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- (54) **HEALTH MONITORING**
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- (60) Provisional application No. 61/787,239, filed on Mar. 15, 2013.

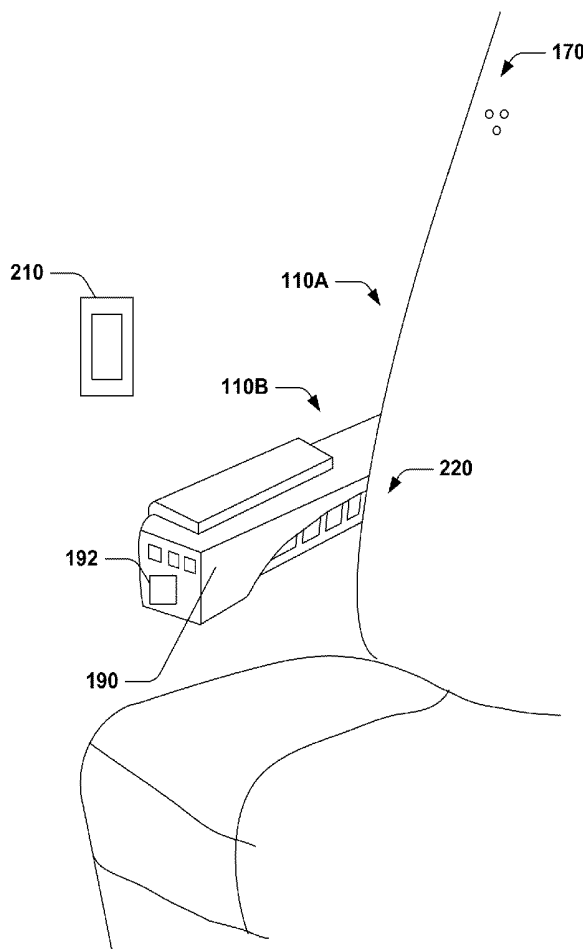
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(57) **ABSTRACT**

One or more embodiments of techniques or systems for health monitoring or monitoring one or more health parameters of a user are provided herein. Systems or components of a vehicle may monitor one or more vital or health parameters of an occupant of a vehicle, driver, passenger, etc. For example, a seat may have sensors embedded within that may measure characteristics or attributes associated with the occupant. In one example, a scale may be integrated with the seat to monitor a weight of an occupant on a day to day basis. As another example, a seatbelt or one or more portions of the seat may have heart rate monitors that check a heart rate of an occupant. Additionally, warnings or alerts may be provided when a signature is detected, such as an abnormal heart beat, etc. In this manner, health monitoring may be provided.

200 →



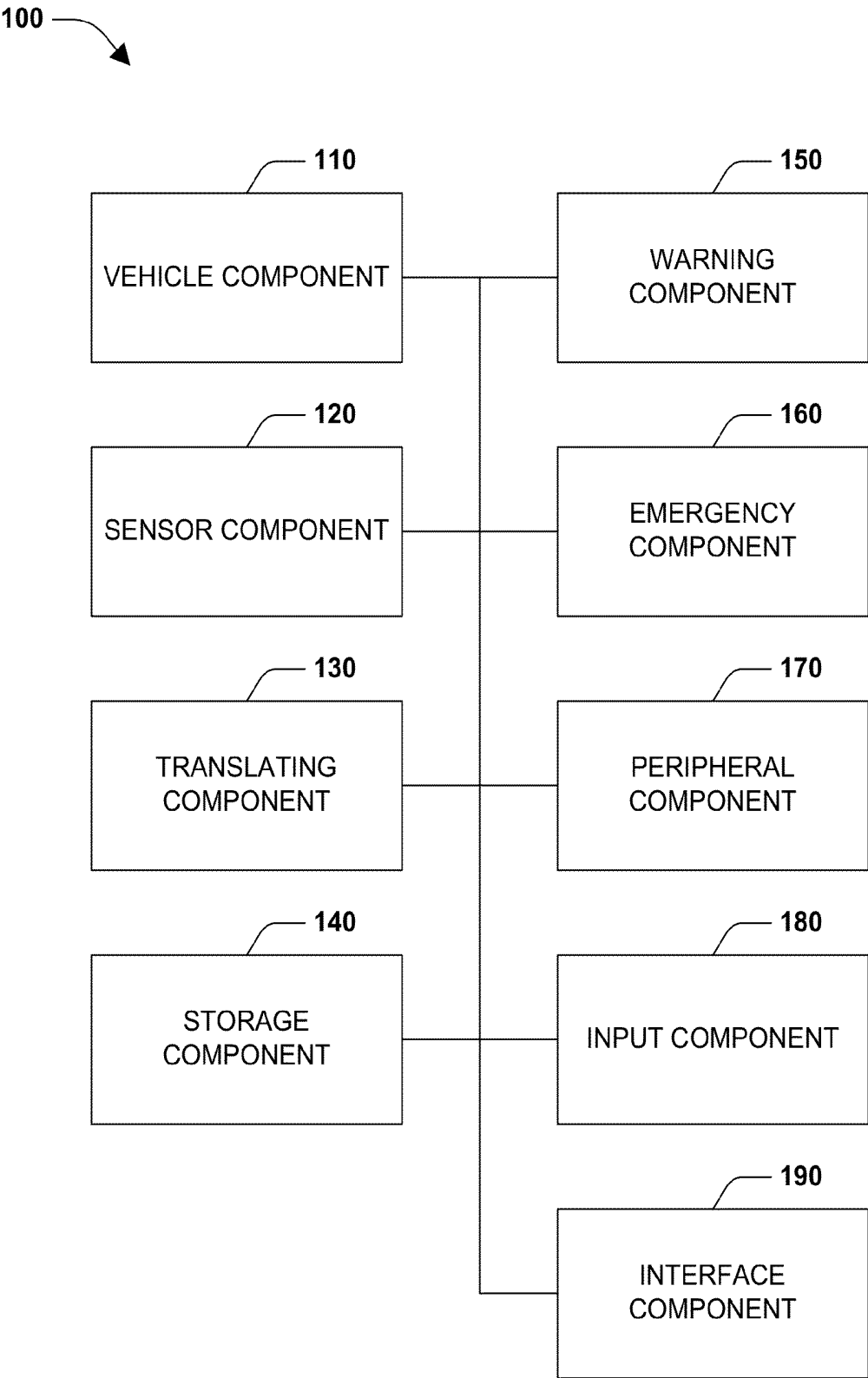


FIG. 1

200

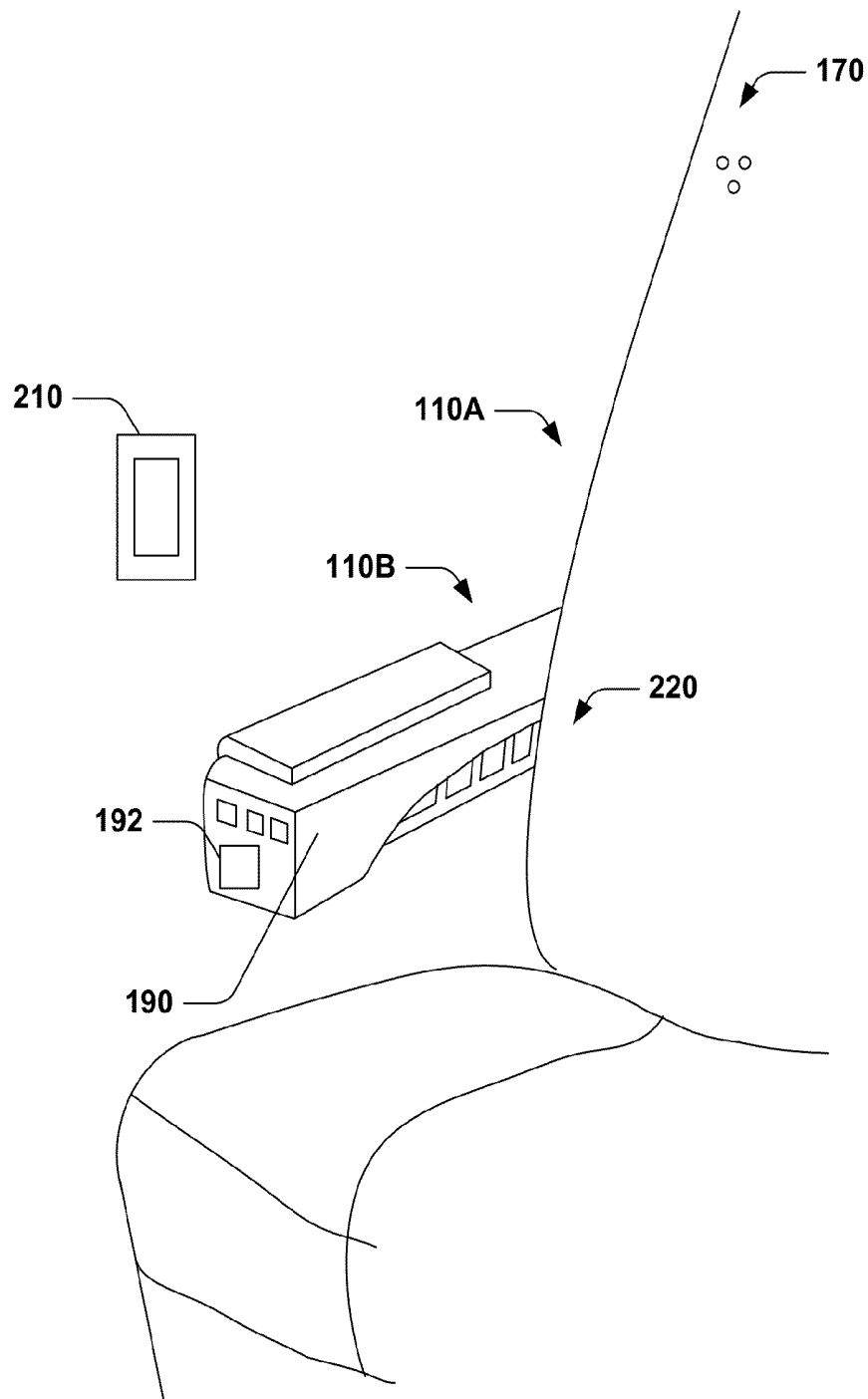


FIG. 2

300

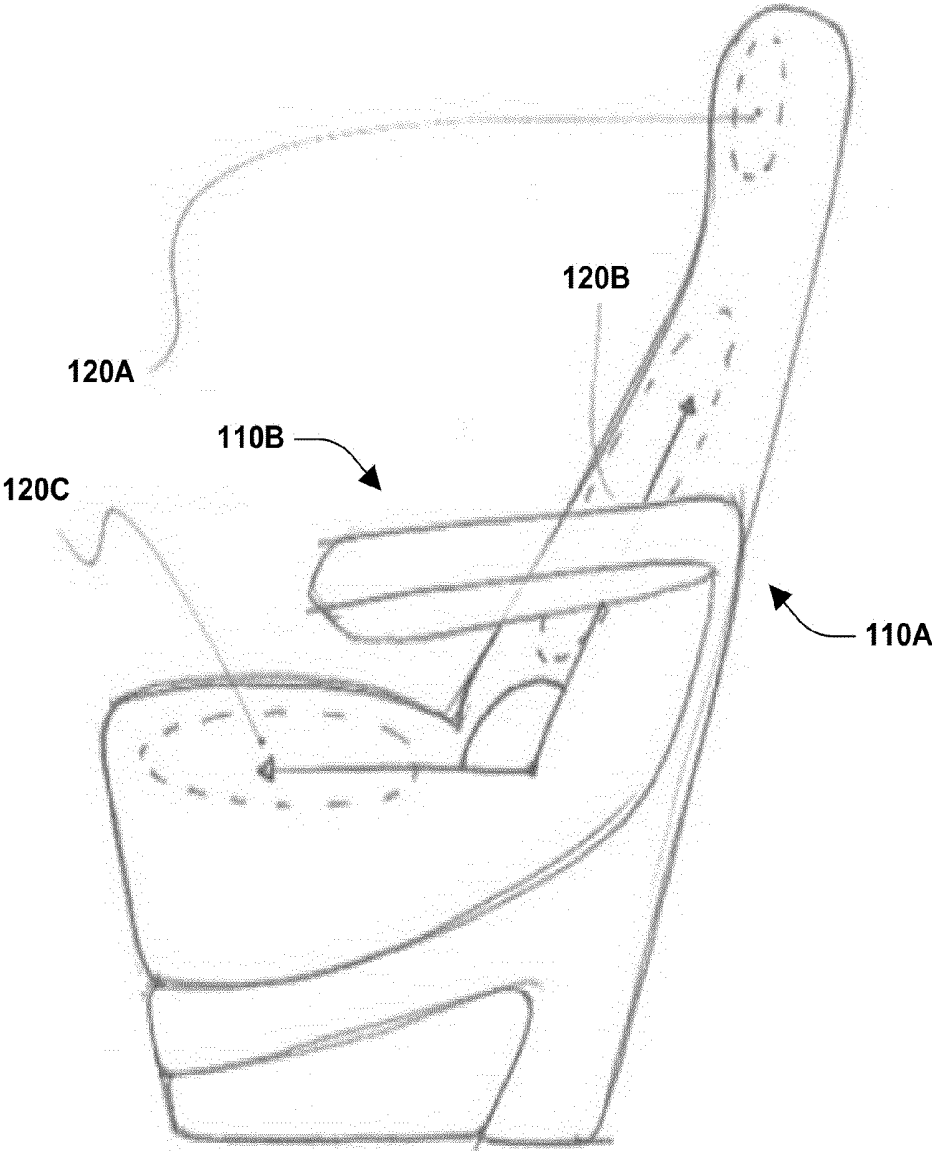


FIG. 3

400

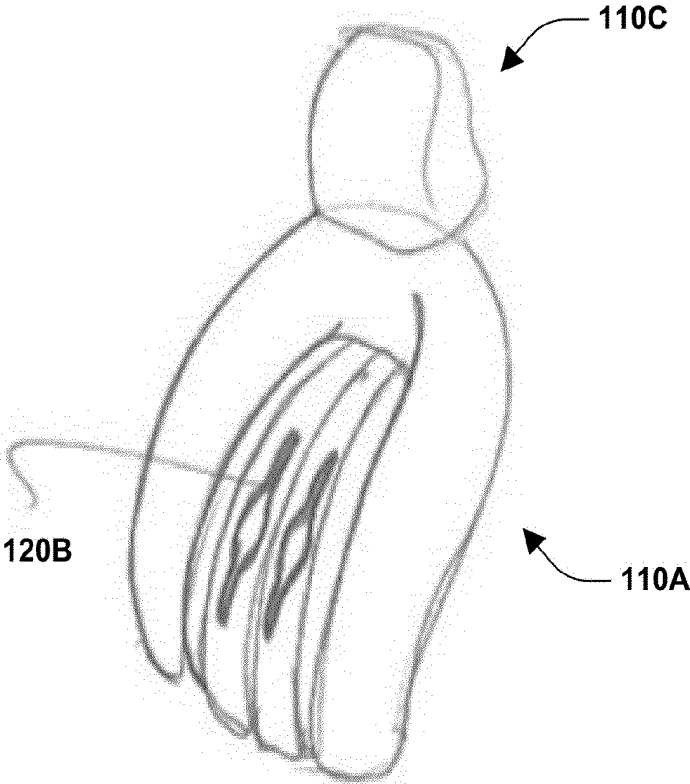


FIG. 4

500

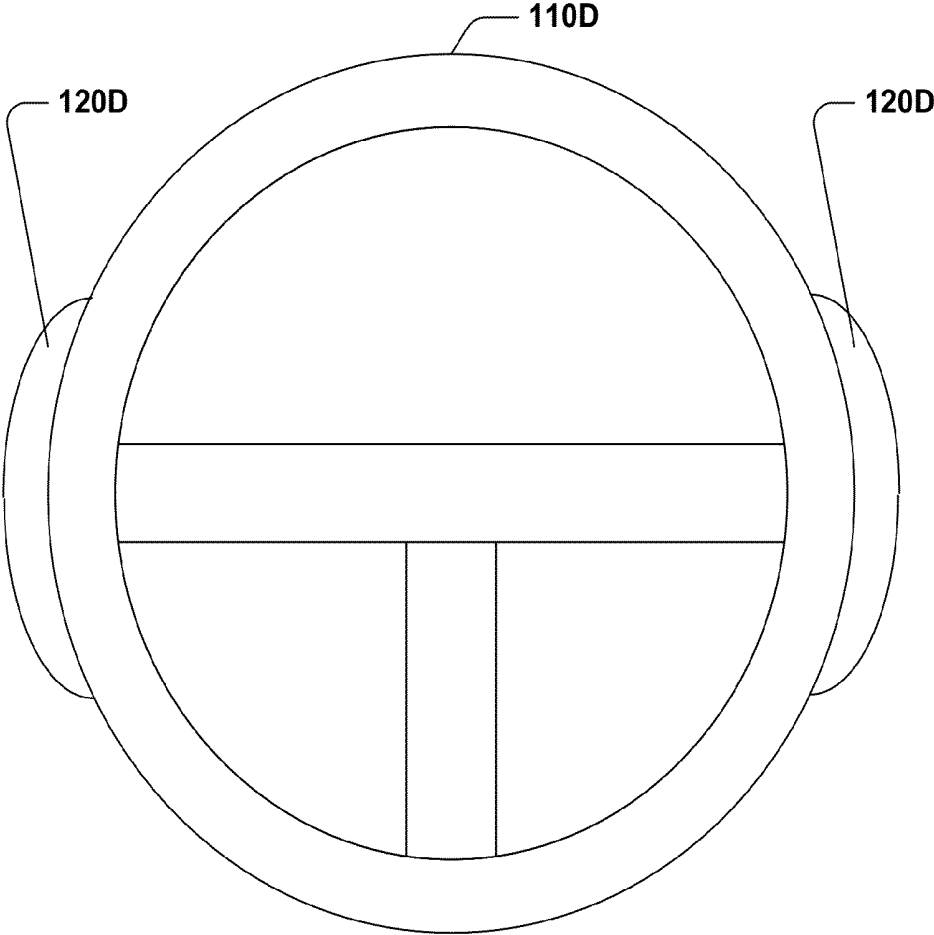
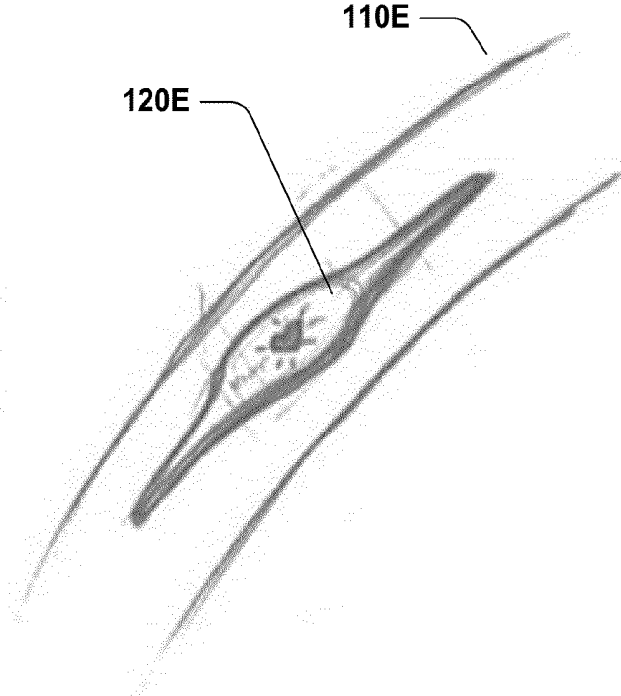



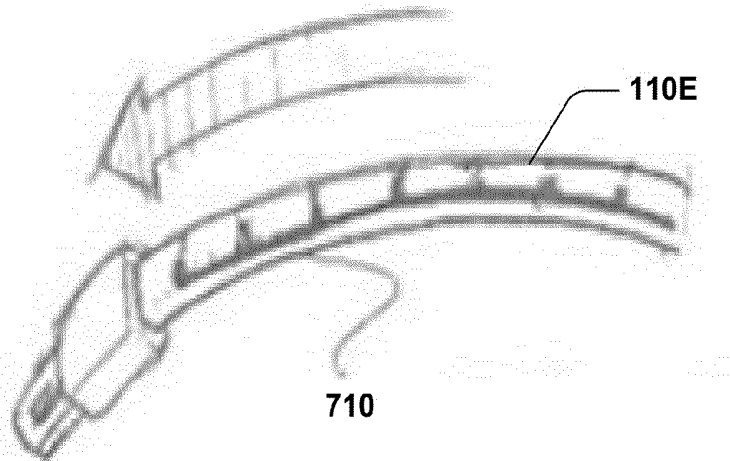

FIG. 5

600



**FIG. 6**

700



**FIG. 7**

800

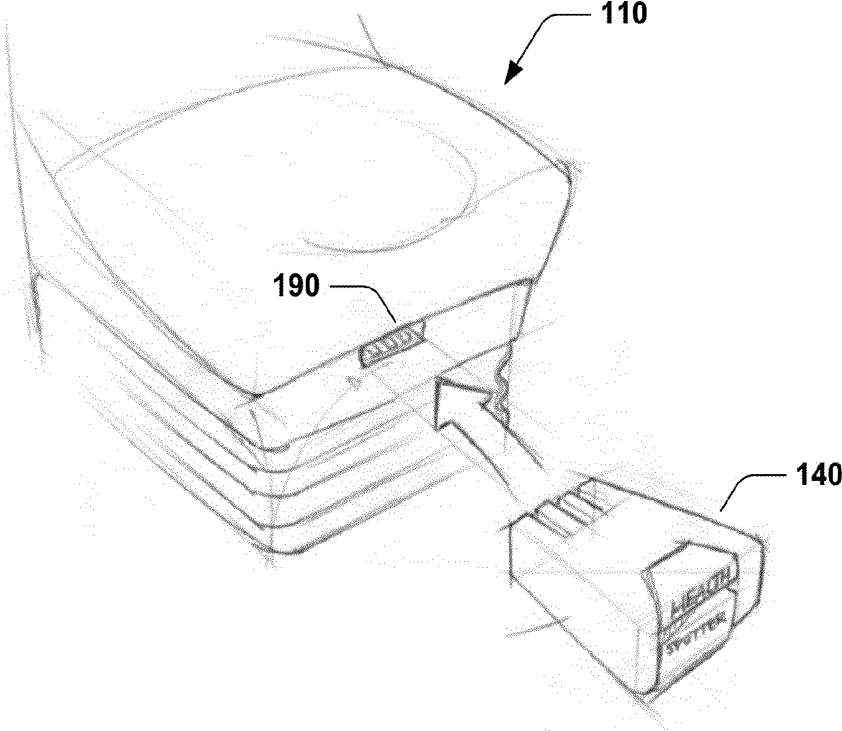


FIG. 8

900

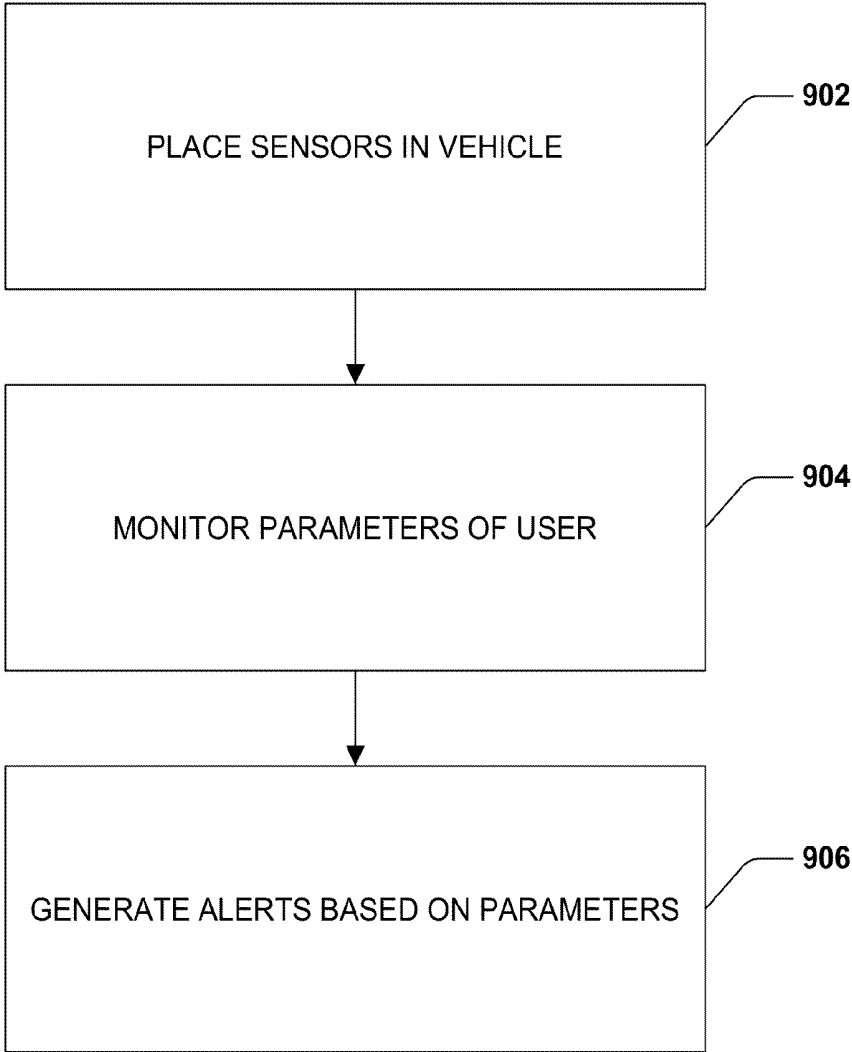


FIG. 9

1000

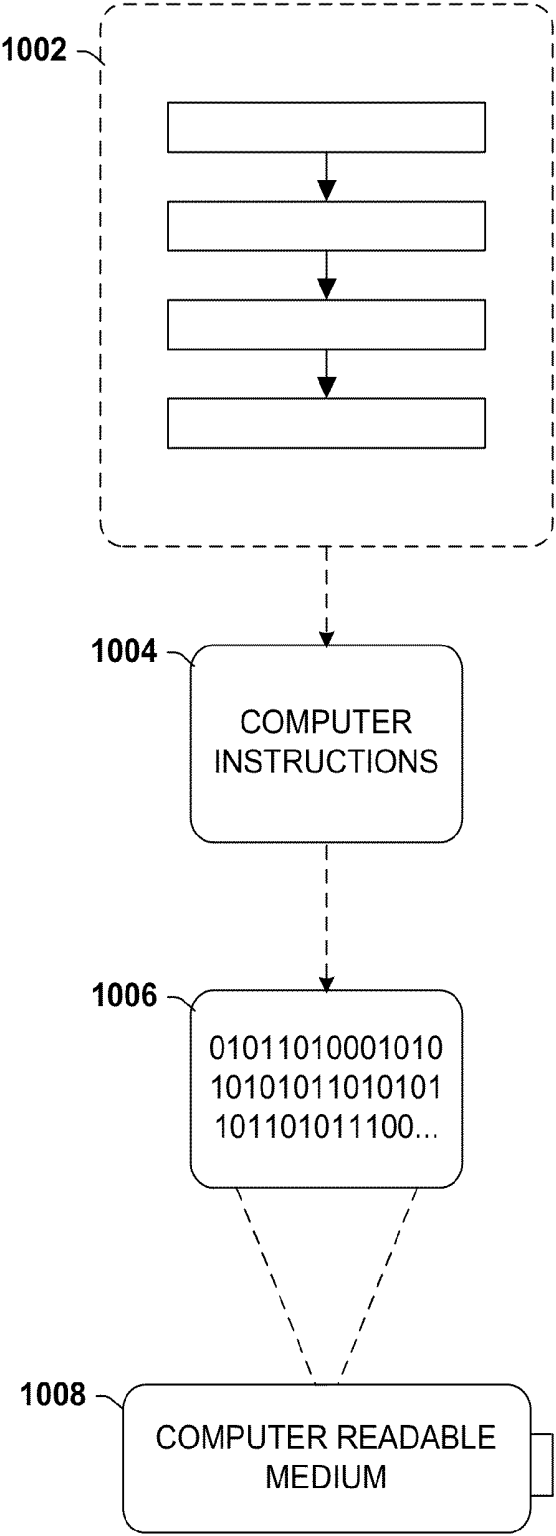


FIG. 10

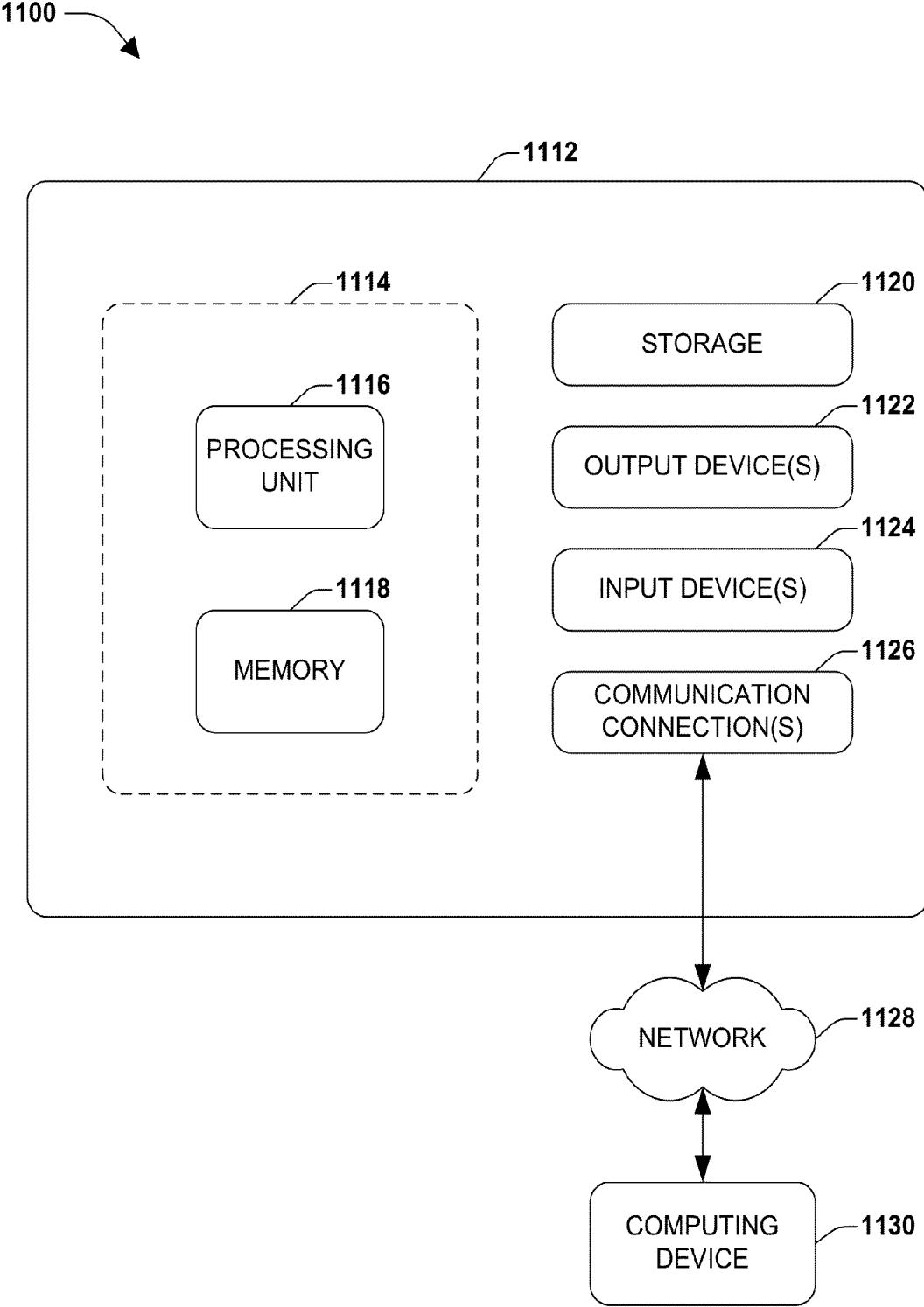


FIG. 11

## HEALTH MONITORING

### CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 61/787,239 (Attorney Docket No. 104308.265PRO) entitled “SEATING APPARATUS SYSTEMS”, filed on Mar. 15, 2013. The entirety of the above-noted application is incorporated by reference herein.

### BACKGROUND

[0002] Generally, commercial vehicles, such as long-haul trucks, may employ suspension systems which differ from passenger vehicles in their construction and response to vibration. Often, suspension systems in commercial vehicles are specially designed for the intended use of the commercial vehicle. Large trucks, for example, are designed for and may be capable of handling heavy loads which affects suspension design and performance. As a result, trade-offs may arise between work capability of a commercial vehicle and protecting occupants (e.g., driver, passenger) from potentially harmful vibrations. Because a primary purpose of a truck is to transport loads, the decision is usually made to favor the performance capability of the commercial vehicle rather than accommodating the operator’s comfort.

[0003] To this end, operators or drivers of commercial vehicles, sometimes experience aggravated discomfort or fatigue arising from exposure to excessive vehicle vibrations. Efforts have been, and continue to be made to provide amelioration of vibration-induced problems. Because most commercial vehicles are merely occupied by a driver, these vibration containment efforts are often associated with the seating for the driver. A goal of most vibration containment systems is to absorb vibrational energy and to channel or dissipate unwanted energy away from the drivers anatomy.

[0004] Usually, vibrations arriving at a driver’s seat bear directional characteristics, thus, improvements to seating designs take advantage of this fact by restricting seating improvements to a particular type of vibration characteristic. For example, many seating design improvements have been directed to enhancements in providing fore and aft (e.g., horizontally linear) isolation and vertical isolation. Additionally, safety may be motivation for providing some seating features. For example, “fore-aft” vibration has been known to cause premature fatigue when an operator is exposed for prolonged periods of time.

### BRIEF DESCRIPTION

[0005] This brief description is provided to introduce a selection of concepts in a simplified form that are described below in the detailed description. This brief description is not intended to be an extensive overview of the claimed subject matter, identify key factors or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter.

[0006] One or more embodiments for health monitoring or monitoring one or more health parameters of a user are provided herein. As an example, one or more components or sensor components may be embedded within a vehicle or seamlessly incorporated into one or more portions of a vehicle to facilitate measurement of such parameters or vitals. For example, a seat may have sensors embedded therein. To this end, the sensors may measure one or more characteristics

or one or more attributes associated with an occupant or user positioned in the seat. A variety of sensors may be utilized in one or more embodiments, thereby enabling monitoring vitals, vital parameters, health parameters, parameters, etc. of an individual while the individual is operating the vehicle or utilizing one or more aspects of the vehicle (e.g., sitting in or occupying the seat or touching the steering wheel, etc.).

[0007] As another example, a seatbelt may be fabricated with one or more heart rate monitors which monitor a heart rate of an occupant of the seat when the seatbelt is in an engaged position. It will be appreciated that one or more sensor components may be embedded or incorporated into one or more portions of a vehicle, such as an armrest, backrest, headrest, a keychain, a FOB, a seat, a seatbelt, a steering wheel, etc. Further, different types of sensors may be utilized, such as (but not necessarily limited to) an activity tracker, an image capture device, a heart rate monitor, a breathing monitor, a digital scale, etc. In this way, most any attribute or characteristic associated with an occupant of a vehicle or user may be monitored. For example, health monitoring may observe, monitor, or check blood pressure, blood sugar, body temperature, breathing patterns, circulation, blood glucose, heart rate, weight, stress, alcohol levels, etc. by receiving or measuring one or more corresponding signals.

[0008] In one or more embodiments, one or more warnings or notifications may be provided for an occupant, a user, or one or more parties (e.g., which are not necessarily present in the vehicle). For example, if an occupant has gained weight, he or she may be notified, “you have gained three pounds”. According to one or more aspects, when one or more vital parameters or health parameters reach or exceed a critical level or a threshold level, one or more third parties may be notified by an emergency component. For example, if it is detected that the heart rate of the occupant drops below twenty five beats per minute, a medical authority may be alerted (e.g., via a telematics channel or via a mobile communications network). According to one or more aspects, if a mobile device is docked or communicatively coupled with a system for health monitoring, the system may initiate a communication utilizing communication capabilities of the mobile device, etc.

[0009] The following description and annexed drawings set forth certain illustrative aspects and implementations. These are indicative of but a few of the various ways in which one or more aspects are employed. Other aspects, advantages, or novel features of the disclosure will become apparent from the following detailed description when considered in conjunction with the annexed drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Aspects of the disclosure are understood from the following detailed description when read with the accompanying drawings. Elements, structures, etc. of the drawings may not necessarily be drawn to scale. Accordingly, the dimensions of the same may be arbitrarily increased or reduced for clarity of discussion, for example.

[0011] FIG. 1 is an illustration of an example component diagram of a system for health monitoring, according to one or more embodiments.

[0012] FIG. 2 is an illustration of an example seat of a system for health monitoring, according to one or more embodiments.

[0013] FIG. 3 is an illustration of an example seat of a system for health monitoring, according to one or more embodiments.

[0014] FIG. 4 is an illustration of an example seat of a system for health monitoring, according to one or more embodiments.

[0015] FIG. 5 is an illustration of an example steering wheel of a system for health monitoring, according to one or more embodiments.

[0016] FIG. 6 is an illustration of an example seatbelt of a system for health monitoring, according to one or more embodiments.

[0017] FIG. 7 is an illustration of an example seatbelt of a system for health monitoring, according to one or more embodiments.

[0018] FIG. 8 is an illustration of an example seat of a system for health monitoring, according to one or more embodiments.

[0019] FIG. 9 is an illustration of an example flow diagram of a method for health monitoring, according to one or more embodiments.

[0020] FIG. 10 is an illustration of an example computer-readable medium or computer-readable device including processor-executable instructions configured to embody one or more of the provisions set forth herein, according to one or more embodiments.

[0021] FIG. 11 is an illustration of an example computing environment where one or more of the provisions set forth herein are implemented, according to one or more embodiments.

#### DETAILED DESCRIPTION

[0022] Embodiments or examples, illustrated in the drawings are disclosed below using specific language. It will nevertheless be understood that the embodiments or examples are not intended to be limiting. Any alterations and modifications in the disclosed embodiments, and any further applications of the principles disclosed in this document are contemplated as would normally occur to one of ordinary skill in the pertinent art.

[0023] For one or more of the figures herein, one or more boundaries, such as boundary 120A of FIG. 3 or 1114 of FIG. 11, for example, may be drawn with different heights, widths, perimeters, aspect ratios, shapes, etc. relative to one another merely for illustrative purposes, and are not necessarily drawn to scale. For example, because dashed or dotted lines may be used to represent different boundaries, if the dashed and dotted lines were drawn on top of one another they would not be distinguishable in the figures, and thus may be drawn with different dimensions or slightly apart from one another, in one or more of the figures, so that they are distinguishable from one another. As another example, where a boundary is associated with an irregular shape, the boundary, such as a box drawn with a dashed line, dotted lined, etc., does not necessarily encompass an entire component in one or more instances. Conversely, a drawn box does not necessarily encompass merely an associated component, in one or more instances, but may encompass a portion of one or more other components as well.

[0024] FIG. 1 is an illustration of an example component diagram of a system 100 for health monitoring, according to one or more embodiments. As used herein, health monitoring may include monitoring one or more vital signs, one or more vital parameters, or one or more health parameters for one or

more users or one or more occupants of a vehicle. As an example, a user may be an occupant of a vehicle who may or may not be operating the vehicle. In other words, the system may provide for health monitoring or tracking of one or more health parameters for the user or occupant while the user is in position or engaged with a portion of a vehicle, such as occupying a seat equipped with one or more sensors, and may (but not necessarily) be operating the vehicle.

[0025] The system 100 may include a vehicle component 110, a sensor component 120, a translating component 130, a storage component 140, a warning component 150, an emergency component 160, a peripheral component 170, an input component 180, and an interface component 190. The vehicle component 110 may include one or more locations where one or more sensor components 120 may be embedded or incorporated therein. It will be appreciated, however, that the vehicle component does not necessarily have to be a part of the vehicle. For example, the vehicle component 110 may include a keychain, fob, key, key fob, etc. In other words, a keychain, key, fob, key fob, etc. may be fabricated such that one or more sensor components 120 are incorporated therein. One or more sensors or sensor components 120 may be embedded within a key fob to facilitate activity tracking, for example.

[0026] Further, it will be appreciated the one or more sensor components 120 may be implemented, embedded, or incorporated into one or more portions of the vehicle or the vehicle component 110 in a variety of ways. In one or more embodiments, one or more sensor components 120 may be embedded within a seat (e.g., where the seat is a vehicle component 110). The seat may include one or more sub-components, such as one or more armrests, a backrest, a headrest, a seatbelt, padding, a neck rest, etc. As an example, a digital scale (e.g., sensor component 120) may be embedded in the seat or vehicle component 110. As another example, other sensor components 120 may be incorporated with other portions of the vehicle or vehicle components 110, such as by embedding heart rate sensors or body temperature sensors in the steering wheel of the vehicle.

[0027] As mentioned, the sensor component 120 may be implemented in a variety of ways, at one or more different positions, or embedded at one or more different locations or portions of the vehicle or vehicle component(s) 110. For example, one or more sensor components 120 may be embedded within a vehicle component 110 which is a seat. In this way, one or more of the sensors components 120 may monitor one or more health parameters or vital parameters of one or more users positioned in the seat. Because users or individuals often come in a variety of heights, sizes, weights, etc., one or more clusters of sensors may be utilized or implemented to capture the health parameter data or vital parameter data. In other words, a plurality of sensors may be scattered around a range of areas to ensure coverage of one or more of the health parameters or one or more vital parameters.

[0028] In one or more embodiments, one or more of the sensor components 120 may be adjustable in position. As an example, a heart rate monitor attached to a seatbelt may be adjustable along a length of the seatbelt. For example, one or more of the sensor components 120 may include a locking mechanism which facilitates sliding along a surface (e.g., along the seatbelt, etc.). A sensor component 120 may be fixed utilizing Velcro, adhesive, pins, locking mechanisms, straps, covers (e.g., a chair cover with sensors attached), etc. Regardless, it will be appreciated that one or more of the

sensor components **120** may be adjustable in position to customize, suit, or tailor the system **100** to monitor health parameters for most any of a plurality of users. In this way, one or more of the sensor components **120** may monitor one or more vital parameters or one or more health parameters of one or more users positioned in a seat or utilizing one or more aspects of a vehicle.

[0029] One or more of the sensor components **120** may include a heart rate monitor. The heart rate monitor may be woven into the seatbelt or a portion of the seatbelt (e.g., a slide-able portion which may be adjustable along a length of the seatbelt, etc.). One or more of the sensor components **120** may include a breathing monitor. The breathing monitor may be embedded in a backrest of a seat. In one or more embodiments, the breathing monitor may be embedded in a seat cover or strap which may be adjustable (e.g., adjustable along the backrest of the seat or along a plane associated with the seat or seat component **110** such that the strap may be slid up or down the backrest of the seat). According to one or more aspects, one or more of the sensor components **120** may include a blood alcohol level monitor. For example, the blood alcohol level monitor may sense or determine the blood alcohol content (BAC) for a user or individual utilizing the BAC sensor.

[0030] Other sensors or types of sensor components **120** may include an activity tracker, a heart rate monitor, a breathing monitor, an image capture device, an infrared (IR) sensor, a scale, a digital scale, an ultrasound sensor, a pressure sensor, a blood pressure sensor, a sensor for blood glucose monitoring, a temperature sensor or a body temperature sensor, a tape measure or sensor for measuring a girth or a circumference associated with a body part of an individual or user, sensors for awareness, cardiac monitoring, health monitoring, neurological monitoring, respiratory monitoring, toxin monitoring (e.g., carbon monoxide or carbon dioxide, etc.), elapsed time, etc.

[0031] It will be appreciated that a sensor or sensor component **120**, as used herein, may include one or more devices which measures a quantity and converts that quantity into a signal which may be read (e.g., such as by an observer or an electronic device or instrument). In this way, one or more of the sensors components **120** may receive one or more signals. The sensor may or may not measure quantities, attributes, or characteristics which are associated with a health parameter or vital parameter of a user. For example, a timer may be implemented as a sensor component **120** to measure an elapsed time or duration a user or occupant has remained stationary in the vehicle, their seat, etc. The timer may merely record an elapsed duration of a trip, for example.

[0032] In one or more embodiments, the sensor component **120** may measure awareness (e.g., via measuring or detecting a grip pressure, a heart rate, a breathing rate, a body temperature, etc.), monitor awareness (e.g., number of blinks per minute or amount of time an eye of a user is stationary or focused on an object via utilizing image capture devices). For example, a sensor component **120** may monitor the cabin temperature of the vehicle as well as a body temperature of the user, operator, or occupant of the vehicle. If the occupant has a body temperature greater than a body temperature threshold when the cabin temperature is at or above a set point cabin temperature, the warning component **150** may issue a warning that the set point temperature of the cabin may cause sleepiness or drowsiness. Further, the peripheral component **170** may automatically adjust the temperature to be lower

than the current set point temperature. In other embodiments, if the sensor component **120** detects signs of sleepiness or drowsiness, such as head-nodding or excessive or extended periods of blinking, the peripheral component **170** may adjust the set point temperature of the cabin accordingly. For example, the peripheral component **170** may adjust the temperature to be two degrees cooler than the current set point temperature. The sensor component **120** may thus monitor a user, operator, or occupant for instances of unawareness or other conditions (e.g., epilepsy, etc.).

[0033] The sensor component **120** may monitor blood pressure, blood sugar, blood glucose, etc. With regard to the blood sugar or blood glucose monitoring, the sensor component **120** may facilitate monitoring of health parameters or vital parameters for diabetes or take diabetes measurements, for example. Additionally, the sensor component **120** may monitor or facilitate cardiac monitoring (e.g., heart rate monitoring, circulation monitoring, hemodynamic monitoring, etc.). For example, one or more of the sensor components **120** may monitor health parameters or vital parameters in relation to warning signs for a heart attack, associated symptoms, or other attributes or characteristics associated with cardiac arrest or myocardia infarction (e.g., a sensor for detecting sweating, perspiration, shortness of breath, etc.). In this way, the sensor component **120** may monitor one or more health attributes, characteristics, or parameters.

[0034] In one or more embodiments, the sensor component **120** may facilitate health monitoring. For example, one or more sensors may measure or record stress measurements, vibration measurements, vibration frequencies, a magnitude of vibration, etc. Additionally, one or more sensors may include a timer which may measure an elapsed time or duration in which an individual or user is sitting or remains in a stationary pose. For example, the peripheral component **170** may suggest that the user, individual, driver, operator, etc. take a break from driving or operating the vehicle after a threshold or pre-determined amount of time has passed. In other words, the peripheral component **170** may facilitate mitigation of blood clots, etc. or otherwise promote general health by ensuring or suggesting a break from an operating activity, such as driving, where the user may be engaged in a substantially fixed position (e.g., sitting) for an extended period of time, for example. The peripheral component **170** or the warning component **150** may suggest a break after a period of time based on one or more measurements taken by one or more of the sensor components **120**. For example, if a seat is subject to a greater magnitude of vibration or if a vibration frequency is at an extreme (e.g., greater than an upper threshold frequency or less than a lower threshold frequency), the peripheral component **170** may suggest breaks more often. As an example, the peripheral component **170** or the warning component **150** may suggest a break after a shorter period of time based on a larger frequency or vibration magnitude.

[0035] In one or more embodiments, the sensor component **120** may be implemented in the form of an analog or a manual device. For example, the sensor component **120** may be a measuring component for measuring a waist measurement of an individual, user, operator, or occupant of a seat. The sensor component **120** or measuring component may be a measurement device (e.g., tape measure integrated with the seatbelt, etc.). Additionally, the sensor component **120** may facilitate neurological monitoring, respiratory monitoring (e.g., breathing patterns), toxin monitoring, among other things.

[0036] The translating component 130 may convert one or more signals from one or more of the sensor components into a storable format. For example, the translating component 130 may convert one or more of the signals into a format suitable for storage on the storage component 140. In one or more embodiments, the system 100 may utilize a communication channel or telematics channel to transmit (e.g., via the interface component 190) one or more of the signals from one or more of the sensor components 120 to a server or external storage device (not shown). The translating component 130 may convert signals from one or more sensors or one or more of the sensor components 120 to a format suitable for rendering or display on a display component, storage on a storage component. The storage component 140 may facilitate storage or storing one or more vital parameters or health parameters associated with a user. To this end, one or more of the vital parameters or health parameters may thus be accessed at a later time, thereby enabling trends, graphs, charts, summaries, or other analysis to be performed. In this way, the health monitoring system 100 of FIG. 1 may facilitate monitoring of health parameters of a user or an individual.

[0037] The warning component 150 may generate one or more warnings, one or more alerts, one or more notifications, etc. for one or more users, one or more individuals, one or more parties, one or more third parties, etc. These notifications or warnings may be based on one or more of the vital parameters or health parameters (e.g., measured by one or more of the sensor components 120). For example, the warning component 150 may notify a user that he or she has gained weight based on one or more measurements taken by a scale (e.g., sensor component 120) embedded within a seat (e.g., vehicle component 110). In this example, the storage component 140 may keep a log or record a weight associated with a user or operator on a daily, weekly, or monthly basis, etc. Further, the warning component 150 may analyze data or one or more signals from one or more of the sensor components 120. Here, the warning component 150 may analyze a trend associated with the sensor data or signals from the storage component 140 and determine that the user's rate has been climbing over a period of time, for example. To this end, the warning component 150 may issue or generate a notification for the user which indicates that the user is gaining weight or that a potentially undesirable pattern may be occurring.

[0038] The warning component 150 may generate one or more of the alerts, notifications, or warnings based on one or more of the vital parameters or one or more of the health parameters measured, observed, or recorded for one or more of the users or individuals. As another example, the warning component 150 may generate a warning when a breathing pattern associated with an individual is outside of a nominal breathing pattern range. Slower breathing may be indicative that an individual or a user is falling asleep at the wheel, while faster, short breaths may be indicative or be a symptom associated with a heart attack, for example. To this end, the warning component 150 may generate warnings or alerts accordingly. Further, one or more of the alerts, notifications, or warnings may be generated based on historical data, trends, etc. In other words, if an individual or a user has a historically low heart rate or breathing pattern, the warning component 150 may set a different breathing pattern threshold for that individual, while providing other individuals with a different breathing pattern threshold.

[0039] In one or more embodiments, the warning component 150 may generate a health score for a user or individual

based on one or more of the health parameters measured by one or more of the sensor components 120. For example, if the sensor components 120 measure blood pressure, weight, etc. The warning component 150 may rank the blood pressure and weight of the individual or user against national averages or provide an indication of where that user falls within a range of corresponding parameters. In this way, the warning component 150 may provide the individual with a day to day score which enables tracking of a measure of health for that individual or user, for example.

[0040] In one or more embodiments, the emergency component 160 may facilitate activation of emergency communication when one or more of the health parameters falls outside of an acceptable range or when one or more of the health parameters exceeds or is below a threshold level. For example, when the body temperature of a user or operator is above 100 degrees Fahrenheit, a text message may be sent to a pre-determined number or a notification sent to a health authority (e.g., a physician for the individual or user). As another example, the emergency component 160 may activate an emergency communication when an individual's heart rate falls below a threshold level or breathing is impaired. In one or more embodiments, the emergency component 160 may notify the user prior to notifying a third party to mitigate false positive readings (e.g., when a seatbelt heart monitor sensor is not properly placed, etc.). Additionally, the emergency component 160 may be trained to identify one or more other false positive type scenarios (e.g., from monitoring a normal heartbeat to zero heartbeats per minute may be a dislocation of a heartbeat sensor, etc.).

[0041] Regardless, the emergency component 160 may transmit one or more emergency alerts to one or more parties or third parties based on one or more health parameter signals received from one or more of the sensor components 120. As an example, if it is detected (e.g., via one or more of the sensor components) that the body temperature of the user is dropping or drops below a threshold level and a heart rate of the user also falls below an acceptable threshold level, the emergency component 160 may initiate communication of an emergency alert, such as by calling 911. In this example, if a mobile device of the user is docked with an interface component 190, the emergency component 160 may initiate such communications and direct the mobile device to initiate telephonic communications, broadcast an emergency beacon, or otherwise notify a third party that the individual may be experiencing an emergency.

[0042] The peripheral component 170 may render one or more alerts or one or more audio alerts. In one or more embodiments, the peripheral component 170 may include a display component and/or an audio component or a speaker component. The display component may enable cycling through one or more display modes based one or more user inputs or one or more health parameters. For example, the display component may display a health parameter which has a greatest amount of deviation from an acceptable range. The display component may also display one or more warnings (e.g., "you have gained weight", etc.). The display component may be implemented as a heads-up-display (HUD), as a display within the dashboard, as a console display, etc.

[0043] Further, if a mobile device is docked to the interface component 190 of the system 100, the peripheral component 170 may utilize a display of the mobile device. In one or more embodiments, the peripheral component 170 may enable interaction between a mobile device and the system 100, such

as via an application or an interface (e.g., provided by the interface component 190 or an interface installed on the mobile device). The peripheral component may also include an audio component or a speaker component which enables one or more audio notifications to be rendered for the user. For example, if one or more of the sensor components 120 determine that a user is falling asleep (e.g., based on a slow, relaxed breathing pattern, an elevated cabin temperature, etc.), the peripheral component may play an audio alert notifying the user that he or she may be getting drowsy and suggest a break from operating the vehicle.

[0044] In one or more embodiments, the input component 180 may enable accepting of one or more inputs from one or more users. In response to one or more of the inputs, a display or peripheral component 170 may cycle through one or more display modes having different health parameters or different display information. The input component 180 may be implemented as software or hardware, as buttons, keys, a keyboard, include a microphone, or be received from the mobile device when a mobile device is docked with the interface component 190.

[0045] The interface component 190 may communicatively couple the system 100 with a mobile device, one or more servers, external hardware, a controller area network (CAN) of a vehicle, etc. In one or more embodiments, the interface component 190 may include a docking station which enables a mobile device to be communicatively coupled (e.g., wirelessly or via a hard wire, such as Universal Serial Bus or USB) to the system 100 of FIG. 1. When the mobile device is communicatively coupled to the system 100, information such as one or more measured parameters, vital parameters, health parameters, associated thresholds, etc. may be transmitted from the system 100 to the mobile device or vice versa. Accordingly, the interface component 190 may transmit one or more parameters associated with the user or one or more of the alerts to the mobile device when the mobile device is docked to the docking station or communicatively coupled with the system 100.

[0046] The interface component 190 may enable connectivity with one or more mobile devices. For example, a mobile device may have an application which enables a user to interact with one or more aspects of the system 100 of FIG. 1. The user may setup customizable alerts based on different conditions. If it is detected that the individual is falling asleep, then initiate a telephone call to the individual via the interface component 190 or adjust a cabin temperature via a controller area network for the vehicle. Similarly, the interface component 190 may initiate text message warnings for the mobile device or generate one or more warnings for the peripheral component 170 to display or render. The mobile device may have an application or interface for reviewing one or more of the health parameters or vital parameters, an associated summary (e.g., prepared or generated by the warning component 150 or storage component 140).

[0047] In one or more embodiments, the emergency component 160 may initiate warnings for one or more third parties (e.g., a text message to a spouse, an email to a physician, etc.). For example, if one or more of the sensor components 120 includes a scale, and the warning component 150 notes a trend of upward weight gain for an individual, the interface component 190 may transmit an email to a physician for the individual or user to notify the physician to provide additional attention to the weight gain the next time the individual has an appointment. In this way, the interface component 190 may

communicatively couple the system 100 or the storage component 140 to one or more devices or one or more servers and facilitate upload or transfer of health parameter data or vital parameter data to one or more of the devices or one or more of the servers. It will be appreciated that the transfer of such data may be done wirelessly, via telematics, etc.

[0048] In one or more embodiments, one or more of the parties or third parties being notified by the emergency component 160 may be customizable or user selected. For example, an insurance provider or health care provider may be contacted by the interface component 190 and one or more bonuses, discounts, etc. may be earned based on one or more of the health parameters measured. As an example, if a long haul truck driver is utilizing the system 100 for health monitoring, the warning component 150 may suggest that he or she take breaks every hour to mitigate blood clots and/or promote healthy driving styles. The warning component 150 and/or the interface component 190 may note when or how often breaks are taken or when suggestions are followed and relay this information to an insurance company for the truck driver. To this end, the insurance company may offer the truck driver a discount on his or her insurance for following one or more of the suggestions provided by the warning component 150.

[0049] According to one or more aspects, an activity monitor (e.g., sensor component 120) may be integrated with a keychain or key fob (e.g., vehicle component 110). Here, the activity monitor may track one or more movements for the user (e.g., a distance walked, etc.). This data or movements tracked by the activity monitor may be among one or more health parameters being tracked by the system 100 or one or more sensor components 120. The storage component 140 may store the health parameters (e.g., movements). The warning component 150 may generate a report, a summary, or one or more notifications regarding one or more of the health parameters or movements. For example, if the activity monitor tracks or determines that an individual has walked more than a threshold distance during a day or a predetermined time period, the warning component 150 may provide a notification congratulating the individual for achieving a predetermined amount of activity. The interface component 190 may share this achievement with one or more third parties (e.g., via text, email, social media, etc.).

[0050] The input component 180 may enable an individual or a user to provide an input, an indication, or identification when multiple users or individuals utilize the system 100 for health monitoring. For example, the input component 180 may enable users to login to the system 100 with a login or username. In this way, the storage component 140 may store different data sets or sets of health parameters or sets of vital parameters for different users. In one or more embodiments, the sensor component 120 may include a scale (e.g., embedded in the seat of the vehicle) and different users may be identified by a weight measured by the scale. In this way, the system 100 may be configured to record, store, or analyze different data sets for different individuals or operators.

[0051] FIG. 2 is an illustration of an example seat of a system 200 for health monitoring, according to one or more embodiments. The system 200 may include a seat 110A. The seat 110A may include one or more peripheral components 170, such as one or more speakers or an audio component. The seat 110A may include an armrest 1108 and a backrest 220. In one or more embodiments, one or more sensors or sensor components may be embedded within the backrest 220, such as a breathing monitor, for example. The seat may

include an interface component **190** or a docking station **192**. Here, a mobile device **210** may be docked within the docking station to facilitate communication therewith. For example, the mobile device **210** may have an application installed thereon which facilitates rendering of one or more health parameters read or detected by one or more of the sensors or sensors components (e.g., a breathing rate monitor embedded within the backrest **220**, etc.). In one or more embodiments, health monitoring data or health parameter data may be stored locally on the mobile device **210** or in a cloud.

[0052] FIG. 3 is an illustration of an example seat of a system **300** for health monitoring, according to one or more embodiments. A seat **110A** may include sensors at a headrest position **120A**, a backrest position **120B**, within an armrest **110C**, or within a seat cushion **120C**. Sensors may include a scale, infrared sensors, temperature sensors, timers, among other things.

[0053] FIG. 4 is an illustration of an example seat of a system **400** for health monitoring, according to one or more embodiments. Similarly, the seat **110A** of FIG. 4 may include a headrest **110C** and sensors **120B** embedded in a backrest of the seat.

[0054] FIG. 5 is an illustration of an example steering wheel of a system **500** for health monitoring, according to one or more embodiments. The steering wheel **110D** may include one or more sensors at one or more different positions **120D**. It will be appreciated that one or more of the sensors may be embedded, fabricated, or integrated at different positions (e.g., ten o'clock and two o'clock) on the steering wheel **110D**.

[0055] FIG. 6 is an illustration of an example seatbelt of a system **600** for health monitoring, according to one or more embodiments. The seatbelt **110E** may include a sensor component **120E**. As an example, the sensor component **120E** may be a heartbeat monitor and facilitate monitoring of a heartbeat of a user when the seatbelt **110E** is engaged or worn.

[0056] FIG. 7 is an illustration of an example seatbelt of a system **700** for health monitoring, according to one or more embodiments. The seatbelt **110E** of FIG. 7 may include one or more measurement markings or a tape measure device for measuring a circumference of a waist, such as when an occupant is sitting in a corresponding seat.

[0057] FIG. 8 is an illustration of an example seat of a system **800** for health monitoring, according to one or more embodiments. The system **800** of FIG. 8 may include a seat **110** which includes an interface component **190** and a removable storage component **140** for storing, transferring data or health parameter data, for example.

[0058] FIG. 9 is an illustration of an example flow diagram of a method **900** for health monitoring, according to one or more embodiments. The method **900** may include placing one or more sensor components in one or more portions of a vehicle at **902**. Monitoring one or more parameters of a user at **904** and generating one or more notifications based on one or more of the parameters at **906**.

[0059] Still another embodiment involves a computer-readable medium including processor-executable instructions configured to implement one or more embodiments of the techniques presented herein. An embodiment of a computer-readable medium or a computer-readable device devised in these ways is illustrated in FIG. 10, wherein an implementation **1000** includes a computer-readable medium **1008**, such as a CD-R, DVD-R, flash drive, a platter of a hard disk drive, etc., on which is encoded computer-readable data **1006**. This

computer-readable data **1006**, such as binary data including a plurality of zero's and one's as shown in **1006**, in turn includes a set of computer instructions **1004** configured to operate according to one or more of the principles set forth herein. In one such embodiment **1000**, the processor-executable computer instructions **1004** are configured to perform a method **1002**, such as the method **900** of FIG. 9. In another embodiment, the processor-executable instructions **1004** are configured to implement a system, such as the system **100** of FIG. 1. Many such computer-readable media are devised by those of ordinary skill in the art that are configured to operate in accordance with the techniques presented herein.

[0060] As used in this application, the terms "component", "module," "system", "interface", and the like are generally intended to refer to a computer-related entity, either hardware, a combination of hardware and software, software, or software in execution. For example, a component may be, but is not limited to being, a process running on a processor, a processor, an object, an executable, a thread of execution, a program, or a computer. By way of illustration, both an application running on a controller and the controller may be a component. One or more components residing within a process or thread of execution and a component may be localized on one computer or distributed between two or more computers.

[0061] Further, the claimed subject matter is implemented as a method, apparatus, or article of manufacture using standard programming or engineering techniques to produce software, firmware, hardware, or any combination thereof to control a computer to implement the disclosed subject matter. The term "article of manufacture" as used herein is intended to encompass a computer program accessible from any computer-readable device, carrier, or media. Of course, many modifications may be made to this configuration without departing from the scope or spirit of the claimed subject matter.

[0062] FIG. 11 and the following discussion provide a description of a suitable computing environment to implement embodiments of one or more of the provisions set forth herein. The operating environment of FIG. 11 is merely one example of a suitable operating environment and is not intended to suggest any limitation as to the scope of use or functionality of the operating environment. Example computing devices include, but are not limited to, personal computers, server computers, hand-held or laptop devices, mobile devices, such as mobile phones, Personal Digital Assistants (PDAs), media players, and the like, multiprocessor systems, consumer electronics, mini computers, mainframe computers, distributed computing environments that include any of the above systems or devices, etc.

[0063] Generally, embodiments are described in the general context of "computer readable instructions" being executed by one or more computing devices. Computer readable instructions may be distributed via computer readable media as will be discussed below. Computer readable instructions may be implemented as program modules, such as functions, objects, Application Programming Interfaces (APIs), data structures, and the like, that perform one or more tasks or implement one or more abstract data types. Typically, the functionality of the computer readable instructions are combined or distributed as desired in various environments.

[0064] FIG. 11 illustrates a system **1100** including a computing device **1112** configured to implement one or more embodiments provided herein. In one configuration, comput-

ing device **1112** includes at least one processing unit **1116** and memory **1118**. Depending on the exact configuration and type of computing device, memory **1118** may be volatile, such as RAM, non-volatile, such as ROM, flash memory, etc., or a combination of the two. This configuration is illustrated in FIG. **11** by dashed line **1114**.

[**0065**] In other embodiments, device **1112** includes additional features or functionality. For example, device **1112** may include additional storage such as removable storage or non-removable storage, including, but not limited to, magnetic storage, optical storage, etc. Such additional storage is illustrated in FIG. **11** by storage **1120**. In one or more embodiments, computer readable instructions to implement one or more embodiments provided herein are in storage **1120**. Storage **1120** may store other computer readable instructions to implement an operating system, an application program, etc. Computer readable instructions may be loaded in memory **1118** for execution by processing unit **1116**, for example.

[**0066**] The term “computer readable media” as used herein includes computer storage media. Computer storage media includes volatile and nonvolatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions or other data. Memory **1118** and storage **1120** are examples of computer storage media. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, Digital Versatile Disks (DVDs) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which may be used to store the desired information and which may be accessed by device **1112**. Any such computer storage media is part of device **1112**.

[**0067**] The term “computer readable media” includes communication media. Communication media typically embodies computer readable instructions or other data in a “modulated data signal” such as a carrier wave or other transport mechanism and includes any information delivery media. The term “modulated data signal” includes a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal.

[**0068**] Device **1112** includes input device(s) **1124** such as keyboard, mouse, pen, voice input device, touch input device, infrared cameras, video input devices, or any other input device. Output device(s) **1122** such as one or more displays, speakers, printers, or any other output device may be included with device **1112**. Input device(s) **1124** and output device(s) **1122** may be connected to device **1112** via a wired connection, wireless connection, or any combination thereof. In one or more embodiments, an input device or an output device from another computing device may be used as input device (s) **1124** or output device(s) **1122** for computing device **1112**. Device **1112** may include communication connection(s) **1126** to facilitate communications with one or more other devices.

[**0069**] According to one or more aspects, system for monitoring one or more health parameters of one or more users or a system for health monitoring is provided, including a seat, one or more sensors components, a storage component, and a warning component. One or more of the sensors components may be embedded within the seat. One or more of the sensor components may monitor one or more health parameters of one or more users positioned in the seat. The storage component may store one or more of the health parameters of the

user. The warning component may generate one or more alerts based on one or more of the health parameters of one or more of the users.

[**0070**] In one or more embodiments, the system includes a translating component converting one or more signals received by one or more of the sensor components into a storable format for the storage component. The system may include an emergency component transmitting one or more emergency alerts to one or more third parties. The system may include one or more peripheral components displaying one or more of the alerts or provide audio for one or more of the alerts. The system may include an input component accepting one or more inputs from one or more of the users. The system may include a display component cycling through one or more display modes based on one or more of the inputs.

[**0071**] The system may include an interface component communicatively coupling the system or the storage component to one or more devices or one or more servers. The interface component may include a docking station docking a mobile device to the system. The interface component may transmit one or more of the health parameters of the user or one or more of the alerts to the mobile device when the mobile device is docked to the docking station. One or more of the sensor components may include a digital scale within the seat.

[**0072**] According to one or more aspects, system for monitoring one or more health parameters of one or more users or a system for health monitoring is provided, including a steering wheel, one or more sensor components, a storage component, and a warning component. One or more of the sensor components may be embedded within the steering wheel. One or more of the sensor components may monitor one or more health parameters of one or more users of the steering wheel. The storage component may store one or more of the health parameters of the user. The warning component may generate one or more alerts based on one or more of the health parameters of one or more of the users.

[**0073**] The system may include a translating component converting one or more signals received by one or more of the sensor components into a storable format for the storage component. The system may include an emergency component transmitting one or more emergency alerts to one or more third parties. The system may include one or more peripheral components displaying one or more of the alerts or provide audio for one or more of the alerts. The system may include an input component accepting one or more inputs from one or more of the users. The system may include an interface component communicatively coupling the system or the storage component to one or more devices or one or more servers.

[**0074**] According to one or more aspects, system for monitoring one or more health parameters of one or more users or a system for health monitoring is provided, including a seat including a seatbelt, a headrest, and a backrest. The system may include one or more sensor components embedded within the seat. One or more of the sensor components may monitor one or more health parameters of one or more users positioned in the seat. The system may include a storage component storing one or more of the health parameters of the user. The system may include a warning component generating one or more alerts based on one or more of the health parameters of one or more of the users.

[**0075**] In one or more embodiments, one or more of the sensor components may include a heart rate monitor, wherein the heart rate monitor is woven into the seatbelt. In one or

more embodiments, one or more of the sensor components may include a breathing monitor, wherein the breathing monitor is embedded in the backrest of the seat. In one or more embodiments, one or more of the sensors components may include a blood alcohol level monitor.

[0076] Although the subject matter has been described in language specific to structural features or methodological acts, it is to be understood that the subject matter of the appended claims is not necessarily limited to the specific features or acts described above. Rather, the specific features and acts described above are disclosed as example embodiments.

[0077] Various operations of embodiments are provided herein. The order in which one or more or all of the operations are described should not be construed as to imply that these operations are necessarily order dependent. Alternative ordering will be appreciated based on this description. Further, not all operations may necessarily be present in each embodiment provided herein.

[0078] As used in this application, “or” is intended to mean an inclusive “or” rather than an exclusive “or”. Further, an inclusive “or” may include any combination thereof (e.g., A, B, or any combination thereof). In addition, “a” and “an” as used in this application are generally construed to mean “one or more” unless specified otherwise or clear from context to be directed to a singular form. Additionally, at least one of A and B and/or the like generally means A or B or both A and B. Further, to the extent that “includes”, “having”, “has”, “with”, or variants thereof are used in either the detailed description or the claims, such terms are intended to be inclusive in a manner similar to the term “comprising”.

[0079] Further, unless specified otherwise, “first”, “second”, or the like are not intended to imply a temporal aspect, a spatial aspect, an ordering, etc. Rather, such terms are merely used as identifiers, names, etc. for features, elements, items, etc. For example, a first channel and a second channel generally correspond to channel A and channel B or two different or two identical channels or the same channel. Additionally, “comprising”, “comprises”, “including”, “includes”, or the like generally means comprising or including, but not limited to.

[0080] Although the disclosure has been shown and described with respect to one or more implementations, equivalent alterations and modifications will occur based on a reading and understanding of this specification and the annexed drawings. The disclosure includes all such modifications and alterations and is limited only by the scope of the following claims.

What is claimed is:

1. A system for monitoring one or more health parameters of one or more users, comprising:

a seat;

one or more sensor components embedded within the seat, one or more of the sensor components monitoring one or more health parameters of one or more users positioned in the seat;

a storage component storing one or more of the health parameters of the user; and

a warning component generating one or more alerts based on one or more of the health parameters of one or more of the users.

2. The system of claim 1, comprising a translating component converting one or more signals received by one or more of the sensor components into a storable format for the storage component.

3. The system of claim 1, comprising an emergency component transmitting one or more emergency alerts to one or more third parties.

4. The system of claim 1, comprising one or more peripheral components displaying one or more of the alerts or provide audio for one or more of the alerts.

5. The system of claim 1, comprising an input component accepting one or more inputs from one or more of the users.

6. The system of claim 5, comprising a display component cycling through one or more display modes based on one or more of the inputs.

7. The system of claim 1, comprising an interface component communicatively coupling the system or the storage component to one or more devices or one or more servers.

8. The system of claim 7, wherein the interface component comprises a docking station docking a mobile device to the system.

9. The system of claim 8, wherein the interface component is transmitting one or more of the health parameters of the user or one or more of the alerts to the mobile device when the mobile device is docked to the docking station.

10. The system of claim 1, wherein one or more of the sensor components comprises a digital scale within the seat.

11. A system for monitoring one or more health parameters of one or more users, comprising:

a steering wheel;

one or more sensor components embedded within the steering wheel, one or more of the sensor components monitoring one or more health parameters of one or more users of the steering wheel;

a storage component storing one or more of the health parameters of the user; and

a warning component generating one or more alerts based on one or more of the health parameters of one or more of the users.

12. The system of claim 11, comprising a translating component converting one or more signals received by one or more of the sensor components into a storable format for the storage component.

13. The system of claim 11, comprising an emergency component transmitting one or more emergency alerts to one or more third parties.

14. The system of claim 11, comprising one or more peripheral components displaying one or more of the alerts or provide audio for one or more of the alerts.

15. The system of claim 11, comprising an input component accepting one or more inputs from one or more of the users.

16. The system of claim 11, comprising an interface component communicatively coupling the system or the storage component to one or more devices or one or more servers.

17. A system for monitoring one or more health parameters of one or more users, comprising:

a seat comprising a seatbelt, a headrest, and a backrest;

one or more sensor components embedded within the seat, one or more of the sensor components monitoring one or more health parameters of one or more users positioned in the seat;

a storage component storing one or more of the health parameters of the user; and

a warning component generating one or more alerts based on one or more of the health parameters of one or more of the users.

**18.** The system of claim **17**, wherein one or more of the sensor components comprises a heart rate monitor, wherein the heart rate monitor is woven into the seatbelt.

**19.** The system of claim **17**, wherein one or more of the sensor components comprises a breathing monitor, wherein the breathing monitor is embedded in the backrest of the seat.

**20.** The system of claim **17**, wherein one or more of the sensors components comprises a blood alcohol level monitor.

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专利名称(译)	健康监测		
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[标]申请(专利权)人(译)	PAUL BENNETT		
申请(专利权)人(译)	BENNETT, PAUL		
当前申请(专利权)人(译)	商用车集团, INC.		
[标]发明人	BENNETT PAUL		
发明人	BENNETT, PAUL		
IPC分类号	A61B5/00 A61B5/145 A61B5/18 A61B5/0205 B60N2/90		
CPC分类号	A61B5/6893 A61B5/0205 A61B5/14546 A61B5/7475 A61B5/742 A61B5/746 A61B5/18 B60N2/502 B60N2/02 B60N2/505 B60N2/919 B60N2205/20 H04R1/028 Y10T29/49826 Y10T403/591		
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摘要(译)

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