(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
13 October 2005 (13.10.2005)

PCT

(10) International Publication Number
WO 2005/096206 A1

(51) International Patent Classification[7]: G06F 19/00, A61B 19/00, 5/00, 5/021, 7/02, G06F 3/02, 3/14

(21) International Application Number: PCT/CA2005/000476

(22) International Filing Date: 31 March 2005 (31.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/557,714 31 March 2004 (31.03.2004) US
60/564,985 26 April 2004 (26.04.2004) US

(71) Applicant *(for all designated States except US)*: **NEPTEC DESIGN GROUP LTD.** [CA/CA]; 302 Legget Drive, Kanata, Ontario K2K 1Y5 (CA).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **NEPHIN, Paul** [CA/CA]; 59 Burgess Street, Carleton Place, Ontario K7C 4C9 (CA). **WATERMAN, Don** [CA/CA]; 117 Hillcrest Drive, Appleton, Ontario K0A 1A0 (CA). **SCHNEIDER, John** [CA/CA]; 12 Pepperidge Way, Kanata, Ontario K2K 3B6 (CA). **TRICKEY, Evan** [CA/CA]; 272 Flora Street, Carleton Place, Ontario K7C 3M5 (CA).

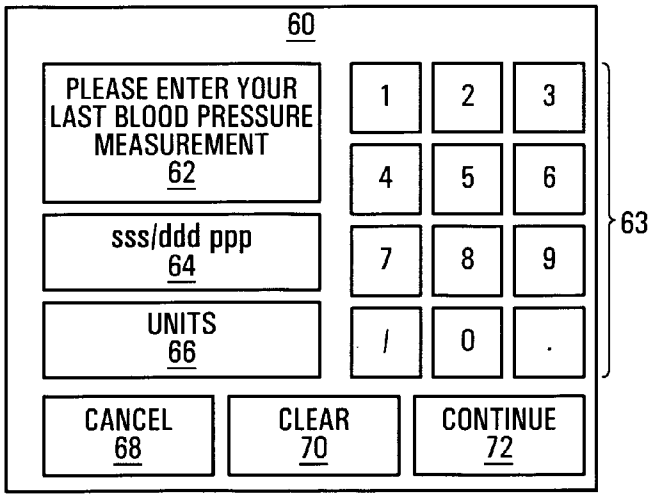
(74) Agents: **SMART & BIGGAR** et al.; P.O. Box 2999, Station D, 900 - 55 Metcalfe Street, Ottawa, Ontario K1P 5Y6 (CA).

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

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: MEDICAL PATIENT MONITORING AND DATA INPUT SYSTEMS, METHODS AND USER INTERFACES



(57) Abstract: Systems, methods, and associated user interfaces for medical patient health monitoring systems are provided. Data entry at a patient system deployed at a patient location is facilitated through a soft keypad graphical element. The soft keypad graphical element defines user input areas of the display which correspond to respective alphanumeric inputs, and user inputs within any of the user input areas are detected. Detected user inputs may be displayed, stored in a memory, transmitted to a remote location, or otherwise processed. Patient-site monitoring system configuration mechanisms are also provided to support configuration of a patient system to operate with any of various peripheral devices. The presentation of prompts and other information to a patient is preferably controlled according to how the patient system has been configured, illustratively the types of peripheral devices in conjunction with which the patient system has been configured to operate.

WO 2005/096206 A1

SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

MEDICAL PATIENT MONITORING AND DATA INPUT SYSTEMS, METHODS AND USER INTERFACES

Field of the Invention

This invention relates generally to medical patient monitoring and, in particular, to interface and data input systems and methods for patient monitoring.

Background

Monitoring of medical patients after release from hospital or for ongoing assessment of a medical condition, for example, presents many challenges. Attending medical appointments at a health care facility may not be convenient for a patient, such as when a medical condition or injury affects a patient's mobility or ability to travel. Where a desired or required level of monitoring involves relatively frequent determination of vital signs or other indicators of patient health, such visits to a health care facility may not be feasible.

In the field of remote health care monitoring, several systems are currently available. In one such system, predetermined health care questions and medication reminders are stored on an electronic device which is deployed at a patient site, typically the patient's home. The patient is prompted to answer the questions, and possibly to take medications or perform other tasks such as taking readings using any of a number of medical devices, including a stethoscope or glucometer, for example. Answers to the questions and readings from the devices may then be transmitted to a remote location for subsequent retrieval and analysis by a health care provider.

Although this type of remote monitoring system provides an alternative to attendance of medical appointments for patient monitoring, currently available systems have significant restrictions.

For example, current patient site electronic devices do not provide for convenient manual data input where a patient is required to input a reading from a medical device, for instance. In one known patient device, physical directional keys are provided on the patient device for input of such readings. The patient must then use the directional keys to adjust a value to reflect a device reading. The repeated operation of the directional keys may be difficult for older patients or those having certain medical conditions.

Current patient site electronic devices are also typically pre-configured, and not dynamically configurable for operation with any of multiple peripheral devices. Custom monitoring systems, including predetermined peripheral devices, are normally deployed at a patient site. Adaptation of such systems for changing patient needs thus tends to be difficult.

Summary of the Invention

Embodiments of the invention address at least some of the above disadvantages of current remote patient monitoring systems, by providing improved user input mechanisms. User input interfaces according to embodiments of the invention are more intuitive and provide for more efficient manual data input than known solutions.

Further embodiments of the invention relate to dynamically configurable patient health monitoring devices,

which are more easily adaptable for operation in conjunction with any of multiple peripherals.

According to one aspect of the invention, there is provided a system for monitoring health conditions of a medical patient. The system includes a display and a user input manager. The user input manager is operatively coupled to the display and configured to display on the display a user prompt for medical information and a keypad graphical element defining user input areas of the display, each of the user input areas corresponding to a respective alphanumeric input, and to detect an input of the medical information by a user within any of the user input areas.

The user input manager may be implemented, for example, using a processor.

In some embodiments, the user input manager is configured to detect multiple user inputs in response to the user prompt. The user inputs may represent portions of the medical information, in which case the user input manager is preferably further configured to detect that user input is complete. The user inputs may then be parsed into the portions of the medical information, based on delimiter characters separating the portions of the medical information for instance.

Detected user inputs may be displayed, stored in a memory, transmitted to a remote location, or otherwise processed.

A method of monitoring health conditions of a medical patient is also provided, and includes displaying on a display a user prompt for medical information and a keypad graphical element defining user input areas of the display,

each of the user input areas corresponding to a respective alphanumeric input, and detecting an input of the medical information by a user within any of the plurality of user input areas.

Methods according to other embodiments of the invention may include additional operations, such as any of those described briefly above in the context of a patient monitoring system.

The present invention also provides, in another broad aspect, a graphical user interface for an electronic device which is for monitoring health conditions of a medical patient. The graphical user interface includes a first graphical element comprising a user prompt for medical information, and a second graphical element defining user input areas of the display, each of the user input areas corresponding to a respective alphanumeric input.

In some embodiments, the graphical user interface also includes a graphical element defining a further user input area for indicating a completion of user input in response to the user prompt, a graphical element indicating a current user input, or both.

A system in accordance with another aspect of the invention includes a display, a memory, and a user input manager. The memory is for storing user prompts for user information and respective ranges of responses for any of the user prompts having an associated range of responses, and the user input manager is configured to retrieve from the memory and display on the display a user prompt, to determine whether the retrieved user prompt has an associated range of responses, and to display on the display, based on the determination, a keypad graphical

element defining alphanumeric user input areas of the display or a range input graphical element defining a user input area of the display and a user input range comprising the associated range of responses.

A related method is also provided, and includes operations of displaying a user prompt on a display, determining a type of input solicited from a user by the user prompt, and displaying on the display, based on a result of the determining, a graphical element defining a user input area of the display. The displayed graphical element is selected from a keypad graphical element defining a plurality of alphanumeric user input areas of the display and a range input graphical element defining a user input area of the display and a user input range comprising a range of responses to the user prompt.

A further aspect of the invention provides a system for monitoring health conditions of a medical patient. The system includes a display, an interface, and a controller. The controller, which may be implemented using a processor for instance, is operatively coupled to the display and to the interface for displaying health care instructions on the display, and for dynamically configuring the interface for operation with a peripheral device.

In one embodiment, the health care instructions comprise health care instructions associated with the peripheral device. The controller preferably determines whether the interface has been configured for operation with the peripheral device, and displays on the display the health care instructions associated with the peripheral device where the interface has been configured for operation with the peripheral device. This determination by the

controller may be made, for example, by detecting connection of the peripheral device to the interface.

The interface may include a single configurable interface or multiple interfaces. According to one embodiment, the or each interface is configurable for operation with any of a number of peripheral devices, which are preferably medical devices such as a blood pressure meter, an oximeter, a glucometer, a weigh scale, and a stethoscope.

Medical readings or other information collected in accordance with displayed health care instructions may be transmitted to a remote system for storage and/or processing. Responsive to an instruction received from a remote system, for example, the controller may transmit readings or information to that particular remote system.

Another aspect of the invention provides a method of monitoring health conditions of a medical patient. The method includes operations of determining whether a peripheral device has been enabled at a patient monitoring system, and displaying at the patient monitoring system health care instructions comprising at least one of: health care instructions associated with the peripheral device and health care instructions other than the health care instructions associated with the peripheral device, based on the determination.

A related system for monitoring health conditions of a medical patient includes means for determining whether a peripheral device has been enabled at a patient monitoring system, and means for displaying at the patient monitoring system health care instructions comprising at least one of: health care instructions associated with the peripheral

device and health care instructions other than the health care instructions associated with the peripheral device, based on the determination.

Other aspects and features of embodiments of the present invention will become apparent to those ordinarily skilled in the art upon review of the following description of the specific embodiments of the invention.

Brief Description of the Drawings

Examples of embodiments of the invention will now be described in greater detail with reference to the accompanying diagrams, in which:

Fig. 1 is a block diagram of a patient monitoring system in which embodiments of the invention may be implemented;

Fig. 2 is a block diagram of an illustrative example patient system;

Fig. 3 is a representation of a GUI for a patient system;

Fig. 4 is a representation of another GUI for a patient system;

Fig. 5 is a flow diagram of a data input method according to an embodiment of the invention; and

Fig. 6 is a flow diagram of a method of monitoring health conditions of a medical patient according to another embodiment of the invention.

Detailed Description of Preferred Embodiments

Fig. 1 is a block diagram of a patient monitoring system in which embodiments of the invention may be implemented. The system of Fig. 1 includes a patient system 10, a communication network 12, a server 14, a database 15, a communication network 16, a health care provider system 18, and a communication link 20. It should be appreciated, however, that the particular system shown in Fig. 1 is intended for illustrative purposes only, and that the invention is in no way limited thereto.

For example, it will become apparent from the following description that embodiments of the invention are not dependent upon any particular communication schemes, protocols, or network topologies. Those skilled in the art will appreciate that virtually any communication technique may be used to provide for communication between the system components shown in Fig. 1. It should also be appreciated that embodiments of the invention may be implemented in systems with further or fewer components than those explicitly shown in Fig. 1. A patient monitoring system may include many patient systems 10, multiple health care provider systems 18, and even multiple servers 14 or databases 15.

The patient system 10 is an electronic device intended for deployment at a patient site such as in the home of a patient. An example of such a system in described in further detail below in conjunction with Fig. 2.

The network 12 is a communication network through which the patient system 10 communicates with the server 14. In one embodiment, the network 12 is a public telephone network, although other types of communication networks and

links will be apparent to those skilled in the art. It is also contemplated that different patient systems 10 may communicate with the server 14 through different networks or different types of networks. Given the sensitivity of medical information, a secure transfer mechanism is preferably implemented between the patient system 12 and the server 14.

The server 14 is a remotely accessible computer system with which the patient system 10 and the health care provider system 18 may establish communications and exchange information, possibly in both directions between the server 14 and each of the patient station 10 and the health care provider system 18. Information stored in the database 15 at the server 14 may thereby be made accessible to the patient system 10 and the health care provider system 18, and information transmitted to the server 14 from the patient system 10 or the health care provider system 18 is preferably stored in the database 15.

The network 16 may be the same type, or even the same network, as the network 12, or a different type of network. In one embodiment, the network 12 is a telephone network, and the network 16 is a data communication network such as the Internet. Where the server 14 and the health care provider system 18 are co-located, at a hospital for instance, the network 16 may be a local area network (LAN). Different health care provider systems 18 may communicate with the server 14 through different networks or types of networks, and communications between the health care provider system 18 and the server 14 are preferably secure, using a Virtual Private Network (VPN) connection, for example.

The health care provider system 18 is a computer system, illustratively a personal computer, through which a health care provider interacts with the server 14 and the patient system 10 so as to remotely monitor one or more medical patients in their care.

Although shown as a direct connection, the communication link 20 may also be a network connection, through a telephone network, for example. The link 20 enables interaction between a health care provider and a patient, to conduct a remote, substantially real-time, medical assessment or "televisit" session. The health care provider is thereby able to actively assess current medical conditions of the patient without physically visiting the patient or requiring the patient to travel to a health care facility. For example, videotelephones or some other video conferencing equipment may be implemented at both the patient system 10 and the health care provider system 18 so that a televisit may include visual assessment of medical conditions.

According to one possible operating scheme, an account is created for a health care provider on the server 14. The health care provider, using the provider account, then configures patient accounts or profiles, including patient identification information, medical conditions, medication reminders, alert conditions for which a medical alert will be generated for the patient, the health care provider, or another health care provider for example, and a set of health questions to be used to periodically prompt the user for medical information. Access to patient profile creation and management functions may be provided through the health care provider system 18, and/or through other

systems such as a local workstation or administrator terminal which is operatively coupled to the server 14.

Any or all patient information in a patient profile is preferably then loaded onto the patient station 10. For an initial deployment of the patient station 10, loading may be performed through a physical local connection to the server 14, whereas remote updates through the network 12 may be preferred where the patient system has already been deployed at the patient location. At least any medical reminders and questions are preferably loaded onto the patient system 10. Other patient profile information may also be loaded, at the discretion of the health care provider, for example.

Considering the patient system 10 in more detail, after the patient system 10 has been configured with reminders and/or questions, the patient system 10 presents the reminders or questions to the patient. Fig. 2 is a block diagram of an illustrative example of the patient system 10.

The patient system of Fig. 2 includes a base unit 22, which effectively provides an operating platform for the patient system and may operate with or without an optional videotelephone 24 and optional peripherals 26, 28. The base unit 22 includes a transceiver 30, a processor 32, a display 34, a memory 36, and an interface 38. However, the present invention is not restricted to the particular implementation of a patient system shown in Fig. 2. Embodiments of the invention disclosed herein may be applied to patient systems which include fewer, further, or different components than those specifically shown in Fig. 2, with different interconnections therebetween.

The transceiver 30 enables information to be transmitted from and received by the base unit 22, although as described above, only a transmitter may be provided where information need only be sent from a patient system to a remote server such as the server 14 for instance. Those skilled in the art will appreciate that many different types of transceiver are suitable for use as the transceiver 30 in the base unit 22, including those for wired or wireless communications.

Although the videotelephone 24 is an optional component, the transceiver 30 is preferably compatible with the videotelephone 24. Such compatibility allows for deployment of substantially the same base unit 22, which may be configured, at deployment or subsequently, for operation with or without the videotelephone 24. In this manner, a videotelephone may be added to a patient system when required or removed from the patient system when visual monitoring of the patient is no longer required. Alternatively, different types of transceivers may be provided for respective connection to the videotelephone 24 and some other device through which communications may be established between the patient system and a remote system such as the server 14 or the health care provider system 18 (Fig. 1).

The processor 32 may be, for example, a microprocessor which is configured to execute patient system software for performing the operations described in further detail below. Normally, patient system software will be stored in the memory 36 and executed by the processor 32. Other implementations of the processor 32 are also contemplated. Display controllers, Application Specific Integrated Circuits (ASICs), and microcontrollers are

illustrative examples of other types of component using which the functions of the processor 32, or at least the user input functions disclosed herein, may be provided. It should thus be apparent that embodiments of the invention may be implemented using software for execution by a processor, hardware, or some combination thereof.

As will be apparent, the display 34 is a component that displays information to a patient. A liquid crystal display (LCD) is one common type of display for an electronic device such as the patient system. In a preferred embodiment, the display is a touchscreen which senses physical contact. According to another embodiment, the display 34, or possibly a separate component, detects an input stylus, such as a patient's finger or a component supplied with or configured for operation with the patient system, in proximity to an input area of the display 34.

The memory 36 is preferably a solid state memory. Other types of memory, such as a hard disk drive or a memory device which operates in conjunction with a removable recording medium, for example, may also be used as the memory 36. In another embodiment, the memory 36 includes more than one type of memory. As will become apparent from the following description of the operation of the patient system, the memory 36 may store any reminders and questions which have been configured for the patient, patient profile information, and inputs received from the patient. The memory 36 also preferably stores software to be executed by the processor 32, which may include operating system software and application software. Patient monitoring may instead be integrated within operating system software, for example.

The interface 38, although shown as a single component, may include multiple interfaces, and even different types of interface compatible with corresponding interfaces (not shown) in the peripherals 26, 28. Examples of the interface 38 include Bluetooth™ modules and other wireless communication interfaces, infrared ports, and Universal Serial Bus (USB) ports and other types of serial or parallel data ports, although the invention is in no way restricted to these types of interfaces. The interface 38 may also provide for further functions than communications with the peripherals 26, 28, such as power connections for providing power to operate the peripherals 26, 28 or to recharge batteries in the peripherals 26, 28. As described briefly above, the peripheral devices 26, 28 are optional. However, a base unit 22 which incorporates the interface 38 may be used with or without the peripherals 26, 28, to provide a dynamically configurable base unit 22.

The peripherals 26, 28 are preferably medical devices which may be used to collect health information or vital signs from the patient, including a blood pressure meter, an oximeter, a glucometer, a weigh scale, or a stethoscope, for instance. Other types of medical devices will be apparent to those skilled in the art.

Additional or different components, not shown in Fig. 2, may also be provided in patient equipment. For instance, a speaker or other suitable audio output device would allow audio presentation of user prompts, instructions, and other information at a patient system. A translator may also be provided at a patient system to translate text-based user prompts into corresponding audio prompts. A software module or utility which translates a user prompt data format, illustratively ASCII, into an audio

signal format represents one example implementation of a translator.

Other possible variations of the patient system of Fig. 2 will be apparent to those skilled in the art.

As described briefly above, a patient system preferably presents a patient with health questions configured by a health care provider and loaded into the memory 36 of the patient system. The health questions prompt a user for information. Embodiments of the invention facilitate the input of such information by the patient through GUIs displayed on the display 34.

Fig. 3 is a representation of a GUI for a patient system. The GUI 40, a screen which is displayed on the display 34, includes a health question or prompt 41, a graphical element 48 which indicates a user input range with the indicators 42, 44 and a current user input at 46, and control graphical elements 50, 52 which allow a patient to complete or cancel a current input. The GUI of Fig. 3 is an illustrative example of a GUI that may be provided at a patient system, and is not intended to limit the invention. Other layouts, shapes, sizes, and text, for example, may be used for a patient system GUI.

Referring now to both Figs. 2 and 3, the processor 32 is configured to display on the display 34 a graphical element 48 defining a user input area of the display 34 and a user input range, and also to detect an input within the user input area. The graphical element 48 is then modified, as shown at 46, to indicate the detected input. Initially, the graphical element 48 is preferably one color or pattern, and is modified when an input is detected to indicate the detected input, such as when the patient touches the display

34 within the user input area defined by the graphical element 48.

To change the current input, the patient may touch a different part of the user input area, and the graphical element 48 is again modified to indicate the new detected input. When the patient has completed the current input, a further input may be made using the "Next" element 52. Alternatively, another type of input, a physical key for example, may be provided to indicate the completion of user input. The detected input is then accepted as a user input and may be translated into a number or some other format for further processing by the patient system. The detected input, a translated version of the input, or both, may be displayed to the patient, stored in the memory 36, and transmitted from the patient system. For a non-numerical user input range as shown in Fig. 3, a detected input is preferably translated into a numerical value.

As shown at 41, a user prompt in the form of a health question is also displayed as a graphical element, which may be a separate graphical element. Those skilled in the art will appreciate that the range graphical element 48 and the prompt graphical element 41 may instead be the same graphical element. Similarly, the indicators 42, 44 and the control elements 50, 52 may also be provided as separate graphical elements or part of the same graphical element. Thus, the entire screen 40 may be one or more graphical elements. The particular form of the graphical element will depend upon the type of software used at the patient system, and is a matter of design. The invention is in no way limited to any specific number or type of graphical elements.

It will be apparent from Fig. 3 that the user input range represents a range of responses to the user prompt. The user prompt and its corresponding range of responses may be stored in the memory 36 and retrieved by the processor 32. More than one user prompt and corresponding ranges of responses may be stored in the memory 36. In this case, a next user prompt and range if applicable are displayed upon completion of user input in response to a current user prompt. As not every user prompt, such as a reminder, would necessarily require a user input or have an associated range of responses, completion of user input in response to a current prompt may result in the display of another response range. The current user prompt, or possibly a previous user prompt, and corresponding range if applicable may be displayed when a current input is cancelled. An input using the "Back" element 50 preferably results in display of a previous user prompt. Although not explicitly shown in Fig. 3, a "Cancel", "Clear" or "Reset" element may be provided to clear a current input and re-display a current user prompt. Other control inputs, such as to skip or delay a response to a user prompt may also be provided.

Detection of user inputs may be enabled, for instance, by using a touchscreen as the display 34 such that physical contact of a user input area is detected to thereby detect an input. User inputs may instead be detected by sensing proximity of a stylus to the user input area. Other suitable input detection mechanisms, including those in which input detection is performed by a component or element that is separate from the display 34, will also be apparent to those skilled in the art.

Fig. 4 is a representation of another GUI for a patient system. The GUI 60, like the GUI 40, is a screen which is displayed on the display 34. A health question or prompt is presented in the GUI 60 at 62, and a keypad graphical element 63 defines a plurality of user input areas corresponding to respective alphanumeric inputs. A current user input, which in this example also provides an indication of input format, is displayed at 64, units of the input are displayed and possibly selectable using the graphical element 66, and control graphical elements 68, 70, 72 allow a patient to cancel, clear, or complete a current input. The various displayed graphical elements may be provided as one or more graphical components or models. The GUI of Fig. 4, like the GUI of Fig. 3, is intended solely for illustrative purposes.

Whereas the GUI of Fig. 3 provides for convenient and intuitive user input for user prompts with associated ranges of possible responses, the GUI of Fig. 4 facilitates input of alphanumeric information, a blood pressure reading with systolic and diastolic pressures (sss/ddd) and a pulse rate (ppp) in the particular illustrative example of Fig. 4.

With reference now to both Figs. 2 and 4, the processor 32 displays the user prompt for medical information at 62 and the keypad graphical element 63 and detects an input of the medical information within any of the user input areas defined by the keypad graphical element 63. The detected input is then displayed at 64. Any of the detection mechanisms described above may be employed in conjunction with the GUI 60.

Where more than one digit of input may be necessary, multiple inputs may be detected in response to

the user prompt. For example, detected inputs may represent portions of the medical information, such as the systolic pressure, diastolic pressure, and pulse rate in Fig. 4. The processor 32 then preferably detects that inputs in response to a current user prompt have been completed, by detection of an input using the "Continue" element 72. The complete input may then be parsed into the portions of the medical information. Delimiter characters, such as the slash character in Fig. 4, may be used to separate the portions of the medical information.

Further processing of detected inputs and subsequent display of other stored user prompts and possibly range or keypad graphical elements upon completion of user input may be performed substantially as described above.

Although the keypad graphical element 63 includes only numbers and two operators, further characters, including alphabetic characters and other operators may also or instead be provided.

A soft keypad such as shown in Fig. 4 provides several advantages over current user input mechanisms for health monitoring devices. For example, it allows the patient to enter inputs in a one-step operation instead of adjusting a current input using physical directional keys. Such a keypad also allows a patient to enter complex data strings that are subsequently parsed and processed by the processor 32 and the software it executes.

Fig. 5 is a flow diagram of a data input method. The method includes displaying a user prompt at 80, displaying an input graphical element at 82, and detecting a user input which is made using the graphical element at 84. The display operations at 80 and 82 may be performed at

substantially the same time or separately. The input graphical element displayed at 82 may be a range graphical element such as in Fig. 3 or a keypad graphical element such as in Fig. 4. In a further embodiment, the patient system processor 32 (Fig. 2) may determine the type of input required in response to a user prompt and then select and display the graphical element associated with that type of input. For example, a field, flag, or data structure may be stored in the memory 36 with each user prompt to indicate whether any input is required in response to the user prompt, and if so, whether that input has an associated range. A range graphical element is then displayed for user prompts requiring an input within a specified range, and a keypad is displayed for required non-range inputs.

As will be apparent from the foregoing, the flow diagram of Fig. 5 represents a general method that relates to both of the GUIs shown in Figs. 3 and 4. A complete patient monitoring method may include further operations, such as translation, storage, parsing, and transmission of inputs as described above. Other embodiments of the invention may also involve fewer or different operations than those shown in Fig. 5, and/or operations which are performed in a different order than explicitly shown.

Various user input mechanisms in accordance with embodiments of the invention have been described above. Further embodiments of the invention relate to configuration of a patient system.

With reference again to Fig. 2, configuration of a patient system for operation with peripheral devices may involve loading a new set of instructions to the base unit 22, illustratively as software in the memory 36, to support

operation in conjunction with peripheral devices 26, 28. New instructions may include prompts or reminders for a patient to take medical readings using the peripheral devices. Collection of readings from the peripheral devices and transmission of readings to a remote system such as the server 14 or the health care provider system 18 are preferably also enabled in the base unit 22 during its configuration for peripheral devices, by loading software into the memory 36 of the base unit 22, for example.

Although configuration of peripheral devices may be accomplished through new instruction and software loads, it should also be appreciated that a patient system may include appropriate instructions and software for all supported peripheral devices. In this case, functions associated with a particular peripheral device are activated or invoked only when that peripheral device is installed at the patient system.

In respect of dynamic configuration of peripherals, the processor 32 may be considered one possible implementation of a controller, which displays health care instructions on the display 34 and dynamically configures the interface 38 for operation with peripheral devices 26, 28.

The health care instructions may include health care instructions associated with a particular peripheral device, the peripheral device 26 for instance. In this case, the controller preferably determines whether the interface 38 has been configured for operation with the peripheral device 26, and if so, displays on the display 34 the health care instructions associated with the peripheral device 26. This determination may be made, for example, by

detecting whether the peripheral device 26 has been connected or coupled to the interface 38. More generally, the type of health care instructions displayed to a patient on the display 34 may be based on the determination as to how the interface 38 has been configured, and/or the types of peripheral device 26, 28 to which it has been connected.

Medical readings or other information collected in accordance with displayed health care instructions may be transmitted to a remote system, such as the server 14 and/or the health care provider system 18 (Fig. 1) for storage, processing, or both. In some embodiments, transmission of readings or information is responsive to an instruction received from a remote system. During a televisit session, for example, a patient system may receive instructions and possibly medical device control signals from a health care provider system. Subsequent medical readings are then preferably transmitted to the health care provider system.

Fig. 6 is a flow diagram of a method of monitoring health conditions of a medical patient according to an embodiment of the invention. At 90, a determination is made as to whether a peripheral device has been enabled at a patient monitoring system, illustratively by configuring an interface. Health care instructions including instructions associated with the peripheral device are displayed at 92 where the peripheral device has been enabled at a patient monitoring system. Otherwise, health care instructions other than the health care instructions associated with the peripheral device are displayed at 94. It should be noted that the display of health care instructions associated with a peripheral device at 92 is not intended to exclude other health care instructions. Both types of health care

instruction may be displayed when a peripheral device has been enabled.

As described above, a patient system may also perform additional operations. Input of information by the patient, or from the peripheral device if enabled, are detected at 96, and detected inputs are transmitted to a remote system at 98. The remote system may be a server, a health care provider system, or some other system. Inputs detected at 98 may also be stored at a patient system. Although a transmission operation at 98 is shown as immediately following detection at 96, inputs may be stored for later transmission at 98.

The method shown in Fig. 6 is presented solely for illustrative purposes; the invention is in no way limited thereto. Methods according to other embodiments of the invention may include further, fewer, or different operations performed in a different order. For example, the determination at 90 may be made after instructions which are not associated with the peripheral device have been displayed.

What has been described is merely illustrative of the application of the principles of the invention. Other arrangements and methods can be implemented by those skilled in the art without departing from the spirit and scope of the present invention.

For example, although systems are described above primarily in the context of a processor which executes software in which techniques according to embodiments of the invention have been implemented, other embodiments may instead be implemented with more than a single processor or physical component. The operations disclosed herein may be

performed, for example, in separate components or devices, or in other types of components than a processor. Thus, references herein to a processor performing various user input-related functions and configuration functions should be interpreted accordingly. In effect, the processor 32 in Fig. 3 represents one possible implementation of a user input manager, and as described above, one possible implementation of a controller.

Similarly, it should be appreciated that components are shown within particular blocks or systems solely for illustrative purposes, and that the functionality disclosed herein may be supported with other system configurations, with different division of functions between system components.

In addition, embodiments of the invention have been described above primarily in the context of systems, methods, and GUIs. Other implementations are also possible, as instructions stored on a machine-readable medium, for instance.

We Claim:

1. A system for monitoring health conditions of a medical patient, comprising:

a display; and

a user input manager operatively coupled to the display and configured to display on the display a user prompt for medical information and a keypad graphical element defining a plurality of user input areas of the display, each of the plurality of user input areas corresponding to a respective alphanumeric input, and to detect an input of the medical information by a user within any of the plurality of user input areas.

2. The system of claim 1, wherein the user input manager is implemented using a processor.

3. The system of claim 1, wherein the user input manager is configured to detect a plurality of inputs by the user in response to the user prompt.

4. The system of claim 3, wherein the plurality of inputs comprise portions of the medical information, and wherein the user input manager is further configured to detect a further input by the user indicating that user input is complete, and to parse the plurality of inputs into the portions of the medical information in response to detection of the further input.

5. The system of claim 4, wherein the plurality of inputs comprises delimiter characters separating the portions of the medical information.

6. The system of claim 4, wherein the user input manager is further configured to display on the display a second graphical element defining a further user input area of the display, and to detect the further input by the user within the further input area.

7. The system of claim 1, further comprising:

a memory,

wherein the user input manager is further configured to store the detected input in the memory.

8. The system of claim 7, wherein the user prompt comprises a user prompt stored in the memory, and wherein the user input manager is further configured to retrieve the user prompt from the memory.

9. The system of claim 8, wherein the user prompt comprises one of a plurality of user prompts stored in the memory.

10. The system of claim 1, further comprising a transmitter configured to transmit the detected input.

11. The system of claim 1, wherein the plurality of user input areas comprises user input areas corresponding to at least one of: numeric inputs and alphabetic characters.

12. The system of claim 1, wherein the display comprises a touchscreen, and wherein the user input manager is configured to detect physical contact of the user input area of the touchscreen to thereby detect the input.

13. The system of claim 1, wherein the user input manager is configured to detect proximity of a stylus to the user input area to thereby detect the input.

14. The system of claim 1, wherein the medical information comprises a reading from a medical device.

15. A method of monitoring health conditions of a medical patient, comprising:

displaying on a display a user prompt for medical information and a keypad graphical element defining a plurality of user input areas of the display, each of the plurality of user input areas corresponding to a respective alphanumeric input; and

detecting an input of the medical information by a user within any of the plurality of user input areas.

16. The method of claim 15, further comprising:

detecting completion of a plurality of inputs by the user in response to the user prompt; and

processing the plurality of inputs in response to detecting the completion.

17. The method of claim 16, wherein the processing comprises at least one operation selected from the group consisting of: parsing the plurality of inputs into portions of the medical information, storing the plurality of inputs to a memory, and transmitting the plurality of inputs to a remote system.

18. The method of claim 17, wherein the user prompt comprises one of a plurality of user prompts, further comprising:

displaying on the display another one of the plurality of user prompts in response to detecting the completion.

19. The method of claim 15, wherein the user prompt comprises one of a plurality of user prompts, further comprising:

detecting a cancel input by the user; and

displaying on the display another one of the plurality of user prompts in response to detecting the cancel input.

20. A machine-readable medium storing computer readable instructions which when executed perform the method of claim 15.

21. A system for monitoring health conditions of a medical patient, comprising:

means for displaying on a display a user prompt for medical information and a keypad graphical element defining a plurality of user input areas of the display, each of the plurality of user input areas corresponding to a respective alphanumeric input; and

means for detecting an input of the medical information by a user within any of the plurality of user input areas.

22. A graphical user interface for an electronic device, the electronic device for monitoring health conditions of a medical patient, the graphical user interface comprising:

a first graphical element comprising a user prompt for medical information; and

a second graphical element defining a plurality of user input areas of the display, each of the plurality of user input areas corresponding to a respective alphanumeric input.

23. The graphical user interface of claim 22, further comprising:

a third graphical element defining a further user input area for indicating a completion of user input in response to the user prompt.

24. The graphical user interface of claim 22, further comprising:

a third graphical element indicating a current user input.

25. A system comprising:

a display;

a memory for storing user prompts for user information and respective ranges of responses for any of the user prompts having an associated range of responses; and

a user input manager configured to retrieve from the memory and display on the display a user prompt, to determine whether the retrieved user prompt has an associated range of responses, and to display on the display, based on the determination, a keypad graphical

element defining a plurality of alphanumeric user input areas of the display or a range input graphical element defining a user input area of the display and a user input range comprising the associated range of responses.

26. The system of claim 25, wherein the user input manager is further configured to detect an input by a user within the user input area of the range input graphical element, and to modify the range input graphical element to indicate the detected input.

27. The system of claim 25, wherein the user input manager is further configured to detect an input of the medical information by a user within any of the user input areas of the keypad graphical element or the range input graphical element, and to display on the display the detected input.

28. A method comprising:

displaying a user prompt on a display;

determining a type of input solicited from a user by the user prompt; and

displaying on the display, based on a result of the determining, a graphical element defining a user input area of the display, the graphical element being selected from a keypad graphical element defining a plurality of alphanumeric user input areas of the display and a range input graphical element defining a user input area of the

display and a user input range comprising a range of responses to the user prompt.

29. A system for monitoring health conditions of a medical patient, comprising:

a display;

an interface; and

a controller, operatively coupled to the display and to the interface, for displaying health care instructions on the display, and for configuring the interface for operation with a peripheral device.

30. The system of claim 29, wherein the health care instructions comprise health care instructions associated with the peripheral device, and wherein the controller is further configured to determine whether the interface has been configured for operation with the peripheral device, and to display on the display the health care instructions associated with the peripheral device where the interface has been configured for operation with the peripheral device.

31. The system of claim 30, wherein the controller is configured to determine whether the interface has been configured for operation with the peripheral device by detecting connection of the peripheral device to the interface.

32. The system of claim 30, further comprising:

a receiver operatively coupled to controller,

wherein the controller is further configured to receive through the receiver at least the health care instructions associated with the peripheral device.

33. The system of claim 29, wherein the interface is configurable for operation with any of a plurality of peripheral devices including the peripheral device.

34. The system of claim 33, wherein the interface comprises a plurality of interfaces configurable for operation with any of the plurality of peripheral devices.

35. The system of claim 29, wherein the peripheral device comprises a medical device selected from the group consisting of: a blood pressure meter, an oximeter, a glucometer, a weigh scale, and a stethoscope.

36. The system of claim 29, wherein the peripheral device comprises a medical device, and wherein the health care instructions comprise instructions for the patient to use the medical device to collect a medical reading.

37. The system of claim 36, further comprising:

a transmitter operatively coupled to the controller,

wherein the controller is further configured to receive the medical reading from the medical device through the interface, and to transmit the medical reading through the transmitter to a remote system.

38. The system of claim 32, further comprising:

a transmitter operatively coupled to the controller,

wherein the received health care instructions comprise health care instructions, received from a remote system, for the patient to use the medical device to collect a medical reading, and wherein the controller is further configured to receive the medical reading from the medical device through the interface and to transmit the medical reading through the transmitter to the remote system.

39. The system of claim 38, wherein the controller is further configured to receive from the remote system through the receiver control information for controlling the medical device.

40. The system of claim 29, wherein the interface comprises at least one of: an interface for a wireless communication link, an interface for a wired communication link, a Bluetooth module, an infrared port, a Universal Serial Bus (USB) port, a serial port, and a parallel port.

41. The system of claim 29, wherein the controller is implemented using a processor.

42. A method of monitoring health conditions of a medical patient, comprising:

determining whether a peripheral device has been enabled at a patient monitoring system; and

displaying at the patient monitoring system health care instructions comprising at least one of: health care instructions associated with the peripheral device and health care instructions other than the health care instructions associated with the peripheral device, based on the determination.

43. A computer-readable medium storing computer-readable instructions which when executed perform the method of claim 42.

44. A system for monitoring health conditions of a medical patient, comprising:

means for determining whether a peripheral device has been enabled at a patient monitoring system; and

means for displaying at the patient monitoring system health care instructions comprising at least one of: health care instructions associated with the peripheral device and health care instructions other than the health

care instructions associated with the peripheral device, based on the determination.

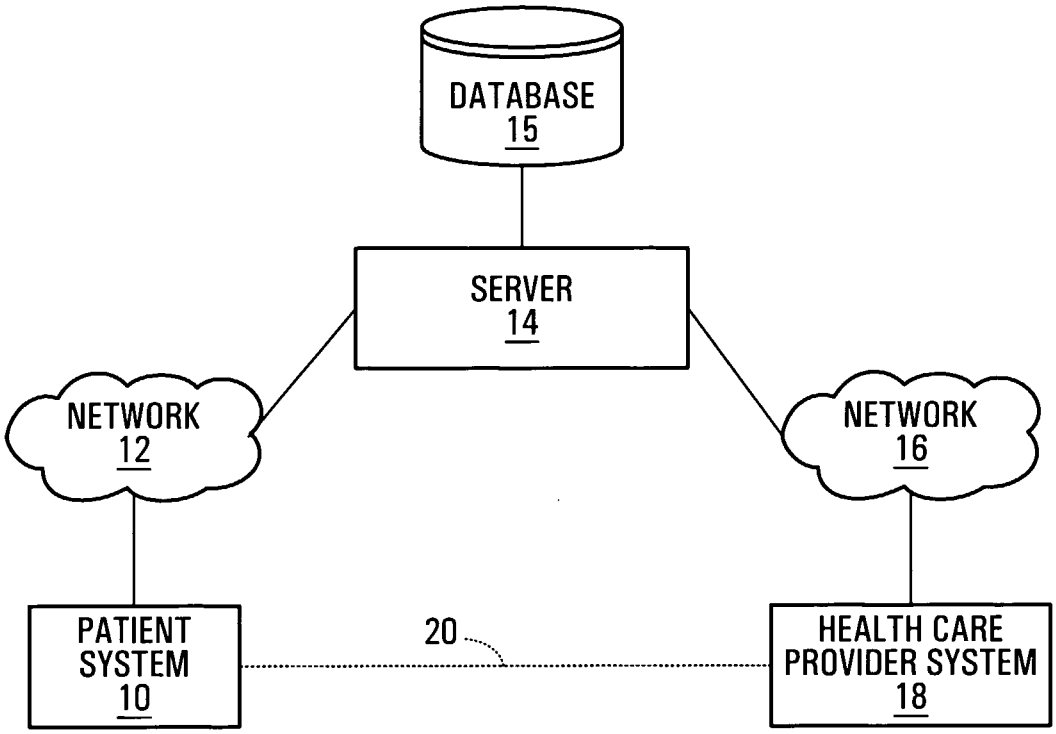

DATABASE
15
SERVER
14
NETWORK
12
NETWORK
16
PATIENT
SYSTEM
10
20
HEALTH CARE
PROVIDER SYSTEM
18

FIG. 1

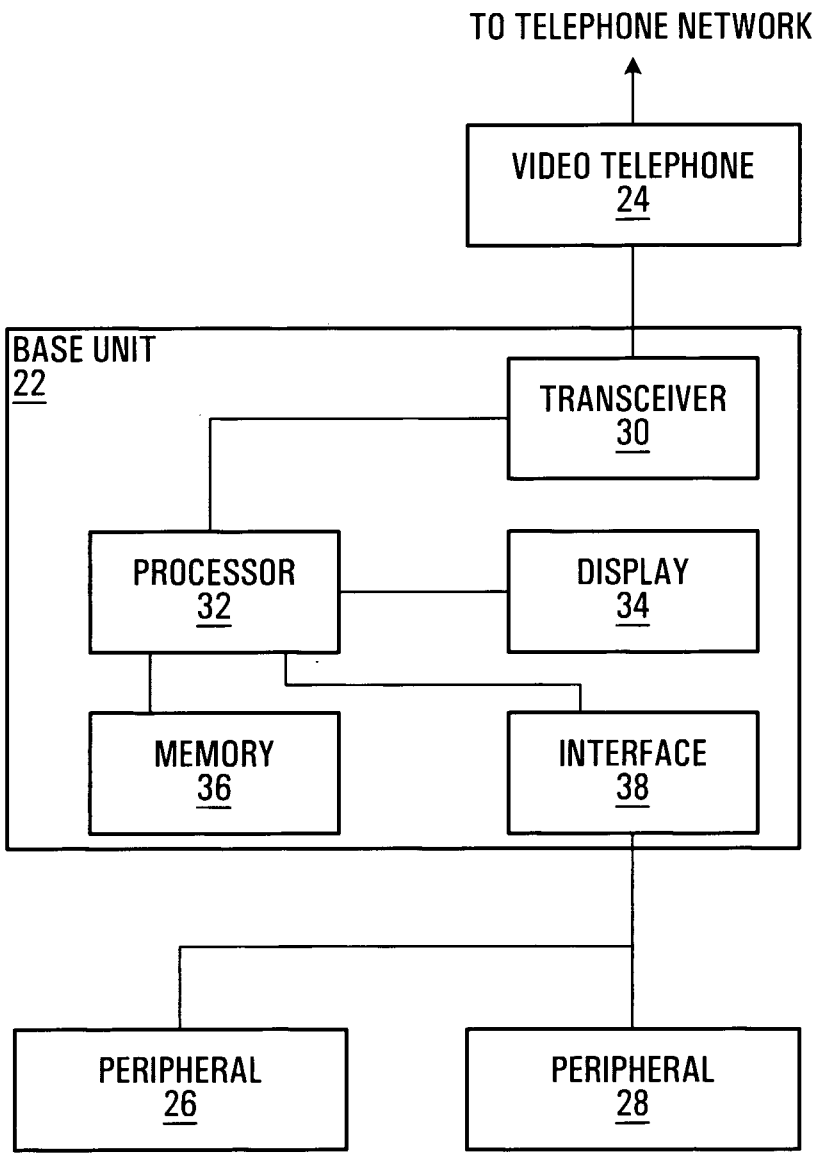

TO TELEPHONE NETWORK
VIDEO TELEPHONE
24
BASE UNIT
22
TRANSCEIVER
30
PROCESSOR
32
DISPLAY
34
MEMORY
36
INTERFACE
38
PERIPHERAL
26
PERIPHERAL
28

FIG. 2

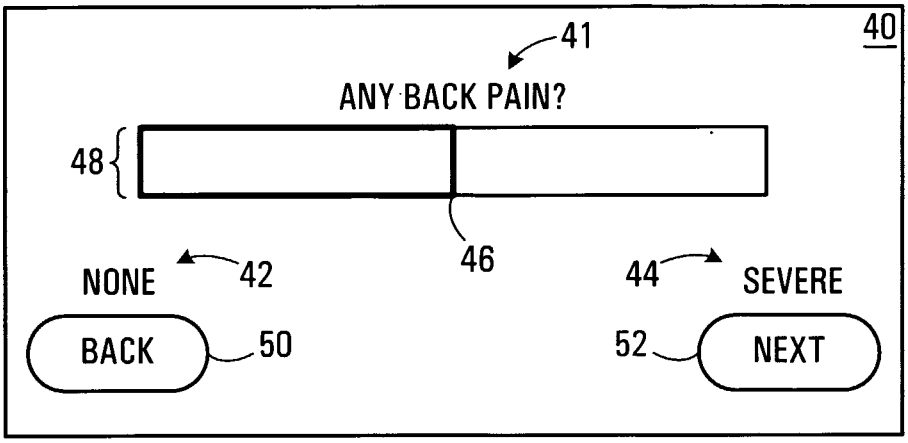

40
41
ANY BACK PAIN?
48
46
NONE
42
44
SEVERE
BACK
50
52
NEXT

FIG. 3

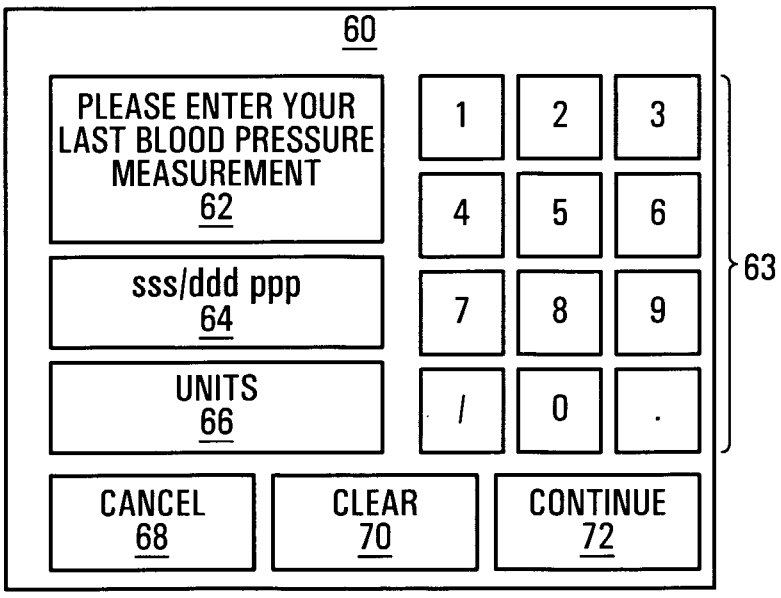

60
PLEASE ENTER YOUR LAST BLOOD PRESSURE MEASUREMENT 62
sss/ddd ppp 64
UNITS 66
1
2
3
4
5
6
7
8
9
/
0
.
63
CANCEL 68
CLEAR 70
CONTINUE 72

FIG. 4

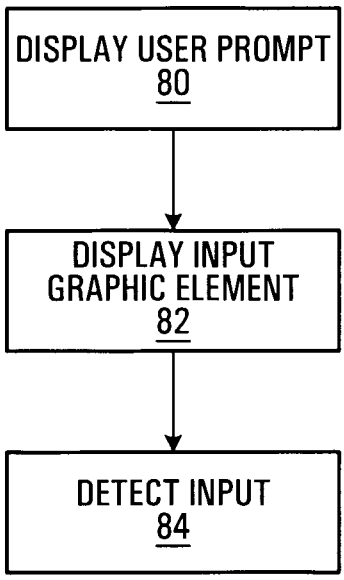

DISPLAY USER PROMPT
80
DISPLAY INPUT GRAPHIC ELEMENT
82
DETECT INPUT
84

FIG. 5

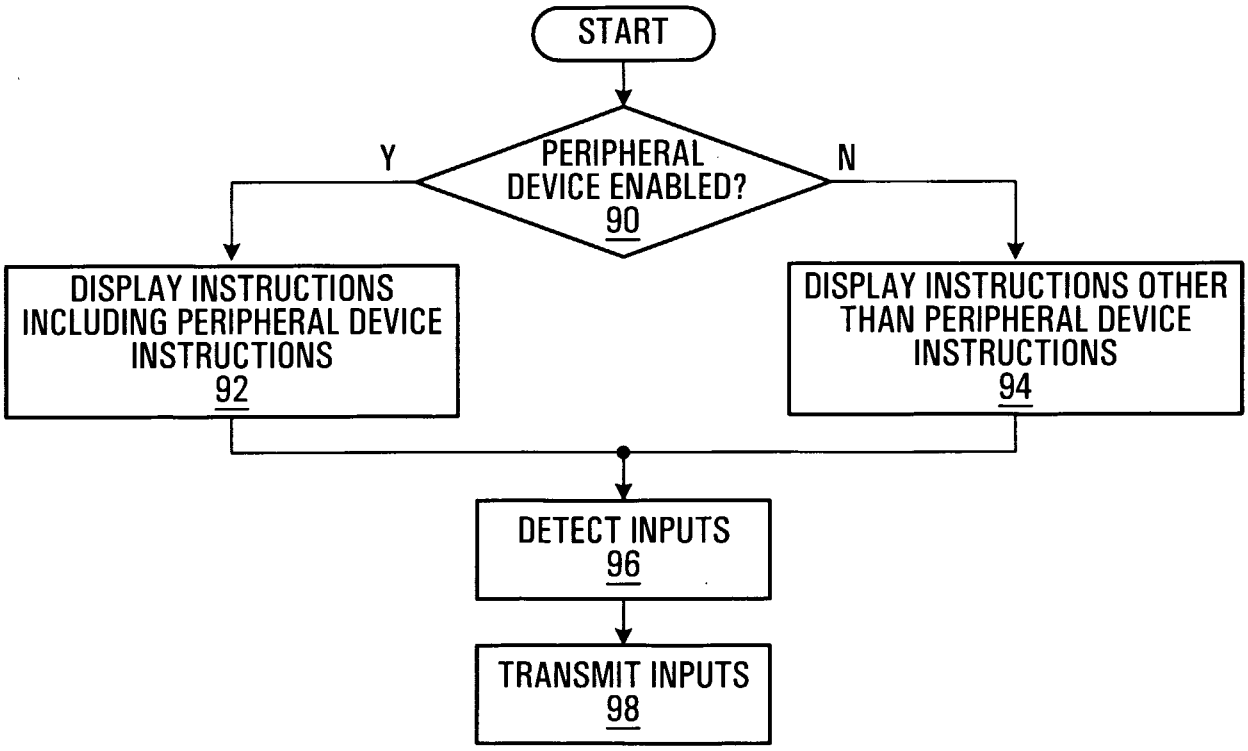

START
PERIPHERAL DEVICE ENABLED?
90
Y
N
DISPLAY INSTRUCTIONS INCLUDING PERIPHERAL DEVICE INSTRUCTIONS
92
DISPLAY INSTRUCTIONS OTHER THAN PERIPHERAL DEVICE INSTRUCTIONS
94
DETECT INPUTS
96
TRANSMIT INPUTS
98

FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2005/000476

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7): G06F 19/00, A61B 19/00, A61B 5/00, A61B 5/021, A61B 7/02, G06F 3/02, G06F 3/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(7): G06F and A61B

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

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
Delphion, IEEE, Qpat, The internet specifically Google and CiteSeer
keywords used: monitor, display, graphical keypad, graphical user interface, user input

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/105931 (Gillespie et al.) 24 December 2003 (24-12-2003) page 2 lines 16-29, page 3 lines 24-30, page 8 lines 2-5, page 10 lines 10-12,	1-10, 12, and 14-21
Y	page 12 lines 30-31, claim 1	11, 13
X	US 6 073 136 (Bertram et al.) 6 June 2000 (06-06-2000)	22-24
Y	column 8 lines 41-43, See Figure 8	11
Y	WO 99/18532 (Brown) 15 April 1999 (15-04-1999) Figures 3, 4, and page 10 lines 5-18	29, 33, 34, 36-38
Y	US 2003/0013483 (Ausems et al.) 16 January 2003 (16-01-2003) page 6 paragraph 65	13
Y	EP 1 306 793 2 May 2003 (02-05-2003) see page 5 paragraph 27 and 29	29, 33, 34, 36-38
A	US 5 590 648 (Mitchell et al.) 7 January 1997 (07-01-1997) see entire document	1-44
A	US 2001/0011224 (Brown) August 2001 (02-08-2001) see entire document	1-44

[ ] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 June 2005 (23-06-2005)	19 July 2005 (19-07-2005)

Name and mailing address of the ISA/CA
Canadian Intellectual Property Office
Place du Portage I, C114 - 1st Floor, Box PCT
50 Victoria Street
Gatineau, Quebec K1A 0C9
Facsimile No.: 001(819)953-2476

Authorized officer
Kristina Deczky (819) 934-4156

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/CA2005/000476

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
WO03105931	24-12-2003	AU2002343747 A1	31-12-2003
		CA2487980 A1	24-12-2003
		US2004225252 A1	11-11-2004
		WO03105931 A1	24-12-2003
US6073136	06-06-2000	US6073136 A	06-06-2000
WO9918532	15-04-1999	AT213083T T	15-02-2002
		AT289831T T	15-03-2005
		AU693299 B2	25-06-1998
		AU731435 B2	29-03-2001
		AU748829 B2	13-06-2002
		AU757300 B2	13-02-2003
		AU761054 B2	29-05-2003
		AU765145 B2	11-09-2003
		AU768947 B2	08-01-2004
		AU775435 B2	29-07-2004
		AU1309700 A	17-04-2000
		AU1599899 A	15-06-1999
		AU1837900 A	19-06-2000
		AU2034200 A	19-06-2000
		AU2205699 A	12-07-1999
		AU2350500 A	19-06-2000
		AU2365695 A	16-11-1995
		AU2831397 A	24-11-1998
		AU4145696 A	31-05-1996
		AU4753401 A	24-09-2001
		AU4979197 A	11-05-1998
		AU5293801 A	27-05-2002
		AU5462099 A	21-02-2000
		AU5608894 A	08-06-1994
		AU5678099 A	14-03-2000
		AU6046800 A	12-12-2000
		AU6143599 A	03-04-2000
		AU6158999 A	10-04-2000
		AU6259699 A	17-04-2000
		AU6259799 A	10-04-2000
		AU8890501 A	22-03-2002
		AU9282201 A	02-04-2002
		AU9791098 A	27-04-1999
		CA2148708 A1	26-05-1994
		CA2203769 A1	17-05-1996
		CA2235929 A1	29-01-1998
		CA2287903 A1	05-11-1998
		CA2307033 A1	23-04-1998
		CA2310648 A1	30-03-2000
		CA2310667 A1	03-06-1999
		CH694037 A5	30-06-2004
		DE69330681D D1	04-10-2001
		DE69330681T T2	13-06-2002
		DE69525367D D1	21-03-2002
		DE69525367T T2	10-10-2002
		DE69732621D D1	07-04-2005
		EP0670064 A1	06-09-1995
		EP0760138 A1	05-03-1997
		EP0789899 A1	20-08-1997
		EP0858349 A1	19-08-1998
		EP1011509 A1	28-06-2000
		EP1012739 A1	28-06-2000
		EP1032903 A1	06-09-2000
		EP1032906 A1	06-09-2000
		EP1049523 A1	08-11-2000
		EP1143854 A1	17-10-2001
		EP1146813 A1	24-10-2001
		EP1183586 A1	06-03-2002
		EP1198771 A2	24-04-2002

EP1320823 A1	25-06-2003
EP1323062 A1	02-07-2003
EP1502614 A2	02-02-2005
ES2162855T T3	16-01-2002
ES2171565T T3	16-09-2002
JP8506192T T	02-07-1996
JP2000508443T T	04-07-2000
JP2001526104T T	18-12-2001
NZ338043 A	29-08-2003
US5307263 A	26-04-1994
US5569212 A	29-10-1996
US5601435 A	11-02-1997
US5678571 A	21-10-1997
US5720733 A	24-02-1998
US5782814 A	21-07-1998
US5792117 A	11-08-1998
US5794219 A	11-08-1998
US5822715 A	13-10-1998
US5828943 A	27-10-1998
US5832448 A	03-11-1998
US5879163 A	09-03-1999
US5887133 A	23-03-1999
US5897493 A	27-04-1999
US5899855 A	04-05-1999
US5913310 A	22-06-1999
US5918603 A	06-07-1999
US5933136 A	03-08-1999
US5940801 A	17-08-1999
US5951300 A	14-09-1999
US5956501 A	21-09-1999
US5960403 A	28-09-1999
US5985559 A	16-11-1999
US5997476 A	07-12-1999
US6023686 A	08-02-2000
US6032119 A	29-02-2000
US6068615 A	30-05-2000
US6101478 A	08-08-2000
US6110148 A	29-08-2000
US6113578 A	05-09-2000
US6144837 A	07-11-2000
US6151586 A	21-11-2000
US6161095 A	12-12-2000
US6167362 A	26-12-2000
US6167386 A	26-12-2000
US6168563 B1	02-01-2001
US6186145 B1	13-02-2001
US6196970 B1	06-03-2001
US6210272 B1	03-04-2001
US6233539 B1	15-05-2001
US6240393 B1	29-05-2001
US6246992 B1	12-06-2001
US6248065 B1	19-06-2001
US6260022 B1	10-07-2001
US6270455 B1	07-08-2001
US6330426 B2	11-12-2001
US6334778 B1	01-01-2002
US6352523 B1	05-03-2002
US6368273 B1	09-04-2002
US6375469 B1	23-04-2002
US6379301 B1	30-04-2002
US6381577 B1	30-04-2002
US2001011224 A1	02-08-2001
US2001013006 A1	09-08-2001
US2001047252 A1	29-11-2001
US2002016530 A1	07-02-2002
US2002019748 A1	14-02-2002
US2002081559 A1	27-06-2002
US2002133377 A1	19-09-2002
US2003069753 A1	10-04-2003
US2003163351 A1	28-08-2003

		US2004019259 A1	29-01-2004
		US2004106855 A1	03-06-2004
		US2004107116 A1	03-06-2004
		US2004117207 A1	17-06-2004
		US2004117208 A1	17-06-2004
		US2004117209 A1	17-06-2004
		US2004117210 A1	17-06-2004
		US2004193377 A1	30-09-2004
		US2004199409 A1	07-10-2004
		US2004219500 A1	04-11-2004
		US2005027562 A1	03-02-2005
		US2005059895 A1	17-03-2005
		US2005080652 A1	14-04-2005
		US2005086083 A1	21-04-2005
		WO0006024 A1	10-02-2000
		WO0011578 A1	02-03-2000
		WO0015103 A1	23-03-2000
		WO0017799 A1	30-03-2000
		WO0017800 A1	30-03-2000
		WO0018293 A1	06-04-2000
		WO0019346 A1	06-04-2000
		WO0032097 A1	08-06-2000
		WO0032098 A1	08-06-2000
		WO0033236 A1	08-06-2000
		WO0072452 A2	30-11-2000
		WO0169505 A1	20-09-2001
		WO0221317 A1	14-03-2002
		WO0225551 A1	28-03-2002
		WO0241227 A1	23-05-2002
		WO9411831 A1	26-05-1994
		WO9529447 A1	02-11-1995
		WO9614627 A1	17-05-1996
		WO9803215 A1	29-01-1998
		WO9816895 A1	23-04-1998
		WO9848720 A1	05-11-1998
		WO9918532 A1	15-04-1999
		WO9927483 A1	03-06-1999
		WO9932201 A1	01-07-1999
		AT 296673T	15-06-2005
US2003013483	16-01-2003	US2003013483 A1	16-01-2003
EP1306793	02-05-2003	CA2399838 A1	24-02-2003
		EP1306793 A2	02-05-2003
		US2003069752 A1	10-04-2003
		WO03019450 A2	06-03-2003
US5590648	07-01-1997	US5590648 A	07-01-1997
US2001011224	02-08-2001	AT213083T T	15-02-2002
		AT289831T T	15-03-2005
		AU693299 B2	25-06-1998
		AU731435 B2	29-03-2001
		AU748829 B2	13-06-2002
		AU757300 B2	13-02-2003
		AU761054 B2	29-05-2003
		AU765145 B2	11-09-2003
		AU768947 B2	08-01-2004
		AU775435 B2	29-07-2004
		AU1309700 A	17-04-2000
		AU1599899 A	15-06-1999
		AU1837900 A	19-06-2000
		AU2034200 A	19-06-2000
		AU2205699 A	12-07-1999
		AU2350500 A	19-06-2000
		AU2365695 A	16-11-1995
		AU2831397 A	24-11-1998
		AU4145696 A	31-05-1996
		AU4753401 A	24-09-2001
		AU4979197 A	11-05-1998

AU52938019 A	27-05-2002
AU5608894 A	08-06-1994
AU5462099 A	21-02-2000
AU5608894 A	08-06-1994
AU5678099 A	14-03-2000
AU5678099 A	14-03-2000
AU5608894 A	08-06-1994
AU5678099 A	14-03-2000
AU6046800 A	12-12-2000
AU6143599 A	03-04-2000
AU6158999 A	10-04-2000
AU6259699 A	17-04-2000
AU6259799 A	10-04-2000
AU8890501 A	22-03-2002
AU9282201 A	02-04-2002
AU9791098 A	27-04-1999
CA2148708 A1	26-05-1994
CA2203769 A1	17-05-1996
CA2235929 A1	29-01-1998
CA2287903 A1	05-11-1998
CA2307033 A1	23-04-1998
CA2310648 A1	30-03-2000
CA2310667 A1	03-06-1999
CH694037 A5	30-06-2004
DE69330681D D1	04-10-2001
DE69330681T T2	13-06-2002
DE69525367D D1	21-03-2002
DE69525367T T2	10-10-2002
DE69732621D D1	07-04-2005
EP0670064 A1	06-09-1995
EP0760138 A1	05-03-1997
EP0789899 A1	20-08-1997
EP0858349 A1	19-08-1998
EP1011509 A1	28-06-2000
EP1012739 A1	28-06-2000
EP1032903 A1	06-09-2000
EP1032906 A1	06-09-2000
EP1049523 A1	08-11-2000
EP1143854 A1	17-10-2001
EP1146813 A1	24-10-2001
EP1183586 A1	06-03-2002
EP1198771 A2	24-04-2002
EP1320823 A1	25-06-2003
EP1323062 A1	02-07-2003
EP1502614 A2	02-02-2005
ES2162855T T3	16-01-2002
ES2171565T T3	16-09-2002
JP8506192T T	02-07-1996
JP2000508443T T	04-07-2000
JP2001526104T T	18-12-2001
NZ338043 A	29-08-2003
US5307263 A	26-04-1994
US5569212 A	29-10-1996
US5601435 A	11-02-1997
US5678571 A	21-10-1997
US5720733 A	24-02-1998
US5782814 A	21-07-1998
US5792117 A	11-08-1998
US5794219 A	11-08-1998
US5822715 A	13-10-1998
US5828943 A	27-10-1998
US5832448 A	03-11-1998
US5879163 A	09-03-1999
US5887133 A	23-03-1999
US5897493 A	27-04-1999
US5899855 A	04-05-1999
US5913310 A	22-06-1999
US5918603 A	06-07-1999
US5933136 A	03-08-1999

US5940801 A	17-08-1999
US5951300 A	14-09-1999
US5956501 A	21-09-1999
US5960403 A	28-09-1999
US5985559 A	16-11-1999
US5997476 A	07-12-1999
US6023686 A	08-02-2000
US6032119 A	29-02-2000
US6068615 A	30-05-2000
US6101478 A	08-08-2000
US6110148 A	29-08-2000
US6113578 A	05-09-2000
US6144837 A	07-11-2000
US6151586 A	21-11-2000
US6161095 A	12-12-2000
US6167362 A	26-12-2000
US6167386 A	26-12-2000
US6168563 B1	02-01-2001
US6186145 B1	13-02-2001
US6196970 B1	06-03-2001
US6210272 B1	03-04-2001
US6233539 B1	15-05-2001
US6240393 B1	29-05-2001
US6246992 B1	12-06-2001
US6248065 B1	19-06-2001
US6260022 B1	10-07-2001
US6270455 B1	07-08-2001
US6330426 B2	11-12-2001
US6334778 B1	01-01-2002
US6352523 B1	05-03-2002
US6368273 B1	09-04-2002
US6375469 B1	23-04-2002
US6379301 B1	30-04-2002
US6381577 B1	30-04-2002
US2001011224 A1	02-08-2001
US2001013006 A1	09-08-2001
US2001047252 A1	29-11-2001
US2002016530 A1	07-02-2002
US2002019748 A1	14-02-2002
US2002081559 A1	27-06-2002
US2002133377 A1	19-09-2002
US2003069753 A1	10-04-2003
US2003163351 A1	28-08-2003
US2003229514 A2	11-12-2003
US2004019259 A1	29-01-2004
US2004106855 A1	03-06-2004
US2004107116 A1	03-06-2004
US2004117207 A1	17-06-2004
US2004117208 A1	17-06-2004
US2004117209 A1	17-06-2004
US2004117210 A1	17-06-2004
US2004193377 A1	30-09-2004
US2004199409 A1	07-10-2004
US2004219500 A1	04-11-2004
US2005027562 A1	03-02-2005
US2005059895 A1	17-03-2005
US2005080652 A1	14-04-2005
US2005086083 A1	21-04-2005
WO0006024 A1	10-02-2000
WO0011578 A1	02-03-2000
WO0015103 A1	23-03-2000
WO0017799 A1	30-03-2000
WO0017800 A1	30-03-2000
WO0018293 A1	06-04-2000
WO0019346 A1	06-04-2000
WO0032097 A1	08-06-2000
WO0032098 A1	08-06-2000
WO0033236 A1	08-06-2000
WO0032097 A1	08-06-2000
WO0072452 A2	30-11-2000

WO0169505 A1	20-09-20001
WO0221317 A1	14-03-2002
WO0225551 A1	28-03-2002
WO0241227 A1	23-05-2002
WO9411831 A1	26-05-1994
WO9529447 A1	02-11-1995
WO9614627 A1	17-05-1996
WO9803215 A1	29-01-1998
WO9816895 A1	23-04-1998
WO9848720 A1	05-11-1998
WO9918532 A1	15-04-1999
WO9927483 A1	03-06-1999
WO9932201 A1	01-07-1999
AT 296673T	15-06-2000

专利名称(译)	医疗患者监控和数据输入系统，方法和用户界面		
公开(公告)号	EP1743268A1	公开(公告)日	2007-01-17
申请号	EP2005730095	申请日	2005-03-31
[标]申请(专利权)人(译)	了Neptec DESIGN GROUP		
申请(专利权)人(译)	了Neptec DESIGN GROUP LTD.		
当前申请(专利权)人(译)	了Neptec DESIGN GROUP LTD.		
[标]发明人	NEPHIN PAUL WATERMAN DON SCHNEIDER JOHN TRICKEY EVAN		
发明人	NEPHIN, PAUL WATERMAN, DON SCHNEIDER, JOHN TRICKEY, EVAN		
IPC分类号	G06F19/00 A61B19/00 A61B5/00 A61B5/021 A61B7/02 G06F3/02 G06F3/14 A61B5/0205 A61B5/117 A61B7/00 G06F17/30 H04N7/14 H04N7/15 H04N7/173		
CPC分类号	A61B5/0022 A61B5/0205 A61B5/021 A61B5/145 A61B5/14532 A61B5/7435 A61B7/008 A61B7/02 G06F3/1454 G16H10/20 G16H10/60 G16H40/63 G16H40/67 H04N7/147 H04N7/17318 H04N21/25866 H04N21/42201 H04N21/8153		
优先权	60/557714 2004-03-31 US 60/564985 2004-04-26 US		
其他公开文献	EP1743268A4		
外部链接	Espacenet		

摘要(译)

提供了用于医疗患者健康监测系统的系统，方法和相关用户界面。通过软键盘图形元素便于在患者位置处部署的患者系统处的数据输入。软键盘图形元素定义显示器的用户输入区域，其对应于相应的字母数字输入，并且检测任何用户输入区域内的用户输入。检测到的用户输入可以显示，存储在存储器中，发送到远程位置或以其他方式处理。还提供患者现场监测系统配置机制以支持患者系统的配置以与各种外围设备中的任何一个一起操作。优选地根据患者系统的配置方式来控制向患者呈现提示和其他信息，例如，患者系统已被配置为操作的外围设备的类型。