric Pattern (1)
depersonalization algorithm (2)
blockchain cryptographic routines (3)
a
b
c
d
e
f
g
h
Biometric patterns stored in blockchain (4)

INTERACTIVE SCHEDULER AND MONITOR

FIELD OF THE INVENTION

[0001] The present invention relates to an interactive scheduler and monitor.

DESCRIPTION OF THE PRIOR ART

[0002] The organisation of tasks within a particular time frame is a facet of everyday life. However, for certain people this is a challenge that can give rise to anxiety and potentially lead to onset of adverse situations such as behavioural issues. Although this challenge applies to people in all age groups, a particular group of people who are prone to these challenges are children and youth with Autism Spectrum Disorder (ASD), many of whom often experience anxiety and struggle with self-regulation. It has been proposed that struggles with emotional regulation might explain both the degree of externalising behaviours, such as anger and aggression, and internalising behaviours, such as anxiety and depression, among youth with ASD.

[0003] It has been recognised that those affected with ASD require additional support to fully integrate in to the community and reach their full potentials. Professionals across health care, education and social services have designed many tools, interventions and strategies to assist people with ASD and individualised programming with real time feedback, encouragement and guidance has been found to lead to more positive outcomes.

[0004] The delivery of such programs is however labour intensive and over the course of a typical day may require the involvement of several professionals, each of who must be familiar with the individuals under their supervision and be prepared to respond in an appropriate manner. This of course is onerous and may inhibit utilisation of the tools available.

[0005] Similar considerations apply in the treatment of other conditions such as ABI (Aquired Brain Injury), Dementia syndrome (i.e. Alzheimer's disease, and other memory related diseases or disorders), where a personalised intervention can lead to positive results but requires significant investment in human resources.

[0006] It is therefore an object of the present invention to obviate or mitigate the above disadvantages.

SUMMARY OF THE INVENTION

[0007] In general terms, the present invention includes A personal management device that includes a programmable scheduler to permit a sequence of events corresponding to a users coping strategy to be recorded. A discernible user interface is provided and a monitor to monitor biometric indicators. The monitor responds to attainment of threshold levels of the biometric indicators indicative of onset of an adverse situation to recall the sequence of events and implement the coping strategy through said user discernible interface. Preferably, implementation of the coping strategy is accompanied by an alert to the supervising person.

[0008] Preferably also the programmable scheduler enables a schedule of activities for a user for a designated period to be recorded and the monitor interrupts the schedule for the designated period upon attainment of said threshold levels.

[0009] As a further preference, completion of a scheduled activity provides a reward to the user.

[0010] In a preferred embodiment, completion of the coping strategy returns the scheduler to its scheduled activity.

[0011] The scheduling device is preferably a wearable device having a discernible user interface such as a viewable screen or a voice assistant to prompt the required activity. The biometric indicators may include pulse, breathing rate, blood pressure, body temperature, skin condition such as perspiration and rate of movement that are integrated in to the wearable device. The device includes a geo-fencing function to provide indications of location and communicates wirelessly with supervisory personnel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] An embodiment of the invention will now be described by way of example only with reference to the accompanying drawings wherein:

[0013] FIG. **1** is a schematic representation of a user network incorporating a personal management device

[0014] FIG. **2** is a functional diagram of the architecture of the personal management device;

[0015] FIG. **3** is a flow chart showing the operation of the personal management device under normal circumstances

[0016] FIG. **4** is a flow chart similar to FIG. **3** showing intervention of a coping strategy,

[0017] FIG. **5** is a screen shot of different granularities of instruction available;

[0018] FIG. **6** is a flow chart similar to FIG. **3** of a further embodiment of personal management device; and

[0019] FIG. **7** is a flow chart of a yet further embodiment of personal management device.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Referring therefore to FIG. **1**, a user P has a wearable device **10** that is conveniently in the form of a watch to be worn on the wrist or similar device. The device **10** has a communication module **12** that can communicate via wireless communication protocols such as Bluetooth, wi-fi, cellular or near field communication protocols (NFC) with an adjacent supervisor T and for communication requiring greater range through cellular or wi-fi communication with more distant supervisors S. Each of the supervisors T, S have a computing device **13**, such as a computer, smart phone, tablet or wearable that implements a program or app to monitor the device **10**. Communication may be conducted through the "Cloud" **15** to offload certain functions from the computing devices **10**, **13**, as will be explained more fully below particularly with respect to FIG. **6**.

[0021] In a typical environment, the user P may be a child exhibiting behavioural traits associated with ASD and the supervisor T is a teacher supervising a class that includes the child P. The distant supervisor S is a parent who has overall responsibility for the child P. It will be appreciated that the relationships and responsibilities of the supervisors T, S to the user P are dynamic and will vary over a typical day, for example before, during and after school and between weekdays and weekends.

[0022] The device **10** is shown schematically in FIG. **2**, and has a CPU **14** that drives a discernible user interface, preferably a viewable display **16**, and controls the communication module **12**. The display **16** has a user input **18**,

which is typically a touch screen function, to provide information to the CPU **14**, and a GPS function **19** that provides location information to the CPU **14**. In certain situations, a viewable display may not be not practical, such as where the user has impaired vision or cannot comprehend written directions. In this case an audible interface may be utilised as the user discernible interface. Such interfaces provide a virtual voice assistant allowing querying by the user P and the issuance of audible responses and directions. Examples of such interfaces are known by there trade names "Siri", "Alexa" and "Google Home", depending on the platform utilised.

[0023] The CPU **14** communicates with a scheduler **20** that is implemented in RAM **21** and is programmable to allocate activities to specific time intervals **22**. The scheduler **20** has a clock function and may coarsely divide each day to "before school" **22**A, "school" **22**B and "after school" activities **22**C. The basic allocations may be more finely divided in to specific activities at designated time intervals so that for example the school allocation **22**B can be sub-divided in to individual lesson periods, **22**B**1**; **22**B**2**; **22**B**3** etc.

[0024] Each of the activities is compiled from one or more routines **24** stored in the memory **21**, and in turn the routines may themselves be subdivided in to specific sub-routines, referred to as tasks **26**. As illustrated in in FIG. **5**, the post school activity **22**C includes a routine of "bed time" which is imported from the routines **24** in to the scheduler **20** at the designated time within the time interval **22**C. The bed time routine sets out the tasks of "bath, brush teeth, pajamas, story time, bed" and each task is linked to individual steps that may be displayed pictorially on the viewable display **16**. Each task and step includes graphic files that are loaded sequentially on the display **16** to provide direction to the user P. Thus, as shown in FIG. **5**, when the routine of "bed time" is invoked by the scheduler, the task "Bath" is recalled and the steps designated for "Bath", namely fill tub, get in tub, wet hair etc. are displayed on the viewable display **16**. Upon completion of that task, subsequent tasks, "brush teeth" etc. are called in sequence as indicated by tasks **26***d*, **26***e*, **26***f*. Each of those tasks will have steps associated with them and instructions to be provided through the discernible interface.

[0025] Where appropriate, each routine or task will have a specific time period associated with it, e.g. "bed" of 30 minutes subdivided by tasks **26** of a bath of 10 minutes, brush teeth 2 minutes, putting on pajamas of 2 minutes, etc. Each task may similarly allocate set times for each step within the task, for example, filling tub 3 minutes. Upon lapsing of the allocated time for each step, a discernible indicator, such as a "beep", is provided to advise the user P to advance to the next step. Upon completion of all steps, the user P indicates completion by the input **18** and the steps of the next task are displayed.

[0026] Where the activity is not time based, the user may indicate completion of the task by the input **18**, and reminders may be sent to advise the user P to indicate when the task is completed. In some circumstances, completion of a task may be indicated by attainment of a designated location as determined by a GPS function **19**.

[0027] The scheduler **22** and the routines and tasks are programmable by the supervisor S, T who has the administrative authority for that period so that individual schedules may be developed to suit the user P. Common routines and tasks may be preloaded and stored in memory **21** and selected as needed on the smart phone **13** of the supervisor S, T. Custom routines can be prepared on the smart phone **13** of the supervisor S using a graphic programming tool for particular circumstances. The custom routines may be modifications to existing preloaded routines or entirely original programmed by the supervisor S. The routines and tasks are downloaded from the supervisor's smart phone **13** to the users device **10** for storage in the memory **21**. A schedule is thus compiled for a particular time period from one or more of the supervisors S, T who have administrative authority at different times of the day. The supervisors are organised hierarchically with the supervisor S setting the overall structure for the day but ceding authority to, for example, the teacher T for periods that have been designated as school periods.

[0028] The routines **24** also include an intervention routine that invokes one or more a coping tasks **26**A, **26**B, **26**C, each of which implement a sequence events to implement a coping strategy. A coping strategy is a sequence events organised as tasks and associated steps found to be effective in reducing behavioural issues resulting from external factors, such as over stimulation, or internal factors, such as anxiety. Each coping strategy, such as the coping task **26**A, will be personal to the user P based on experience and is programmed by the supervisor S as a custom routine. Such a coping strategy may include, for example, a direction to move to a quiet zone, playing a particular musical piece or walking along a defined route. The coping strategy is implemented as a task having steps with graphic files for display on the display **16**.

[0029] Multiple coping strategies may be developed to address different situations and each strategy may be defined through a different task, **26**A, **26**B, **26**C etc. and implemented as determined by the prevailing condition.

[0030] To implement an appropriate one of the coping tasks **26**A, **26**B, **26**C, the CPU **14** is also connected to an intervention algorithm **30** that receives inputs from one or more biometric sensors **32**. The biometric sensors **32** monitor parameters that collectively are indicative of onset of stress. Those parameters include heart rate or pulse, **32***a*, skin condition (perspiration) **32***b* and activity level **32***c* determined by rate of movement measured by an accelerometer. Other biometric parameters might include breathing rate, blood pressure, body temperature. The biometric sensors **32** are integrated in to the wearable device **10** and the intervention algorithm **30** combines the readings as will be discussed more fully below to determine whether the parameters approach a threshold that indicates that onset of a behavioural issue is imminent. If a threshold is exceeded, an interrupt signal **34** is provided to the CPU **14**, which interrupts the routine that is being illustrated by steps on the display **16** and replaces it with the tasks and steps associated with one of the coping strategies **26**A-C. The intervention algorithm **30** continues to monitor the user's P physiological condition and when it returns to normal and the selected one of the coping tasks **26**A-C is completed, the interrupt signal **34** is removed and the scheduler **10** reverts to its previous condition.

[0031] The interrupt algorithm **30** will be determined by the characteristics of the user P and as such will vary from user to user. Further, as noted above, there may be multiple algorithms that apply to a particular user P and any one of those may trigger the interrupt signal **34** and call a particular one of the coping tasks **26**A-C. By way of example, an

elevated heart rate in excess of **90** beats per minute for an extended period may indicate onset of a critical condition and therefore implementation of coping task **26**A is appropriate. Thus, the intervention algorithm **30** triggers an event if the heart rate is >90 for 2 minutes and indicates that task **24***a* should be implemented.

[0032] In an alternative situation, an increased activity level and an elevated heart rate may be indicative of onset of a condition requiring intervention. In this case rapid repetitive movement of the user's hand is monitored by the biometric sensor **32***c* and combined with the heart rate to determine the threshold. Therefore, if the heart rate exceeds 80 AND the activity level exceeds 70% THEN an interrupt signal **34** is provided to select the coping task **26**B. The interrupt algorithm **30** continues to monitor the sensors **32** and if an elevated condition persists another intervention strategy, **26**C, is triggered. If the sensors determine that the coping task has lowered the physiological conditions to acceptable levels, the coping task is replaced by the previous task.

[0033] The intervention algorithm **30** may also incorporate an input from the selected routine **24** in the scheduler **20** to modify the threshold. For example, if bath time is the current routine, the input from the skin condition sensor **32***b* may be modified to take in to account the user P is in the bath, or if the scheduled event is a gym class the heart rate monitor **32***a* may be modified accordingly.

[0034] Device **10** also includes a GPS utility **19** to provide a geo-positioning signal of the user P. The geo-positioning signal may be used by the intervention algorithm to provide an appropriate coping strategy. If the biometric sensors determine an elevation of stress levels, the geo-positioning signal is examined and compared with the anticipated position of the user P for the scheduled routine. For example, if the scheduler indicates a return from school, and the routine indicates a geofence for that activity, an examination of the actual position may show that the user P has departed from the expected path and effectively is lost. The CPU **14** provides direction on the display **16** to return the user to the correct location and remove the stress condition from the user, or instruction to find help or for example to go in to a shop for assistance. The task may include a step of displaying on the display **16** a message, such as "I am lost, please tell me how to get to 123 ABC St." or a phone number to call to assist in repatriation.

[0035] In each of these scenarios, it will be appreciated that the device **10** monitors the user's P biometric indicators and determines that the onset of an adverse situation such as a behavioural issue is imminent. In response to that determination, and intervention strategy is invoked and provided to the user P to assist in alleviation of the condition.

[0036] In use, as indicated in FIG. **3**, the user P accesses the scheduler **20** to determine the first activity. The first routine **24** is imported and the first task displayed on the display **16**. After the predetermined time, the display **16** looks for an indication the task is complete. This may be from the input **18** or from a sensed condition, such as the movement of the user P to a different location.

[0037] If the Task is complete, the CPU determines if another task **26** is required in the routine **24**. If there is no further task **26**, the routine **24** is considered complete and the scheduler **20** notified. The next routine **24** is then loaded. At the same time, the completion of the task **26** is recorded in a log and a reward point allocated to the user. The reward point is stored within the memory **21** and points are accumulated and may be redeemed through the supervisor S for discretionary benefits. A positive reinforcement of the benefits of completing the tasks **26** is thus provided.

[0038] If the task **26** is not completed in the set time, a reminder message, or fallback message, is generated on the display **16** to encourage completion of the task.

[0039] If another task **26** is required in the routine **24**, an incrementing message is sent to select the next task **26** in the routine **24** and display the appropriate message on the display **16**.

[0040] Where a routine **24** is completed ahead of the allotted time, a reward routine is called, such as allowing access to a video game or video for the free time until the next routine is scheduled and thereby positively reinforce productive activities. The scheduler **20** will thus proceed through the schedule to assist in setting out tasks **26** that will complete routines **24** and meet the activities scheduled.

[0041] If, however, during the activities the onset of a stressful condition is detected, the interrupt signal **34** is provided to the CPU **14** and the coping routine **26**A-C implemented as shown in FIG. **4**. At the same time, the supervisor T is alerted through the communication module **12** as to the potential onset of the critical condition and may be attentive to it. Assuming the coping task **26**A-C invoked is effective, the interrupt signal **34** is removed and the scheduler **20** reverts to the previous routine. In some cases, there may be insufficient time to revert to the routine **24** and so an alternative routine is selected, such as reading a book, until the next routine is implemented.

[0042] If the coping strategy embodied in the coping task **26**A-C selected is not effective, the supervisor T may directly intervene, and the other supervisor S can be notified through the communication module **12** for a further resource.

[0043] It will be seen therefore that the scheduler **10** may be used to assist in accomplishing everyday schedules and the implementation of the coping task may mitigate the occurrence of stressful conditions that lead to more severe behavioural issues.

[0044] Although the specific example discussed above is directed to ASD, it will be appreciated that some or all of the features described may be applicable to other neurological conditions such as dementia etc. The coping strategy might include the display of certain images and the playing of a particular piece of music or direction to a room or location that provides security to the user P. These would be incorporated in to coping tasks **26**A-C and invoked upon detection of the onset of a behavioural issue. In such an environment, where anxiety may be caused by failure to remember how to do things or where items are kept, the initial step of the coping task **26**A may provide options for the user to select the task at hand and the strategy invoked will provide guidance.

[0045] A further embodiment of the device **10** is shown in FIG. **6**. In this embodiment, machine learning algorithms are utilised to improve continuously the detection of the onset of behavioural issues and to improve the coping strategies implemented. The machine learning algorithms utilised will depend on the nature of the data received and utilised and commonly algorithms such as Linear and Logistical regression, Linear discriminant analysis regression trees, Naïve Bayes, K-Nearest Neighbour, Learning Vector Quantization and Random forest may be utilised.

[0046] The computing power available in the cloud **15** is used to modify and update detection and coping strategies that are communicated to the user P and the supervisors S, T.

[0047] Referring to FIG. **6**, the biometric data from the monitors **32** is transmitted to the computing assets in the cloud **15**. Messages from the supervisor T are also provide to the cloud **15**. The incoming data from the sensors **32** is compared with previous data to determine whether there is a significant change. If not, and if there is no indication of anxiety from the supervisor, no action is taken.

[0048] If however a change is detected, or if the supervisor has indicated the onset of an anxiety attack or other behavioural issue, a machine learning algorithm (MLA) is invoked. The MLA retrieves the historical records of the user P relating to previous anxiety attacks and determines whether there is a high probability of anxiety from a comparison of the current data to historical data. If there is not a high probability, the monitoring continues.

[0049] If the MLA determines there is a high probability, it then determines whether this is a new pattern. If so, the new pattern is added to the historical record and a determination made that onset of an anxiety attack has been detected. Records of historical coping tasks **26**A are then retrieved.

[0050] A determination is then made as to the degree of anxiety detected. If it is not considered high, a random coping task is implemented and the biometric parameters monitored for improvement. If there is improvement, the historical records are updated to associate that coping strategy with the detected pattern.

[0051] If no improvement is detected, a different coping task is selected and the results monitored for improvement. Where no other coping task is available, the supervisor T is notified so direct intervention can be implemented.

[0052] If a high degree of anxiety is detected, the most successful coping task from the historical records is selected. The effect of this is monitored and if successful is added to the records. If it is not successful, other strategies are selected, or the supervisor notified.

[0053] By continuously updating the historical records to match patterns with coping tasks, the efficacy of the coping tasks is enhanced.

[0054] The implementation of the MLA within the cloud **15**, permits the experiences of other users to be be utilised to propose and select a new coping task from experiences of other users and adapt that coping task to the particular user. However, the data contained in the individual records is sensitive and appropriate steps have to be taken to ensure confidentiality.

[0055] FIG. **7** shows schematically one such implementation intended to permit sharing of experiences whilst maintaining the required degree of confidentiality.

[0056] Referring to FIG. **7**, when an anxiety incident or other interesting biometric shift is detected (**101**) it is sent to a block chain system (**104**) to improve the capabilities and increase the accuracy of detecting future anxiety incidents by sharing data collected from numerous biometric sensors. The data is processed by a depersonalization algorithms (**102**) and established blockchain cryptographic routines (**103**) and provide a secure, distributed, irrevocable and tamper resistant data store that can be shared with researchers to who can further analyze patterns and trends for various neurological conditions.

[0057] Although the invention has been described with reference to certain specific embodiments, various modifications thereof will be apparent to those skilled in the art without departing from the spirit and scope of the invention as outlined in the claims appended hereto. The entire disclosures of all references recited above are incorporated herein by reference.

What is claimed is:

1. A personal management device that includes a programmable scheduler to permit a sequence of events corresponding to a users coping strategy to be recorded a discernible user interface and a monitor to monitor biometric indicators, said monitor responding to attainment of threshold levels of said biometric indicators indicative of onset of an adverse situation to recall said sequence of events and implement said coping strategy through said user discernible interface.

2. The device of claim **1** wherein implementation of the coping strategy is accompanied by an alert to the supervising person.

3. The device of claim **1** wherein said scheduler enables a schedule of activities for a user for a designated period to be recorded, said monitor interrupting said schedule for said designated period upon attainment of said threshold levels.

4. The device of claim **3** wherein completion of a scheduled activity provides a reward to the user.

5. The device of claim **3** wherein completion of the coping strategy returns the scheduler to its scheduled activity.

6. The device of claim **1** wherein the programmable scheduler is a wearable device having a discernible user interface to prompt the required activity.

7. The device of claim **6** wherein said discernible interface is a viewable screen.

8. The device of claim **6** wherein the biometric indicators include at least one of pulse, breathing rate, blood pressure, body temperature, skin condition such as perspiration and rate of movement that are integrated in to the wearable device.

9. The device of claim **1** including a geo-fencing function to provide indications of location and to provide directions to a desired location through said discernible user interface.

10. The device of claim **3** wherein said sequence of activities is organised as routines with each routine comprised of one or more tasks with each task itself comprising one or more steps.

11. The device of claim **10** wherein said steps are communicated to said user through said discernible user interface.

12. The device of claim **11** wherein said discernible user interface is a visible display.

13. The device of claim **12** wherein said steps are communicated as pictograms.

14. The device of claim **11** wherein said coping strategy is implemented as a routine having designated tasks and steps.

15. The device of claim **14** wherein a plurality of coping strategies is retained by said scheduler and said monitor provides inputs to determine which of said coping strategies is appropriate.

16. The device of claim **15** wherein inputs to said monitor are compared to historical records to determine an appropriate coping strategy.

17. The device of claim **15** wherein response to a selected coping strategy is observed and said historical records updated.

18. The device of claim **1** wherein a plurality of coping strategies is retained by said scheduler and said monitor provides inputs to determine which of said coping strategies is appropriate.

19. The device of claim **18** wherein inputs to said monitor are compared to historical records to determine an appropriate coping strategy.

20. The device of claim **19** wherein response to a selected coping strategy is observed and said historical records updated.

21. The device of claim **3** wherein said threshold levels are modified by the scheduled activity.

* * * * *

专利名称(译)	交互式调度程序和监视器		
公开(公告)号	US20190328227A1	公开(公告)日	2019-10-31
申请号	US16/398392	申请日	2019-04-30
发明人	EADES, STEPHEN BIGELOW, ROSS WILSON, TRISTAN FLYNN, WESLEY		
IPC分类号	A61B5/00 G16H10/60		
CPC分类号	G16H10/60 A61B5/002 A61B5/743 A61B5/0024 A61B5/72 G16H20/70 G16H40/63 G16H50/20		
优先权	62/664433 2018-04-30 US		
外部链接	Espacenet USPTO		

摘要(译)

个人管理设备包括可编程调度器，以允许记录指定时期内用户的调度。时钟功能可在适当的时间为每个计划的活动提供提示。该设备还包括生物指标监测器，一旦达到指示焦虑发作的阈值水平，就会中断安排的活动以实施应对策略。