



- (51) International Patent Classification:
G06Q 50/00 (2012.01)
- (21) International Application Number:
PCT/AU2015/000765
- (22) International Filing Date:
23 December 2015 (23.12.2015)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2014905226 23 December 2014 (23.12.2014) AU
- (71) Applicant: **CUBIT BUSINESS INTELLIGENCE PTY LTD** [AU/AU]; 180B Sladen Street, Cranbourne, VIC 3977 (AU).
- (72) Inventors: **SHORTIS, George**; 180B Sladen Street, Cranbourne, VIC 3977 (AU). **TUALLY, Bruce**; 180B Sladen Street, Cranbourne, VIC 3977 (CA). **ROBERTSHAW, Julian**; 180B Sladen Street, Cranbourne, VIC 3977 (AU). **SARGEANT, Andrew**; 180B Sladen Street, Cranbourne, VIC 3977 (AU).
- (74) Agents: **DREW, David** et al.; C/- Sandercock & Cowie, 180B Sladen Street, Cranbourne, Victoria 3977 (AU).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:
— with international search report (Art. 21(3))

(54) Title: PATIENT CARE WORKFLOW APPARATUS

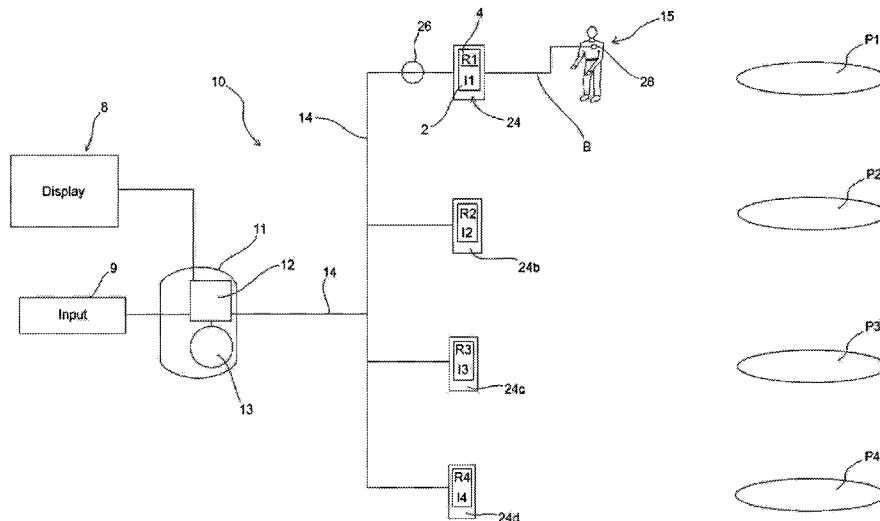


FIG. 1

(57) Abstract: A carer control apparatus (10) including a data processor (12) for monitoring and recording information flow and data through wireless communication channels (14). The data is necessary for maintaining patient care by a carer (15), the apparatus including at least one central computer processor (11) for processing the data, storage means for storing data for a record R1, R2, R3, R4, etc. (generally referenced R), relating to each of a plurality of patients P1, P2, P3, P4, etc. (generally referenced P) on a storage medium (13), a display device (4) for displaying the data to the carer (15) and at least one portable data processing device (24) for the carer (15) to display the record for a single patient.

WO 2016/101014 A1

PATIENT CARE WORKFLOW APPARATUS

TECHNICAL FIELD

This invention concerns a method and apparatus for controlling the execution of workloads and the control of communications to facilitate patient care in a building.

5 BACKGROUND

The following references to and descriptions of prior proposals or products are not intended to be, and are not to be construed as, statements or admissions of common general knowledge in the art. In particular, the following prior art discussion does not relate to what is commonly or well known by the person skilled in the art, but assists in
10 the understanding of the inventive step of the present invention of which the identification of pertinent prior art proposals is but one part.

Hospitals must cope with rapidly changing lists of patients which creates a logistical challenge as the nature of patients' needs, their location and the patient list itself can be dynamic, constantly changing. Contrast this with homes for the elderly. Such elderly care
15 institutions may employ a mixture of registered nurses and non-qualified carers and may have a more constant patient list but the.

As care in both types of facilities is delivered on a shift basis, the incoming staff must be made aware of any changes affecting patients' well-being since their last shift and to be reminded of the current care requirements.

20 Accordingly, in a typical scenario, a change of shift requires that the staff assemble and receive updated patient data and decisions are made as to what tasks should prioritised. Usually, the leaving staff brief the arriving staff verbally with reference to patient records or notes, and the incoming staff may take notes of the handover information. For example, a patient may require to be rolled in bed, involving three staff to carry out the
25 task.

An object of the present invention is to ameliorate the one or more of the aforementioned disadvantages of the prior art, or at least provide a useful alternative thereto.

SUMMARY OF INVENTION

The invention according to one or more aspects is as defined in the independent claims.

5 Some optional and/or preferred features of the invention are defined in the dependent claims.

Accordingly, in one aspect of the invention there is provided:

A workflow control apparatus including:

10 a data processing system for monitoring and recording information flow and data necessary for maintaining patient care by a carer, the system including:

at least one central computer processor for processing the data;

storage means for storing data for a record relating to each of a plurality of patients in a storage medium;

a display device for displaying the data to the carer;

15 at least one portable data processing device for the carer to display the record for a single patient,

wherein:

the portable device is adapted to be used by the carer to send data entry signals to the central processor to maintain or update the patient record for the patient;

20 the central processor and the portable device are communicationally linked and the data of each record synchronised to show on the display the record updated; and

the display shows a list of tasks that the carer is to complete and the portable device is adapted to receive data input from the carer to indicate that a task on the list is completed.

The communication mechanism of the data between the portable device and the central processor may be wired or wireless. Preferably, the communication mechanism is a wireless connection.

Synchronisation may occur in real time or may be scheduled for a periodic and pre-scheduled exchange of data between the central processor and the portable device.

The portable individual processor may be an iPad®, Samsung Galaxy™, MS Surface 4™, or other notebook or smartphone.

The patient may be an admitted patient, or may occupy a certain room, ward or bed. The portable device in the system is preferably one of a plurality of portable devices, each portable device assigned to a particular patient. However, the portable device may otherwise be assigned to a particular staff member or group of staff to be responsible for it whilst on duty, such as to the staff operating on a ward responsible for a particular group of patients.

The portable device may be located on, adjacent or in close physical proximity to the patient's bed.

The task list may be in the form of a care plan for the patient. The portable device may display the care plan using icons or symbols. For example, the display may include a mobility mode that indicates a wheelchair transfer restriction, walk assistance (requiring one or more carers to assist), showering requirements (e.g. two carers to assist), or other functions associated with the care of a patient, such as medications and observations. The icons or symbols preferably provide an easy visual conveyance of the required information, and an option to input completion of the task by hitting the icon or symbol.

The portable device may display specific tasks for particular times, such as on a particular day, for example urine sample analysis. The portable device may display routine periodic (such as daily) tasks that are automatically generated by the central processor to appear on the task list for the patient's record

The portable device may also display messages concerning the patient, for example travel arrangements.

These different capabilities are advantageously under icon control or symbols. Therefore, when an individual task on the task list is completed, the carer may activate the completion option on the icon, the portable device communicates completion of the task to the central processor which updates the record for that particular patient.

The portable device is preferably adapted to adopt a sleep mode where it is operationally inactive to conserve battery power. The portable device preferably becomes activated by an initiation signal. The initiation signal may be derived by a proximity device to detect the proximity of the portable device to the proximity device. The proximity device may be portable and may be worn by the carer on their person. The portable device may be initiated into active mode by the approach of the proximity device. The proximity device may comprise a short range activator, such as a BLUETOOTH key.

The central processor may be adapted to coordinate the task list for a group of carers. This may enable the list of tasks to be shared appropriately among available carers and adjusted as carer numbers fluctuate.

Each patient may be categorised with a number which indicates degree of care required depending on the number and type of tasks required to care for them. It is then possible to allot a group of patients to each carer. For example, if a high care patient was categorised as 10, and a low care patient 1, with corresponding patient care levels varying within that range, one carer may be allocated two high care patients indicated by (10+10), another carer may be allocated a group of 4 patients requiring varying levels of care (2+8+4+6), and another carer allocated 4 patients rated as requiring medium-level care (4+4+4+4), whereby all three carers are kept equally busy.

Each task in the task list may receive a “workload allocation” according to a schema based on time, number of carers required, frequency of care and other factors. The acronym for this unit of measure is CUW (Carer Unit Workload).

Advantageous Effects of Invention

- 5 1. If there is a power interruption the independently powered portable devices continue to provide a source of data.
2. Low cost and stand alone with the potential to integrate the system’s interface with clinical management software.
3. Changing care needs are simple to update in the patient’s record and handover
10 requires less time, if at all.

BRIEF DESCRIPTION OF DRAWINGS

The invention may be better understood from the following non-limiting description of preferred embodiments, in which:

Figure 1 is a flow diagram showing the relationship between an administration central
15 processor and an individual patient monitor linked by a local wifi network;

Figure 2 is a schematic representation of a monitor screen for an individual patient monitor;

Figure 3 is schematic representation of an administration monitor screen showing an individual patient’s data selected by the carer for display; and

20 Figure 4 is a schematic representation of a centralised display for a central processor.

DESCRIPTION OF EMBODIMENTS

Referring now to Figure 1, there is shown a carer control apparatus 10 including a data processor 12 for monitoring and recording information flow and data through wireless communication channels 14. The data is necessary for maintaining patient care by a carer

15, the apparatus including at least one central computer processor 11 for processing the data, storage means for storing data for a record R1, R2, R3, R4, etc. (generally referenced R), relating to each of a plurality of patients P1, P2, P3, P4, etc. (generally referenced P) on a storage medium 13, a display device 4 for displaying the data to the carer 15 and at least one portable data processing device 24 for the carer 15 to display the record for a single patient.

In a particularly preferred form of the invention, the portable device 24 is adapted to be used by the carer 15 to send data entry signals 26 to the central processor 11 to maintain or update the patient record R for the patient. The central processor 11 and the portable device 24 are communicably linked 14 and the data of each record R synchronised to show on the display 4 the record R updated. The display R shows a list of tasks that the carer 15 is to complete and the portable device 24 is adapted to receive data input from the carer 15 to indicate that a task on the list is completed.

The communication mechanism 14 for conveying the data 26 between the portable device 24 and the central processor 11 is be wired or wireless, such as by a wi-fi linked local area network (LAN).

Synchronisation is scheduled for update at regular intervals of between 2 and 120 seconds, so that exchange of data 26 between the central processor 11 and the portable device 24 effectively reflects real-time synchronisation.

The patient P may be an admitted patient, or may occupy a certain room, ward or bed. Therefore references P1 - P4 may refer to wards or rooms, but most aptly refers to individual patients in a hospital setting. The portable device 24 in the apparatus 10 is one of a plurality of portable devices 24, 24b, 24c, 24d, each portable device (generally referenced 24) assigned to a particular patient, respectively referenced P1 - P4.

The task list forms part of a care plan incorporated in the record R for the patient P. The portable device 24 displays the care plan using icons or symbols 2. The display includes a

mobility mode icon I for conveying to the carer information regarding the mobility that indicates a wheelchair transfer restriction, walk assistance (requiring one or more carers to assist), showering requirements (e.g. two carers to assist), or other functions associated with the care of a patient P, such as medications and scheduled monitoring observations.

5 The icons or symbols 2 provide an easy visual conveyance of the required information, and an option to input completion of the task by hitting the icon or symbol 2.

The portable device 24 displays specific tasks for particular times, such as on a particular day or time of the day, for example to run a urine sample analysis. The portable device 24 displays routine periodic tasks that are automatically generated by the central processor
10 11 to appear on the task list for the patient's P record R.

When an individual task on the task list is completed by the carer 15, the carer 15 may activate the completion option on the icon 2, and the portable device 24 communicates completion of the task to the central processor 11 which updates the record R for that particular patient.

15 The portable device 24 is ideally located on the patient's P bed, although a carer may carry on their person the portable device 24 covering a plurality of patients all in the carer's 15 responsibility. The portable device 24 adopts a sleep mode where it is operationally inactive to conserve battery power. The portable device 24 becomes activated by an initiation signal 13. The initiation signal 13 is derived from a proximity
20 device 28 on the carer's 15 person to detect the proximity of the portable device 24 to the proximity device 28. The portable device 24 is initiated into active mode by the approach of the proximity device 28. The proximity device 18 comprises a short range activator, in this form a BLUETOOTH key.

In a particularly preferred form of the invention, workloads for each carer 15 are
25 allocated according to a profile score between 1 – 10 based on the care needs of the patient/resident P. Each patient P is categorised with a number from 1 – 10 which indicates degree of care required, depending on the number and type of tasks required to

care for them. A group of patients P are allotted to each carer 15. For example, if a high care patient P was categorised as 10, and a low care patient 1, with corresponding patient care levels varying within that range, one carer 15 may be allocated two high care patients indicated by (10+10), another carer may be allocated a group of 4 patients requiring varying levels of care (2+8+4+6), and another carer allocated 4 patients rated as requiring medium-level care (4+4+4+4), whereby all three carers are kept equally busy. Each task in the task list receives a “workload allocation” according to a schema based on time, number of carers 15 required, frequency of care and other factors. These factors are used to calculate a CUW value for each carer 15.

10 In a particularly preferred embodiment each patient P bedside has a portable device 24 in the form of an iPad® device that is stored prominently for inspection by carers 15. The device 24 displays patient identity and the work that is required is presented on the display 4 in multiple blocks:

15 Firstly, care plan interventions are identified which can be in respect of, for example, two person roll, lifter, e.g. pixel, dysphagia, showers assistance, cut meal, etc. The icons 2 flash until the corresponding task is completed.

20 Secondly, the tasks on the task list required to be completed on that particular shift or day. In the preferred embodiment the icon 2 flashes until the carer 15 has performed the work. That is, the icons 2 will indicate patient care requirements such as mobility type, oxygen, diabetic, nutrition, incontinence, vision in the first group; and urinalysis, wound swab, BP, respirations, etc. When the work of this block has been performed, the carer 15 presses the icon 2 which stops the flashing.

Thirdly, the Message Board 4 with information about the patient P is displayed, e.g. 11am dental appointment.

Fourthly, the carer P presses the icon 2 to capture information, eg. fluids taken (the corresponding icon has mLs consumed or absorbed by the patient) or patient fall, patient evident.

As soon as the carer 15 bearing the proximity sensor 28 comes within range of the IPAD® device 24 in a ward or dormitory, it is activated and stays activated until the carer 15 moves out of range. When an icon 2 initiated to set a corresponding task associated with that icon 2, the icon 2 is changed and it flashes for 24 hours. The device 24 registers the carer's 15 visit. The information is stored in a table and is printable for review.

In Figures 2a and 2b it can be seen that the administration computer 11 and data storage 13 is primarily concerned with updating of patient P care, checking how quickly the workload is being carried out and visual and printable records R providing proof of visits corresponding to detection of the carer's 15 presence by the proximity sensor's 28 registration with the portable device 24. With reference to Fig. 2a, on the central computer 11, admin staff updates the patient care information R by inputting data through input device 9. Once saved, through synchronisation of the patient record R data on both devices 11,24, this data is uploaded onto the portable device 24. Once the upload is completed 24a on the portable device 24, a signal 26 is sent back to the central computer 11 confirming the success of the upload 11a. The carer 15 moves into proximity of the portable device 24, the proximity device 28 is detected and the portable device 24 is activated 4a so that the device screen 4 turns on. The display 4 indicates to a carer 15 that they should see to the patient's care requirements 2a. On leaving the vicinity of the portable device 24, the carer's 15 visit is recorded 28a. The completed task information is sent 26a to the central or main computer 11 and may be displayed 8a at a central or admin location.

An airport type monitor screen 8 displays information stored on the main computer 11. This may include a sequence of patient's photos 6, the Current Needs 10 displayed as icons of any patient P selected by the Administration staff. The group of icons 10 show

the daily care content for that patient P. Any extra duties appear in a section under “ADD NEED” 12. The “MESSAGE BOARD” 8b lists any data such as external appointments or responses which are outside the routine care expected.

In Fig. 4 there is shown an aspect of the invention in the form of an airport type monitor screen display 8. The central display shows a table 7 with a number of patients’ P names and their room numbers in a first column 16. Icons 2 showing changes in the patients’ P care plans in the last 24 - 72 hours are listed in second column 18. Icons 2 showing work to be performed by the carer 15 are included in a third column 20.

In practice, the screen 4 yields the name of the last staff member or carer 15 to visit that patient P. At handover, the staff carers 15 can assemble in front of the large monitor 8 as shown in Figure 3 to assess the workload and work out priorities.

If power fails, the individual IPAD® devices 24 continue to function and form a data reserve.

The apparatus 10 is driven by software and displays on displays 4,8 icons 2 being simple forms of communication to enable all carer 15 staff with varying levels of education and language skills to understand the care requirements for the patient/resident.

The carer/nurse 15 at the bedside can document information such as maintenance requests, incidents and behaviours, using the software program used to operate the iPad 24. The information is relayed back to the Administrative computer 11 where it highlights in red.

When a carer/nurse 15 creates an action that requires attention by a Registered Nurse (RN), it is displayed on the display 4 in red highlighted text. The RN takes action 2a based on the displayed icon information and associated task and presses the text highlighted and in association with the icon 2. The highlighting (for e.g. flashing) is then removed and a highlighted circle around or highlighted area associated with the resident or patient’s name also disappears 32.

The software allows carers/nurses 15 to document events/incidents and maintenance requests through a “Log” button 34. The carer/nurse 15 chooses from a drop down box the type of event or incident or information they want to document. The information is sent to the central computer 11 where it can be analysed and acted upon.

5 The software is constructed in a manner that only two actions are required by the carer/nurse 15 to record vital information through the icons 2.

On the portable device, the software is in the form of an App.

The icons 2 can be highlighted to priorities certain functions, such as by showing a time device such as a schematic clock 36 as larger than a standard clock size. Once a task
10 associated with an icon 2 is completed, the clock 36,38 may be removed and the action logged automatically on the record R.

Another aspect of the software of the apparatus 10 is the security of information. The information is only available when a beacon 28 is in proximity of the iPad 24 such that the beacon 28 registers as being in the vicinity of the device 24. This prevents
15 unauthorised persons, such as patients P, residents or visitors from being permitted or having access to activate the App thus keeping the care needs and tasks confidential to the carers and nurses 15.

Overdue care tasks 36 are highlighted for each patient/resident P. A monitor in the nurses station similar to the Admin central monitor 8 alerts the nurses/carers 15 of any overdue
20 tasks and changes in care plans.

Storage of resident/patient P memories may be stored in the record R. Photos of resident/patient 15 may be stored by the software and can be displayed when required by pressing the resident or patient P photo. A memory photograph can be stored in the apparatus 10 via the User device 24. This enables staff 15 to view photos and know what
25 intervention is best to manage unusual behaviours. A photograph of the patient 15 attached to the record R is available on all devices 11,24.

Beacons 28 using Bluetooth technology provide the wearer 15 of the beacon 28 with access via the App to the apparatus 1 and the records R. Multiple beacons 28 can be detected by the iPad 24 and displayed on the iPad screen 4.

5 A message board 4b is available for messages about the patient/resident P. For example, it may indicate that the patient/resident P may have an X-ray appointment at 1100hrs. Information about the Resident/Patient P (e.g. preferences) is displayed on a page when the carer/nurse 15 first comes in contact with the resident/patient P, after which the information is available for reference.

10 The software allows carers/nurses 15 to document events/incidents and valuable information. The carer/nurse 15 can choose from a drop down box the type of event or incident or information they want to document. The information is sent to the central computer 11 where it can be analysed and acted upon.

15 The software is constructed in a manner that only two actions on the iPad 28 by the carer/nurse 15 can record vital information regarding the patient P and the completion of a task 36,38.

The display 4 performs as a dashboard that displays critical information about care provided and tasks 36,38 completed. A Care Needs icon 2 is provided that, when pressed, provides written information about the care need.

20 Activities 36,38 can be automatically logged as completed to avoid the use of time consuming hand written sheets. The data in each record R is available upon request to either review activities or to provide proof for standards agencies or valuers, for example to ensure government funding or operating certificates for carer organisations, or to maintain practising certificates.

25 The apparatus provides for the inclusion of a Roaming iPad (RiPad) 24b that will enable the population of data and information when patients/residents P are not in their allocated bedroom. A roaming iPad that allows the entry of data or information will provide a

comprehensive method to collect and input data about the patient/residents P care needs, activities and incidents/behaviours, irrespective of where the patient is located at any time whilst in the institution's care. This provides a significant advantage over the prior art in that the carer 15 may activate the portable device 24 in a location remote from the
5 patient's P normal care location.

The RiPad 24b that will enable the population of patients'/residents' records R into lists. Residents P that are located in a non-hospital care facility such as an aged care facility, who participate in activities such as exercise and music classes, games events, etc. can be documented by the carer or nurse 15 by selecting a list and then entering the resident into
10 the list.

Reports are advantageously emailed directly from the software. Reports that contain information about tasks and completion of tasks should be able to be emailed. For instance a report on all heat pack tasks, aided walking, monitored exercise, ultra is available in the apparatus 10 to be sent to health care workers such as physiotherapists or
15 other clinical staff, when required. The report will show when the task was performed and by whom which may be required for auditing or accreditation purposes.

A task list page is displayed on the display 4 when the beacon 28 activates the iPad 24. Different activity lists will be shown according to the beacon 28 information. For example, the carer beacon 28 can activate the iPad 24 and the carer 15 list of activities
20 36,38 is displayed. If a cleaner beacon activates the iPad 24 it displays the cleaner's activities in icon form. The task icon 36,38 when pressed provides written statements of the specific tasks to be performed

The dashboard 4 is able to display the total number of care minutes per day for a patient P and the total care minutes for each carer 15 on that day. This is also displayed in
25 graphical form on the main display 8 and enables Admin to keep a log of each day of data that includes carer 15 efficiency data.

The software provides distinctive icons that have been created for each care need and task 36,38 that is displayed on the device 24.

The software provides on the display 4 the button 34 for displaying two functions:

5 a. Log an incident - the button 34 when pressed provides access to a drop down box having a list of typical incidents. There is also a free text area 4b to provide additional information about the characterised incident. The information is relayed to the Administrator Screen (TV) 8 and displayed in red to highlight the issue. The red writing turns to black when the incident is attended to or the task is completed.

10 b. Log a behaviour – noteworthy patient P behaviours are captured via a drop down box having a range of typical behaviours that the staff 15 can chose from. When chosen, a text box appears for additional information or subcategories, if required. The information is displayed at the Admin Screen 8 in red until it is attended to.

Patient 15 demographics are available on the device screen 4, such as; date of birth, room number, device name/identifier, or location.

15 The software provides for an additional two areas 4b that are available for additional text information. These areas are for "Allergies" and "Special Instructions".

Throughout the specification and claims the word "comprise" and its derivatives are intended to have an inclusive rather than exclusive meaning unless the contrary is expressly stated or the context requires otherwise. That is, the word "comprise" and its 20 derivatives will be taken to indicate the inclusion of not only the listed components, steps or features that it directly references, but also other components, steps or features not specifically listed, unless the contrary is expressly stated or the context requires otherwise.

25 Orientational terms used in the specification and claims such as vertical, horizontal, top, bottom, upper and lower are to be interpreted as relational and are based on the premise

that the component, item, article, apparatus, device or instrument will usually be considered in a particular orientation which will generally be apparent from the context.

In the present specification, terms such as “component”, “apparatus”, “means”, “device” and “member” may refer to singular or plural items and are terms intended to refer to a set of properties, functions or characteristics performed by one or more items having one or more parts. It is envisaged that where a “component”, “apparatus”, “means”, “device” or “member” or similar term is described as being a unitary object, then a functionally equivalent object having multiple components is considered to fall within the scope of the term, and similarly, where a “component”, “apparatus”, “assembly”, “means”, “device” or “member” is described as having multiple items, a functionally equivalent but unitary object is also considered to fall within the scope of the term, unless the contrary is expressly stated or the context requires otherwise.

The illustrations, photographs and drawings, if any, form part of the disclosure of this specification as does the description, illustrations, photographs and drawings of any associated provisional or parent specification or of any priority document, if any, all of which are imported hereinto as part of the record hereof.

Finally it is to be understood that various alterations, modifications and/or additions may be incorporated into the various constructions and arrangements or parts without departing from the spirit and ambit of the invention.

THE CLAIMS:

1. A workflow control apparatus including:

a data processing system for monitoring and recording information flow and data necessary for maintaining patient care by a carer, the system including:

- 5 at least one central computer processor for processing the data;
- storage means for storing data for a record relating to each of a plurality of patients in a storage medium;
- a display device for displaying the data to the carer;
- at least one portable data processing device for the carer to display the record for a
- 10 single patient,

wherein:

the portable device is adapted to be used by the carer to send data entry signals to the central processor to maintain or update the patient record for the patient;

15 the central processor and the portable device are communicationally linked and the data of each record synchronised to show on the display the record updated; and

the display shows a list of tasks that the carer is to complete and the portable device is adapted to receive data input from the carer to indicate that a task on the list is completed.

2. The apparatus as defined in Claim 1, wherein a communication mechanism for the

20 data between the portable device and the central processor is wireless.

3. The apparatus as defined in Claim 1, wherein the portable device is a smart device such as an iPad®, Samsung Galaxy™, MS Surface 4™, or other notebook or smartphone.

4. The apparatus as defined in Claim 1, wherein the portable device is one of a plurality of portable devices, each portable device assigned to a particular patient.
5. The apparatus as defined in Claim 1, wherein portable device may be located on, adjacent or in close physical proximity to the patient's bed and is activated by a proximity sensor wearable by the carer.
6. The apparatus as defined in Claim 1, wherein the task list is in the form of a care plan for the patient and the portable device displays the care plan using icons or symbols that require a maximum of two actions by the carer to indicate completion of a task corresponding to a particular icon.
- 10 7. The apparatus as defined in Claim 1, wherein the carer activates the completion option on an icon and the portable device communicates completion of the task to the central processor, which updates the record for the particular patient.
8. The apparatus as defined in Claim 1, wherein the portable device is adapted to adopt a sleep mode where it is operationally inactive to conserve battery power and the portable device becomes activated by an initiation signal derived from a proximity device to detect the proximity of the portable device to the proximity device.
- 15 9. The apparatus as defined in Claim 5 or 8, wherein the proximity device comprises a short range activator using a BLUETOOTH key.
10. The apparatus as defined in Claim 1, wherein the portable device is adapted to be used by the carer to send data entry signals to the central processor to maintain or update the patient record R for the patient.
- 20 11. The apparatus as defined in Claim 10, wherein the central processor and the portable device are communicationally linked and the data of each record R synchronised to show on the display the record updated.

12. The apparatus as defined in Claim 1, wherein the display shows a list of tasks that the carer is to complete and the portable device is adapted to receive data input from the carer to indicate that a task on the list is completed.
13. The apparatus as defined in Claim 11 or 12, wherein synchronisation is scheduled
5 for update at regular intervals of between 2 and 120 seconds.
14. The apparatus as defined in Claim 1, wherein when an individual task on the task list is completed by the carer, the carer activates the completion option on the icon and the portable device communicates completion of the task to the central processor which updates the record for that particular patient.
- 10 15. The apparatus as defined in Claim 5, wherein as soon as the carer 15 bearing the proximity sensor 28 comes within range of the portable device in a ward or dormitory, it is activated and stays activated until the carer moves out of range.

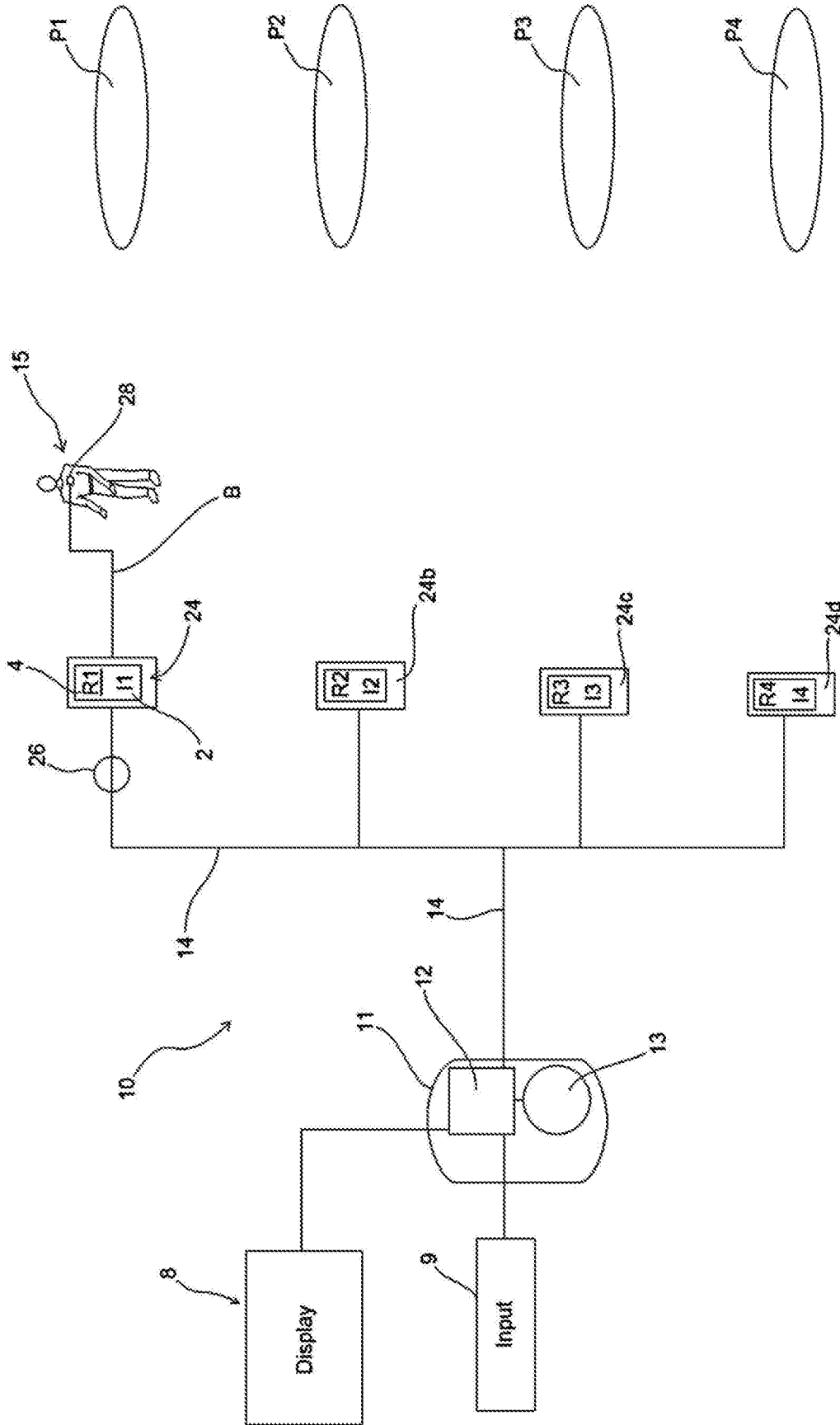


FIG. 1

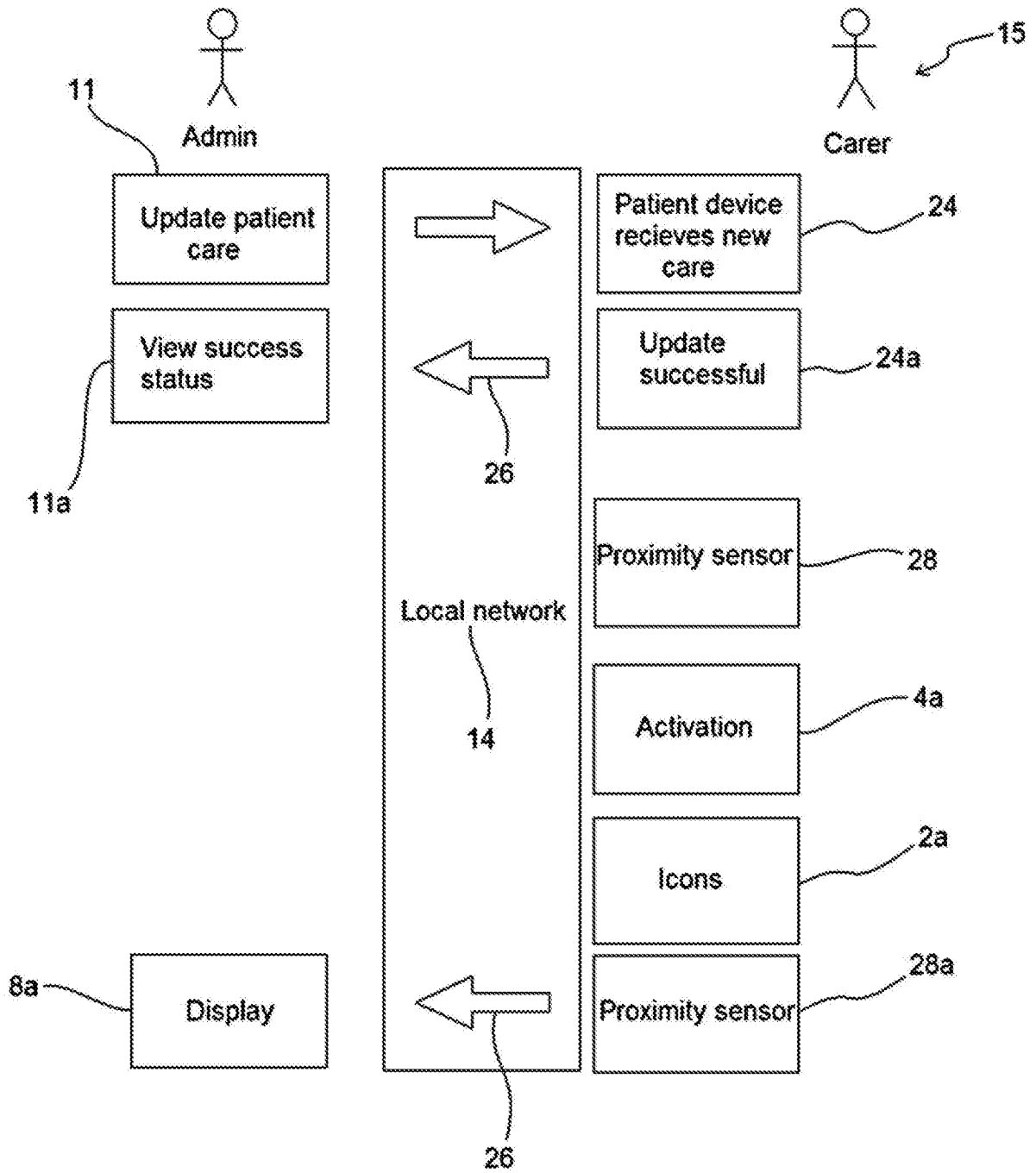


FIG. 2a

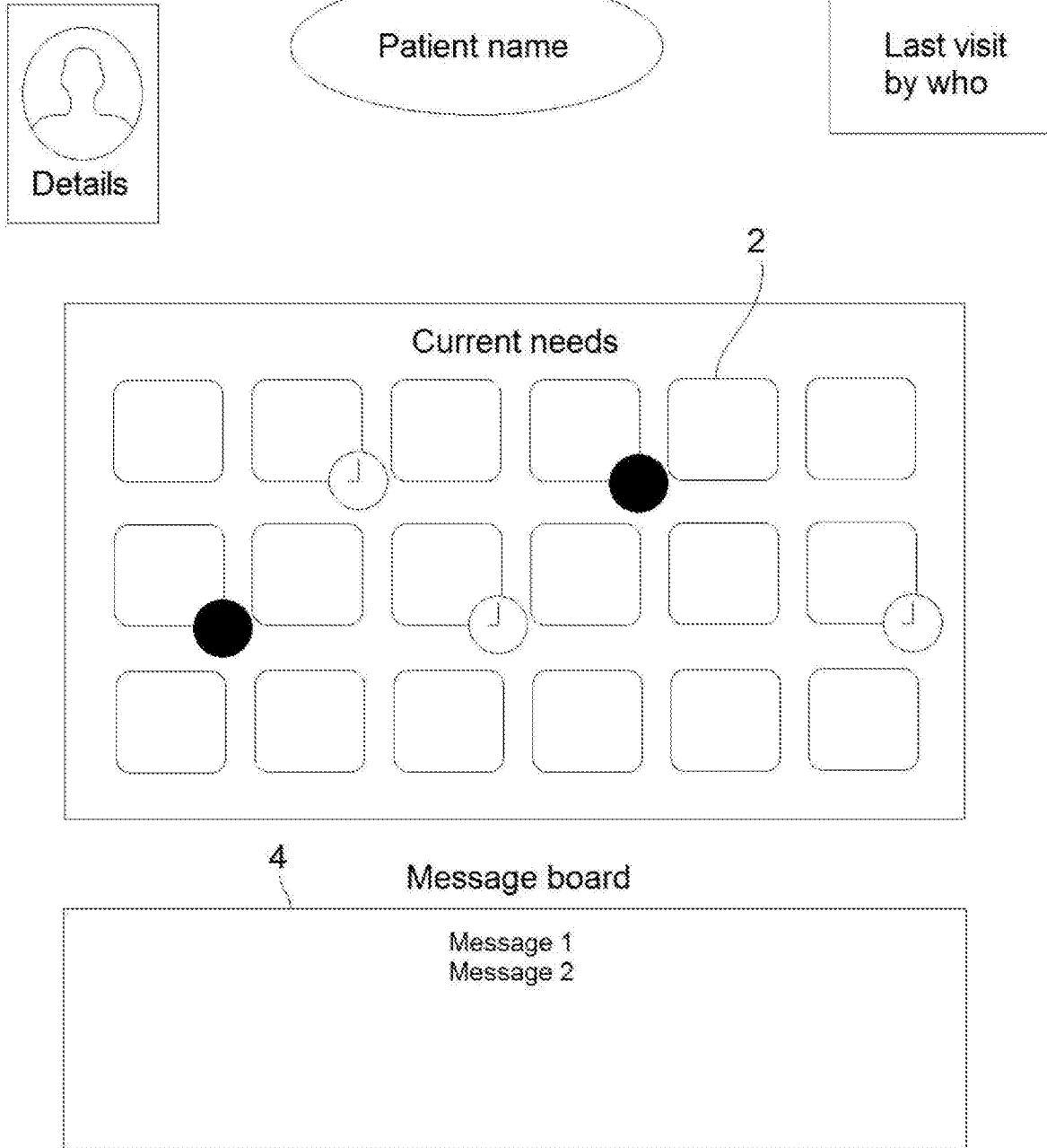


FIG. 2b

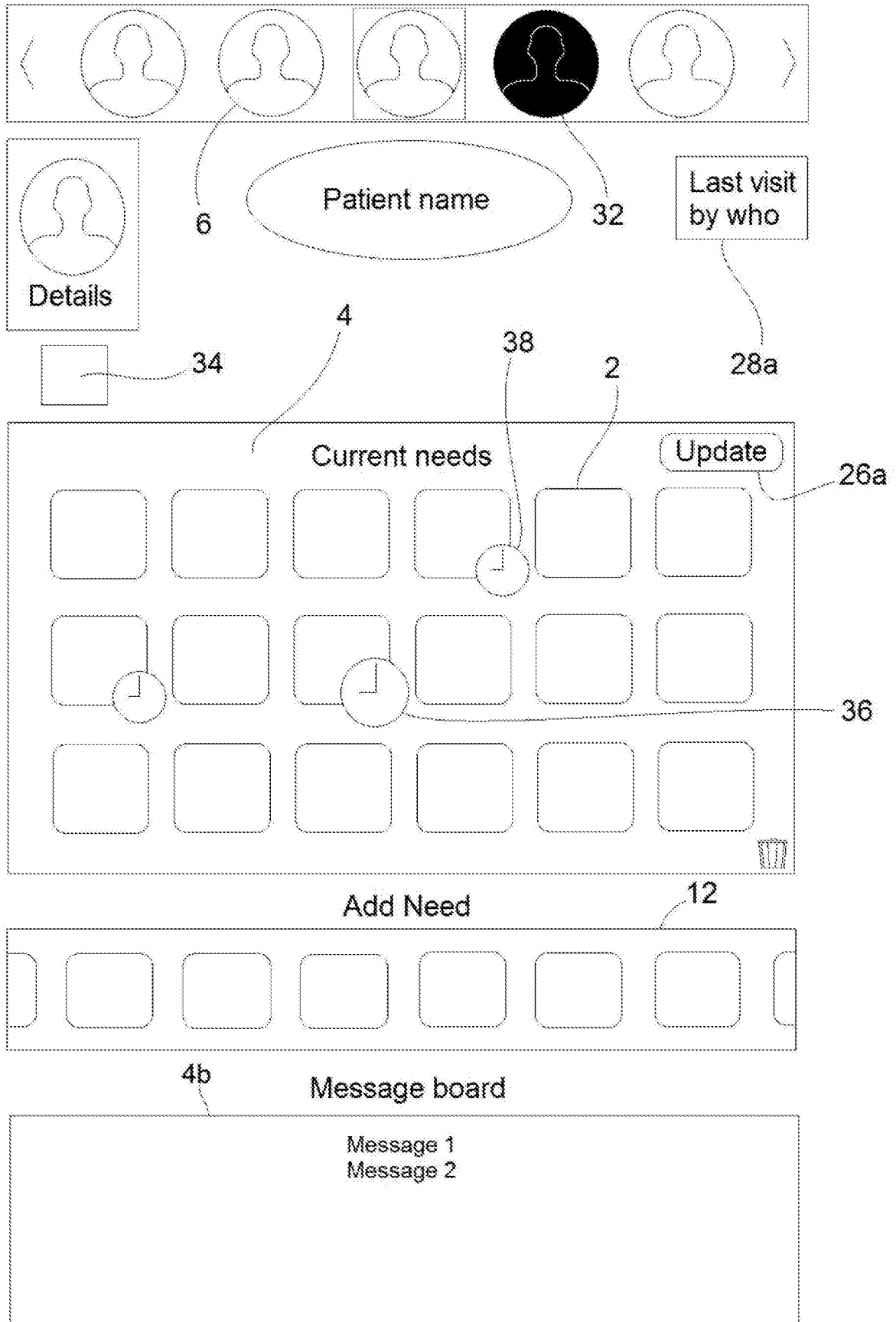


FIG. 3

16 Patient Name	18 Changes in care plan icons	20 Work tasks to be completed as icons

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2015/000765

A. CLASSIFICATION OF SUBJECT MATTER

G06Q 50/00 (2012.01)

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)

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

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

Database : INTESS : & Keywords (andrew, bruce, george, julian, robertshawe, sargeant, shortis, tually,) & like terms. Database : PAMS (NOSE) : & Keywords (andrew, bruce, george, julian, robertshawe, sargeant, shortis, tually,) & like terms. Database : WPIAP : & Keywords (apparatus, carer, clipboard, device, digital, doctor, electronic, handheld, medical, notebook, nurse, patient, phone, portable, smart, tablet, workflow, worktask) & like terms. Database : Google patents : & Keywords (carer, carl, control, corporation, device, displaying, dvorak, epic, flow, indicate, information, input, linked, list, maintain, means, medium, monitoring, necessary, patient, plurality, portable, processing, processor, proximity, receive, record, relating, send, sensor, show, signals, storage, synchronised, system, tablet, task, update, workflow) & like terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Documents are listed in the continuation of Box C		

 Further documents are listed in the continuation of Box C 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	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"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)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
17 February 2016Date of mailing of the international search report
17 February 2016

Name and mailing address of the ISA/AU

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
Email address: pct@ipaustrialia.gov.au

Authorised officer

Ross Stopford
AUSTRALIAN PATENT OFFICE
(ISO 9001 Quality Certified Service)
Telephone No. 0262832177

INTERNATIONAL SEARCH REPORT		International application No. PCT/AU2015/000765
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/0288095 A1 (TOROK et al.) 21 December 2006 [0005], [0011], [0012], [0013], [0014], [0015], [0016], [0017], [0018], [0020], [0021], [0022], [0023], [0024], [0038]	1 - 15
X	US 2008/0106374 A1 (SHARBAUGH) 08 May 2008 [0013], [0016], [0017], [0027], [0029], [0030], [0031], [0037], [0042], Claim 12	1 - 15
P,X	US 8972272 B1 (DVORAK et al.) 03 March 2015 Abstract, claims.	1 - 15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2015/000765

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
US 2006/0288095 A1	21 December 2006	US 2006288095 A1	21 Dec 2006
		US 7962544 B2	14 Jun 2011
		US 2007269037 A1	22 Nov 2007
		US 8140684 B2	20 Mar 2012
		US 2005188095 A1	25 Aug 2005
US 2008/0106374 A1	08 May 2008	US 2008106374 A1	08 May 2008
US 8972272 B1	03 March 2015	US 8972272 B1	03 Mar 2015

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

Form PCT/ISA/210 (Family Annex)(July 2009)