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(54) **SYSTEM AND METHOD FOR DISPLAYING DETAILED INFORMATION FOR A DATA POINT**

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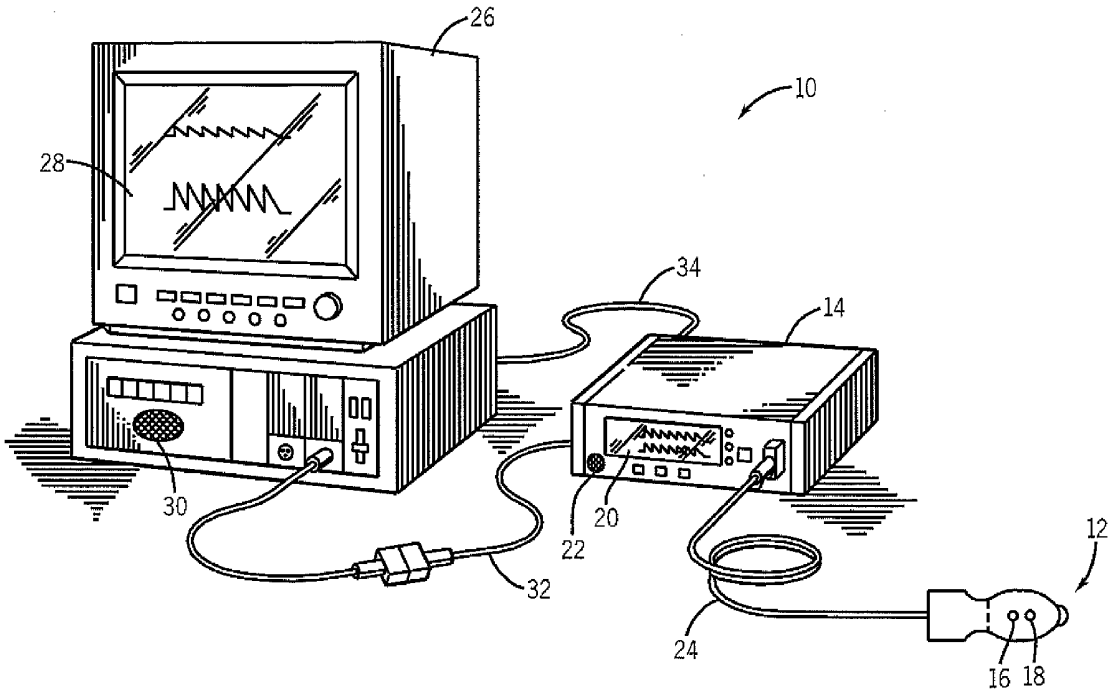
(57) **ABSTRACT**

The present disclosure may describe a system and method for displaying detailed information about a patient at a time selectable from a trend line of historic data. For example, the patient's SpO_2, pulse rate, status, and so forth may be recorded over time. One or more trend lines of the recorded data over time may be displayed, and a user may select a point of interest from the trend line. Detailed data corresponding to that point of interest may then be displayed, for example, next to the trend line or on a separate screen. The detailed information may appear in the form of a pop-up box that does not obscure the trend line. In embodiments, the user may select the data point by moving a cursor or placing a pointing device on the trend line. The detailed information may be displayed automatically or may be activated by further user action.



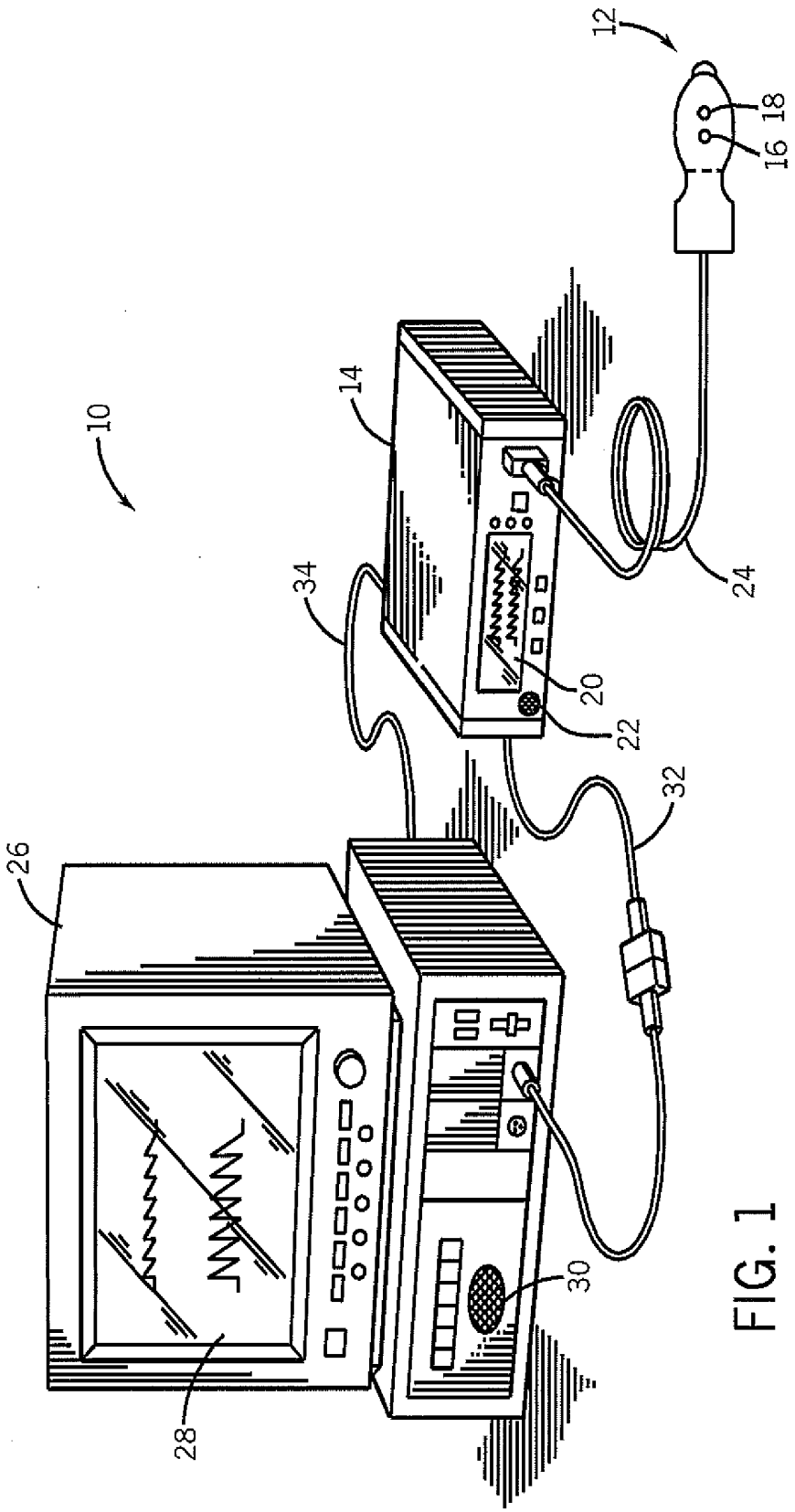


FIG. 1

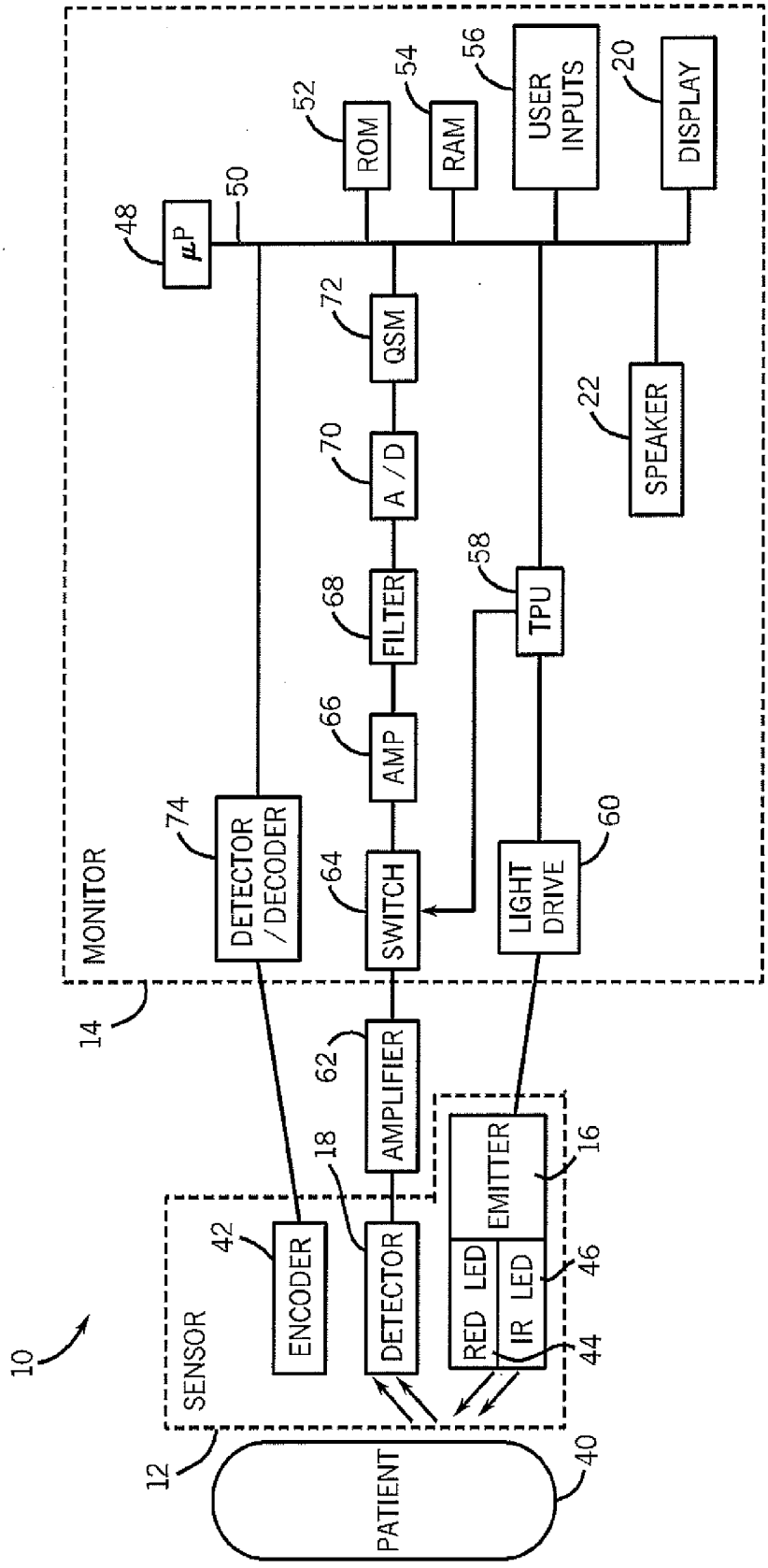

10
MONITOR
14
μP
48
50
ROM
52
RAM
54
USER INPUTS
56
DISPLAY
20
SPEAKER
22
QSM
72
A / D
70
FILTER
68
AMP
66
TPU
58
DETECTOR / DECODER
74
SWITCH
64
LIGHT DRIVE
60
AMPLIFIER
62
SENSOR
12
ENCODER
42
DETECTOR
18
EMITTER
16
RED LED
IR LED
46
44
PATIENT
40

FIG. 2

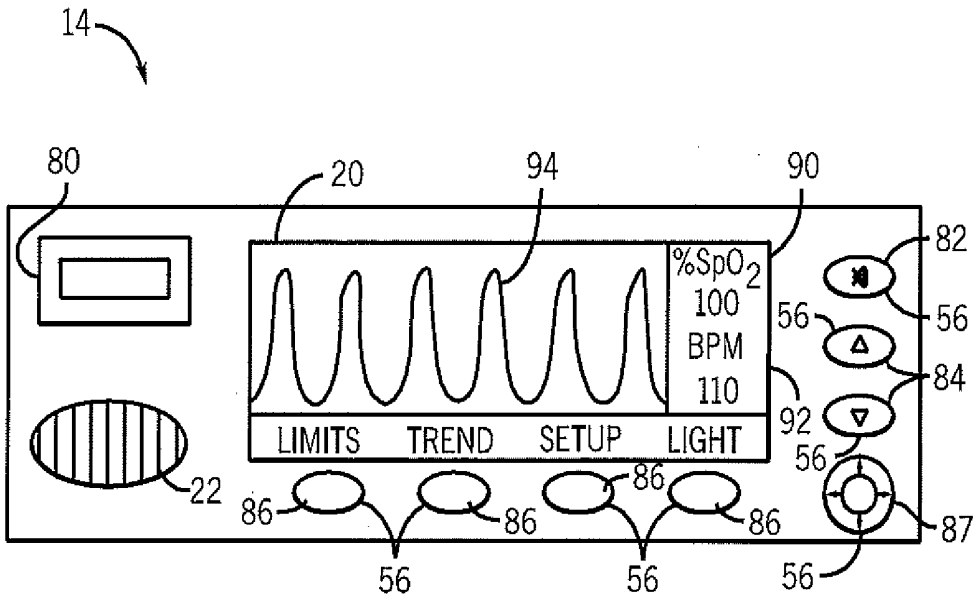

14
80
20
94
90
%SpO2
100
BPM
110
LIMITS
TREND
SETUP
LIGHT
82
56
84
92
22
86
87

FIG. 3

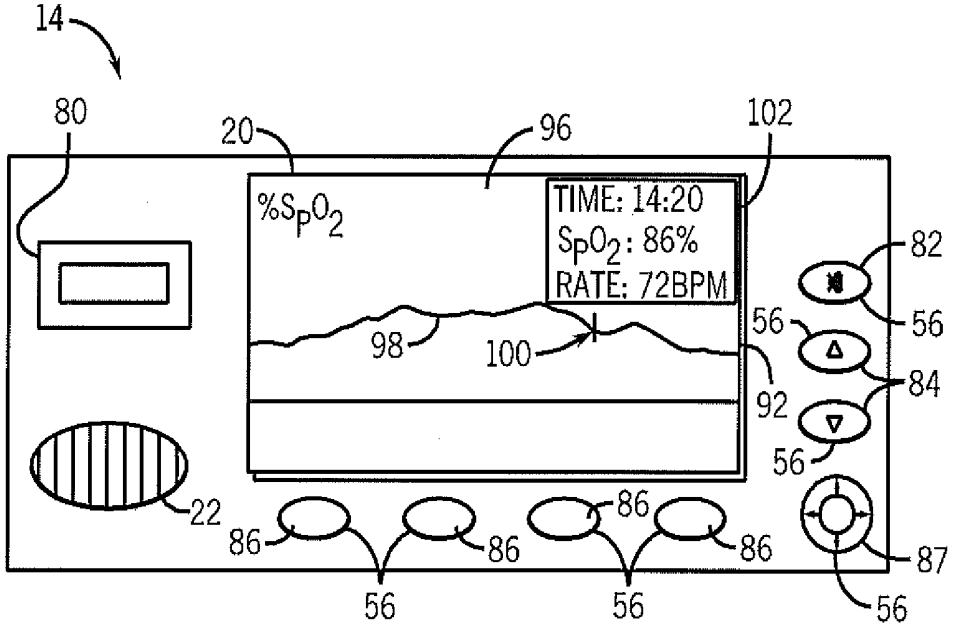

14
80
20
96
102
%SpO2
TIME: 14:20
SpO2: 86%
RATE: 72BPM
98
100
82
56
84
92
22
86
87

FIG. 4

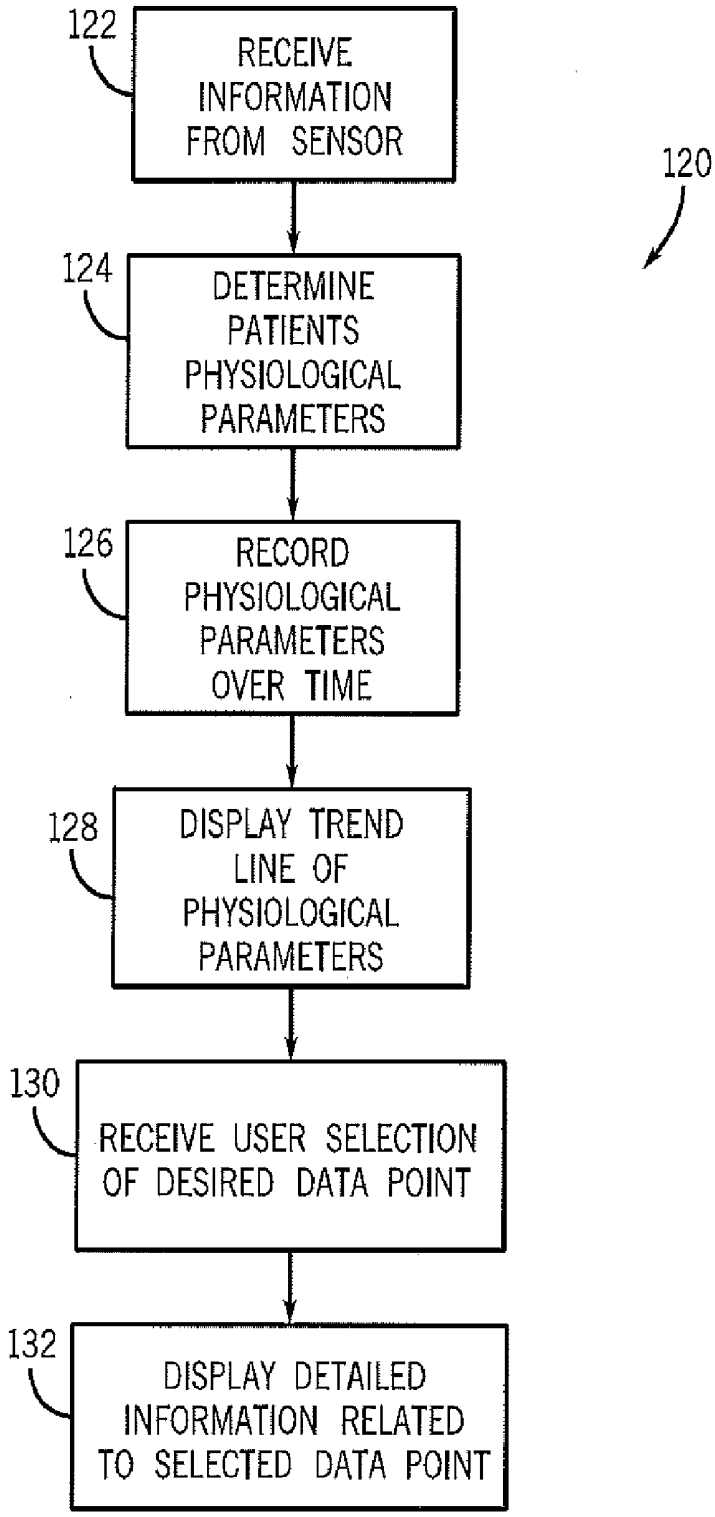

122
RECEIVE INFORMATION FROM SENSOR
120
124
DETERMINE PATIENTS PHYSIOLOGICAL PARAMETERS
126
RECORD PHYSIOLOGICAL PARAMETERS OVER TIME
128
DISPLAY TREND LINE OF PHYSIOLOGICAL PARAMETERS
130
RECEIVE USER SELECTION OF DESIRED DATA POINT
132
DISPLAY DETAILED INFORMATION RELATED TO SELECTED DATA POINT

FIG. 5

SYSTEM AND METHOD FOR DISPLAYING DETAILED INFORMATION FOR A DATA POINT

BACKGROUND

[0001] The present disclosure relates generally to medical devices, and, more particularly, to a pulse oximeter capable of displaying detailed information about a patient's physiological parameters.

[0002] This section is intended to introduce the reader to various aspects of art that may be related to various aspects of the present disclosure, which are described and/or claimed below. This discussion is believed to be helpful in providing the reader with background information to facilitate a better understanding of the various aspects of the present disclosure. Accordingly, it should be understood that these statements are to be read in this light, and not as admissions of prior art.

[0003] In the field of healthcare, caregivers (e.g., doctors and other healthcare professionals) often desire to monitor certain physiological characteristics of their patients. Accordingly, a wide variety of monitoring devices have been developed for monitoring many such physiological characteristics. These monitoring devices often provide doctors and other healthcare personnel with information that facilitates provision of the best possible healthcare for their patients. As a result, such monitoring devices have become a perennial feature of modern medicine.

[0004] One technique for monitoring physiological characteristics of a patient is commonly referred to as pulse oximetry, and the devices built based upon pulse oximetry techniques are commonly referred to as pulse oximeters. Pulse oximeters may be used to measure and monitor various blood flow characteristics of a patient. For example, a pulse oximeter may be utilized to monitor the blood oxygen saturation of hemoglobin in arterial blood, the volume of individual blood pulsations supplying the tissue, and/or the rate of blood pulsations corresponding to each heartbeat of a patient. In fact, the "pulse" in pulse oximetry refers to the time-varying amount of arterial blood in the tissue during each cardiac cycle.

[0005] Pulse oximeters typically utilize a non-invasive sensor that transmits light through a patient's tissue and that photoelectrically detects the absorption and/or scattering of the transmitted light in such tissue. A photo-plethysmographic waveform, which corresponds to the cyclic attenuation of optical energy through the patient's tissue, may be generated from the detected light. Additionally, one or more of the above physiological characteristics may be calculated based generally upon the amount of light absorbed or scattered. More specifically, the light passed through the tissue may be selected to be of one or more wavelengths that may be absorbed or scattered by the blood in an amount correlative to the amount of the blood constituent present in the blood. The amount of light absorbed and/or scattered may then be used to estimate the amount of blood constituent in the tissue using various algorithms.

[0006] Generally, the pulse oximeter may display the patient's physiological characteristics as an updating number or as a trend. For example, the patient's current blood oxygen saturation and/or pulse rate may be displayed numerically. In addition, or alternatively, the patient's historical blood oxygen saturation and/or pulse rate over time may be displayed as a trend. In some pulse oximeters, the current and historical data may be displayed on separate screens. If a caregiver wishes to review the patient's historical physical characteristics, the trend(s) may be analyzed visually.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Advantages of the disclosure may become apparent upon reading the following detailed description and upon reference to the drawings in which:

[0008] FIG. **1** is a perspective view of a pulse oximeter coupled to a multi-parameter patient monitor and a sensor in accordance with embodiments;

[0009] FIG. **2** is a block diagram of the pulse oximeter and sensor coupled to a patient in accordance with embodiments;

[0010] FIGS. **3-4** are exemplary graphical user interfaces of the pulse oximeter in accordance with embodiments; and

[0011] FIG. **5** is a flow chart of an exemplary data display process in accordance with embodiments.

DETAILED DESCRIPTION

[0012] One or more embodiments will be described below. In an effort to provide a concise description of the embodiments, not all features of an actual implementation are described in the specification. It should be appreciated that in the development of any such actual implementation, as in any engineering or design project, numerous implementation-specific decisions must be made to achieve the developers' specific goals, such as compliance with system-related and business-related constraints, which may vary from one implementation to another. Moreover, it should be appreciated that such a development effort might be complex and time consuming, but would nevertheless be a routine undertaking of design, fabrication, and manufacture for those of ordinary skill having the benefit of this disclosure.

[0013] According to an embodiment a medical monitor, such as a pulse oximeter, may collect and record data regarding a patient's physiological parameters over time. For example, in an embodiment, the pulse oximeter may be coupled to the patient via a sensor which conveys information to the oximeter. The pulse oximeter in turn determines the patient's SpO_2 based on the collected data and saves the determined SpO_2 values over time. In an exemplary embodiment, the pulse oximeter may maintain forty-eight hours of historical SpO_2 values for the patient. The historical data may be displayed on the pulse oximeter or a multi-parameter monitor as a trend line of SpO_2 over time. Other information, such as, for example, the patient's pulse rate or status, may also be determined and recorded along with the SpO_2 values. In accordance with present embodiments, the pulse oximeter may enable a caregiver or user to select a point of interest from the trend line and display detailed information about the patient at or near the time of the selected point of interest. For example, the user may select a point on the trend line, and a box containing a numeric indication of the SpO_2 value, the pulse rate, and the patient's status at the selected time may be displayed on the same or a separate screen.

[0014] FIG. **1** is a perspective view of such a pulse oximetry system **10** in accordance with an embodiment. The system **10** includes a sensor **12** and a pulse oximetry monitor **14**. The sensor **12** includes an emitter **16** for emitting light at certain wavelengths into a patient's tissue and a detector **18** for detecting the light after it is reflected and/or absorbed by the patient's tissue. The monitor **14** may be capable of calculating physiological characteristics received from the sensor **12** relating to light emission and detection. Further, the monitor

14 includes a display **20** capable of displaying the physiological characteristics, historical trends of the physiological characteristics, other information about the system, and/or alarm indications. The monitor **14** also includes a speaker **22** to provide an audible alarm in the event that the patient's physiological characteristics exceed a threshold. The sensor **12** is communicatively coupled to the monitor **14** via a cable **24**. However, in other embodiments a wireless transmission device or the like may be utilized instead of or in addition to the cable **24**.

[0015] In the illustrated embodiment, the pulse oximetry system **10** also includes a multi-parameter patient monitor **26**. In addition to the monitor **14**, or alternatively, the multi-parameter patient monitor **26** may be capable of calculating physiological characteristics and providing a central display **28** for information from the monitor **14** and from other medical monitoring devices or systems. For example, the multi-parameter patient monitor **26** may display a patient's SpO_2 and pulse rate information from the monitor **14** and blood pressure from a blood pressure monitor on the display **28**. Additionally, the multi-parameter patient monitor **26** may indicate an alarm condition via the display **28** and/or a speaker **30** if the patient's physiological characteristics are found to be outside of the normal range. The monitor **14** may be communicatively coupled to the multi-parameter patient monitor **26** via a cable **32** or **34** coupled to a sensor input port or a digital communications port, respectively. In addition, the monitor **14** and/or the multi-parameter patient monitor **26** may be connected to a network to enable the sharing of information with servers or other workstations.

[0016] FIG. **2** is a block diagram of the exemplary pulse oximetly system **10** of FIG. **1** coupled to a patient **40** in accordance with an embodiment. One such pulse oximeter that may be used in the implementation of the present disclosure is the OxiMax® N-600x™ available from Nellcor Puritan Bennett LLC, but the following discussion may be applied to other pulse oximeters and medical devices. Specifically, certain components of the sensor **12** and the monitor **14** are illustrated in FIG. **2**. The sensor **12** may include the emitter **16**, the detector **18**, and an encoder **42**. It should be noted that the emitter **16** may be capable of emitting at least two wavelengths of light e.g., RED and IR, into a patient's tissue **40**. Hence, the emitter **16** may include a RED LED **44** and an IR LED **46** for emitting light into the patient's tissue **40** at the wavelengths used to calculate the patient's physiological characteristics.

[0017] In embodiments, the RED wavelength may be between about 600 nm and about 700 nm, and the IR wavelength may be between about 800 nm and about 1000 nm. Alternative light sources may be used in other embodiments. For example, a single wide-spectrum light source may be used, and the detector **18** may be capable of detecting certain wavelengths of light. In another example, the detector **18** may detect a wide spectrum of wavelengths of light, and the monitor **14** may process only those wavelengths which are of interest. It should be understood that, as used herein, the term "light" may refer to one or more of ultrasound, radio, microwave, millimeter wave, infrared, visible, ultraviolet, gamma ray or X-ray electromagnetic radiation, and may also include any wavelength within the radio, microwave, infrared, visible, ultraviolet, or X-ray spectra, and that any suitable wavelength of light may be appropriate for use with the present disclosure.

[0018] In an embodiment the detector **18** may be capable of detecting the intensity of light at the RED and IR wavelengths. In operation, light enters the detector **18** after passing through the patient's tissue **40**. The detector **18** may convert the intensity of the received light into an electrical signal. The light intensity may be directly related to the absorbance and/or reflectance of light in the tissue **40**. That is, when more light at a certain wavelength is absorbed or reflected, less light of that wavelength is typically received from the tissue by the detector **18**. After converting the received light to an electrical signal, the detector **18** may send the signal to the monitor **14**, where physiological characteristics may be calculated based at least in part on the absorption of the RED and IR wavelengths in the patient's tissue **40**.

[0019] According to an embodiment, the encoder **42** may contain information about the sensor **12**, such as what type of sensor it is (e.g., whether the sensor is intended for placement on a forehead or digit) and the wavelengths of light emitted by the emitter **16**. This information may allow the monitor **14** to select appropriate algorithms and/or calibration coefficients for calculating the patient's physiological characteristics. The encoder **42** may, for instance, be a coded resistor which stores values corresponding to the type of the sensor **12** and/or the wavelengths of light emitted by the emitter **16**. These coded values may be communicated to the monitor **14**, which determines how to calculate the patient's physiological characteristics. In another embodiment, the encoder **42** may be a memory on which one or more of the following information may be stored for communication to the monitor **14**: the type of the sensor **12**; the wavelengths of light emitted by the emitter **16**; and the proper calibration coefficients and/or algorithms to be used for calculating the patient's physiological characteristics. Exemplary pulse oximetry sensors capable of cooperating with pulse oximetry monitors are the OxiMax® sensors available from Nellcor Puritan Bennett LLC.

[0020] According to an embodiment, signals from the detector **18** and the encoder **42** may be transmitted to the monitor **14**. The monitor **14** generally may include processors **48** connected to an internal bus **50**. Also connected to the bus may be a read-only memory (ROM) **52**, a random access memory (RAM) **54**, user inputs **56**, the display **20**, or the speaker **22**. A time processing unit (TPU) **58** may provide timing control signals to a light drive circuitry **60** which controls when the emitter **16** is illuminated and the multiplexed timing for the RED LED **44** and the IR LED **46**. The TPU **58** control the gating-in of signals from detector **18** through an amplifier **62** and a switching circuit **64**. These signals may be sampled at the proper time, depending upon which light source is illuminated. The received signal from the detector **18** may be passed through an amplifier **66**, a low pass filter **68**, and an analog-to-digital converter **70**. The digital data may then be stored in a queued serial module (QSM) **72** for later downloading to the RAM **54** as the QSM **72** fills up. In one embodiment, there may be multiple separate parallel paths having the amplifier **66**, the filter **68**, and the A/D converter **70** for multiple light wavelengths or spectra received.

[0021] According to an embodiment, the processor(s) **48** may determine the patient's physiological characteristics, such as SpO_2 and pulse rate, using various algorithms and/or look-up tables based generally on the value of the received signals corresponding to the light received by the detector **18**. Signals corresponding to information about the sensor **12**

may be transmitted from the encoder **42** to a decoder **74**. The decoder **74** may translate these signals to enable the microprocessor to determine the proper method for calculating the patient's physiological characteristics, for example, based generally on algorithms or look-up tables stored in the ROM **52**. In addition, or alternatively, the encoder **42** may contain the algorithms or look-up tables for calculating the patient's physiological characteristics. The user inputs **56** may be used to select historical data points for measured physiological characteristics on the monitor **14**, as described below. In certain embodiments, the display **20** may exhibit additional detailed information about one or more of the patient's physiological parameters when a historic data point is selected.

[0022] FIG. **3** illustrates an embodiment of a monitor **14** for use in the system **10** (FIG. **1**). The monitor **14** may generally include the display **20**, the speaker **22**, the user inputs **56**, and a communication port **80** for coupling the sensor **12** (FIG. **2**) to the monitor **14**. The user inputs **56** may enable the caregiver to control the monitor **14** and change settings. For example, an alarm silence button **82** may enable the caregiver to silence an audible alarm (e.g., when the patient is being cared for), and volume buttons **84** may enable the caregiver to adjust the volume of the alarm and/or any other indicators emitted from the speaker **22**.

[0023] In addition, soft keys **86** may correspond to variable functions, as displayed on the display **20**. The soft keys **86** may provide access to further data and/or setting displays. For example, the soft keys **86** provided on the display **20** may enable the caregiver to scroll through data points, activate and/or deactivate an additional data display, see and/or change alarm thresholds, view different trend data, change characteristics of the display **20**, turn a backlight on or off, or perform other functions. The monitor **14** may further include a pointing device **87** to enable the user to move a virtual indicator on the display **20**. The pointing device **87** may include, for example, a joystick, a trackball, an eraser mouse, a point-and-click mouse, or another multi-directional interface device. In some embodiments, the display **20** may be a touch-sensitive screen which operates as an additional user input **56**.

[0024] According to an embodiment, the display **20** maybe capable of displaying multiple screens selectable, for example, via the soft keys **86**. In an exemplary embodiment, illustrated in FIG. **3**, a default operating screen **88** may be displayed during standard operation of the monitor **14** (i.e., during patient monitoring). For example, the default operating screen **88** may show an SpO_2 value **90**, a pulse rate **92**, and/or a plethysmographic waveform **94**. In an embodiment, illustrated in FIG. **4**, another screen **96** capable of being shown on the display **20** may display one or more trend lines **98** illustrating historical data, such as, for example, the patient's measured SpO_2, pulse rate, or other physiological parameters. The trend line screen **96** may be accessible from the default operating screen **88**, for example, via the soft keys **86**.

[0025] As described, the embodiment of a screen **96** may illustrate the historic data trend line **98**. This trend line **98** may be selectable overall via the user inputs **56**, such as the soft keys **86**, the pointing device **87**, the display **20**, and so forth. In addition, data points **100** making up the trend line **98** may be selectable via the user inputs **56**. For example, a user may be able to select a desired point **100** on the trend line **98** corresponding to an event of interest, such as the beginning or end of a treatment, or a specific time. The user may select the data point **100**, for example, by positioning an indicator (e.g., an arrow) for the pointing device **87** over the trend line **98** or moving a scrolling indicator (e.g., a cursor) along the tend line **98** with the soft keys **86**. Additional information about the patient **40** corresponding to the selected data point **100** may then be illustrated, such as in a pop-up box **102** displayed on the trend line screen **96**.

[0026] According to an embodiment, the additional information may include, for example, the patient's SpO_2 value, pulse rate, identifying information, saturation pattern detection index (e.g., an indication of repetitive reductions in airflow through the upper airway and into the lungs), and/or status indicator; the monitor's percent modulation and/or alarm limits; the sensor's artifacts and/or status; a time stamp for the selected data point **100**; or any other pertinent information collected concurrently with or in close temporal proximity to the selected data point **100**. In addition, the patient's status at the time of the selected data point **100** may be determined generally based on the information collected about the patient at or near that time. That is, if the patient's physiological parameters collected at the time of the selected data point **100** were within alarm limits, the patient's status may indicate "HEALTHY" or a graphical symbol may be displayed to indicate a healthy state. Similarly, if the physiological parameters were outside alarm limits, the status indicator may indicate "<NOT HEALTHY>", or other indication. In an embodiment the pop-up box **102** and/or the displayed detailed information may be color-coded to indicate the patient's status or to provide additional information regarding the selected data point **100**. For example, if the patient's status was "HEALTHY," the pop-up box **102** and/or the displayed information may be illustrated in green, whereas the pop-up box **102** may be illustrated in red if the patient's status was "<NOT HEALTHY>."

[0027] In an embodiment, the pop-up box **102** may be activated and/or deactivated automatically when the data point **100** is selected. In another embodiment, an additional action may activate/deactivate the pop-up box **102**. For example, the user may position the virtual indicator for the pointing device **87** over the trend line **98** and press a button to activate the pop-up box **102**. In another embodiment, the user may position the scrolling indicator at the desired data point **100** and press one of the soft keys **86** to activate the pop-up box **102**. Furthermore, the additional information may be displayed on another screen capable of being shown on the display **20** rather than, or in addition to, being displayed in the pop-up box **102**.

[0028] Users of the monitor **14** may be able to customize the detailed information that is shown based on the information that is most relevant to them. For example, a nurse may be interested in reviewing only the patient's SpO_2 and pulse rate, whereas a doctor may configure the pop-tip box **102** to display much more detailed information. In another embodiment, the pop-up box **102** may display a truncated list of detailed information which is expandable based on the user's actions. For example, the user may position the virtual indicator for the pointing device **87** over the trend line **98** to see some of the patient's detailed information at the selected data point **100**, and then additional information may be displayed if the user presses a button or leaves the virtual indicator positioned over the same data point **100** for an extended period of time (e.g., three seconds).

[0029] According to an embodiment, the user may be able to select items displayed in the pop-up box **102** to access

additional information about the selected item. In an embodiment, the user may be viewing the patient's historical SpO_2 data trend line **98**. The user may activate the pop-up box **102** at a desired time point and select the pulse rate from the pop-up box **102**. The patient's historical pulse rate data trend line **98** may then be displayed rather than, or in addition to, the SpO_2 data trend line **98**. In another embodiment, the user may be able to adjust settings for the monitor **14** by selecting setting information in the pop-up box **102**. For example, in an embodiment, the user may select a data point from the SpO_2 trend line **98** and select the alarm limits from the pop-up box **102**. Another screen may then displayed at which the user may change the alarm limits, or the alarm limits may be displayed on the trend line screen **96**.

[0030] In some circumstances, it may be desirable to see detailed information about a certain data point **100** without obstructing the remainder of the trend line **98**. Accordingly, in some embodiments, the pop-up box **102** may automatically appear at a position on the screen **96** where the box **102** does not obscure any part of the trend line **98**. In these embodiments, the position of the pop-up box **102** may change as the user selects different data points **100** along the trend line **98**. In another embodiment, the pop-tip box **102** may appear at one designated location on the trend line screen **96**. The designated location may be dedicated to the pop-up box **102** such that the trend line **98** is not displayed in that area of the screen **96** (e.g., a top corner of the screen **96** may be reserved for display of the detailed information).

[0031] FIG. **5** illustrates an embodiment of a process **120** by which the monitor **14** may display detailed information about a patient from a selected point in time. In the illustrated embodiment, the monitor **14** may receive information from the sensor **12** coupled to the patient **40** (block **122**). Based on the received information, the monitor **14** may determine the patient's physiological parameters and display information on the display **20**, as shown in the embodiment illustrated in FIG. **3** (block **124**). In addition, the monitor **14** may record the patient's physiological parameters, status, and any other relevant information over time (block **126**). In some embodiments, the historical physiological data may be illustrated as a trend line along with the current information. In other embodiments, the caregiver may choose to view the trend line screen **96**, for example, by selecting one of the soft keys **86** from the default screen **88**. The monitor **14** may then display the one or more trend lines **98** on the display **20** (block **128**).

[0032] According to an embodiment, the monitor **14** may subsequently receive user input indicating selection of a desired data point **100** on the trend line **98** (block **130**). In an embodiment, the caregiver may select one of the soft keys **86** to enable a cursor capable of moving along the trend line **98**, and then the caregiver may move the cursor along the trend line **98** to a data point of interest, for example, using the soft keys **86**. In another embodiment, the caregiver may select a data point of interest by placing the virtual indicator for the pointing device **87** over the desired point and pressing a button. In a further embodiment, the caregiver may select the historical data point **100** by touching the display **20** at the desired location on the trend line **98**. Upon receiving user selection of the point of interest, the monitor may display the pop-up box **102**, as shown in the embodiment illustrated in FIG. **4**, or an additional screen containing additional detailed information about the patient at the time of the selected data point (block **130**). When the caregiver has finished reading the detailed information, the pop-up box **102** may be deactivated by pressing the same or another soft key **86**. The caregiver may then return to the default operating screen **88** by choosing the appropriate soft key **86** to escape from the trend line screen **96**.

[0033] While only certain features have been illustrated and described herein, many modifications and changes will occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within their true spirit.

What is claimed is:

1. A method, comprising:

displaying a trend line of physiological data on a first screen on a display of a physiological monitor;

receiving a user selection of a point on the trend line;

displaying information about the user-selected point on the display.

2. The method of claim **1**, comprising determining the physiological data based on signals received from a physiological sensor.

3. The method of claim **1**, wherein displaying information about the user-selected point comprises displaying a pop-up box on the first screen.

4. The method of claim **3**, comprising displaying the pop-up box on the first screen such that no part of the trend line is obscured.

5. The method of claim **1**, wherein displaying information about the user-selected point comprises displaying a second screen.

6. The method of claim **1**, wherein the physiological data comprises a blood oxygen saturation and/or a pulse rate.

7. The method of claim **1**, wherein the information about the user-selected point comprises a time stamp, a patient identification, a saturation pattern detection index, a patient status indicator, a monitor percent modulation, one or more monitor alarm limits, a sensor artifact indication and/or a sensor status indication.

8. A method, comprising:

selecting a point on a displayed trend line of physiological data to activate a display of additional information related to the trend line.

9. The method of claim **8**, wherein selecting the point comprises moving an indicator along the trend line via one or more directional keys.

10. The method of claim **8**, wherein selecting the point comprises positioning a virtual indicator representing a pointing device over the trend line.

11. The method of claim **8**, wherein selecting the point comprises touching a display on which the trend line is displayed.

12. The method of claim **8**, wherein selecting the point comprises placing an indicator at the point and sending a signal to indicate that the point has been selected.

13. The method of claim **8**, wherein the physiological data comprises a blood oxygen saturation and/or a pulse rate.

14. The method of claim **85** wherein the information about the user-selected point comprises a time stamp, a patient identification, a saturation pattern detection index, a patient status indicator, a monitor percent modulation, one or more monitor alarm limits, a sensor artifact indication and/or a sensor status indication.

15. One or more tangible, machine-readable media comprising code which, if executed by a processor, cause the processor to render on a display of a physiological monitor:

a trend line of physiological data; and

additional information about a point on the trend lie upon user selection of the point.

16. The one or more tangible, machine-readable media of claim **15**, comprising code which, if executed by a processor, cause the processor to render the additional information about the point adjacent to and not overlapping the rendered trend line.

17. The one or more tangible, machine-readable media of claim **15**, comprising code which, if executed by a processor, cause the processor to render the additional information about the point in place of the trend line.

18. A physiological monitor, comprising:

a user input interface;

a display; and

a processor capable of at least displaying a trend line of physiological data on the display and displaying additional information about a point on the trend line upon selection of the point via the user input interface.

19. The monitor of claim **18**, wherein the user input interface comprises a joystick, a trackball, an eraser mouse, and/or a point-and-click-mouse.

20. The monitor of claim **18**, wherein the user input interface comprises the display.

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摘要(译)

本公开可以描述用于在可从历史数据的趋势线选择的时间显示关于患者的详细信息的系统和方法。例如，可以随时间记录患者的SpO2，脉搏率，状态等。可以显示记录数据随时间的一个或多个趋势线，并且用户可以从趋势线中选择感兴趣点。然后可以显示对应于该兴趣点的详细数据，例如，在趋势线旁边或在单独的屏幕上。详细信息可能以弹出框的形式出现，不会遮盖趋势线。在实施例中，用户可以通过移动光标或将指示设备放置在趋势线上来选择数据点。详细信息可以自动显示，也可以通过进一步的用户操作激活。