A

TITLE OF THE INVENTION

[INSERT TITLE HERE] need title

- Text in some Figures is Way too small

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] [Not Applicable][List Related Applications]

Examples:

[The present application is a continuation of Application No. XX/XXX,XXX, filed XXXXX, entitled " XXXXX", which is hereby incorporated by reference in its entirety.]

[The present application claims the benefit of U.S. Provisional Application No. 63/XXX,XXX, filed XXXXX, entitled "XXXXXX", which is hereby incorporated by reference in its entirety.]

- claims need work
- Overall, this is pretty well-written at the data level. There are still some missing parts (Better AI-generated + Improvements, for example) but overall this is pretty solid. Make improvements to maintain your A

BACKGROUND OF THE INVENTION

[0002] The present invention generally relates to a [invention]. More particularly, the present invention relates to a [invention, more specifically – but NOT PON].

[0003] [general background]

[0004] [describe prior art]

[0005] [DO NOT INCLUDE ANY OF – long felt need, anything relating to your invention or the motivation for making your invention.]

BRIEF SUMMARY OF THE INVENTION

[0006] One or more of the embodiments of the present invention provide [describe invention as claimed]

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Figure 1 illustrates a [invention] according to an embodiment of the present invention.

[0008] Figure 2 illustrates a flow chart of an embodiment of the [invention process].

[REMEMBER – no element numbers]

DETAILED DESCRIPTION OF THE INVENTION

[0009] Figure 1 illustrates a system 100 according to an embodiment of the present invention. The system 100 includes four main components: a set of earphones 110, a user mobile device 130, a server 150, and an electronic mixer 170. The set of earphones 110 includes a heartbeat sensor 111, a heart rate monitor 112, a heart rate transmitter 113, an audio receiver 114, a first audio output channel 115, and a second audio output channel 116. The heartbeat sensor 111 includes an alternative to digital convertor (ADC) 117. The heart rate monitor 112 includes an internal clock 118. The user mobile device 130 includes a device transceiver 131, a network controller 132, a user interface 133, a device processor 134, and a device memory 138. The device processor 134 includes an internal clock 139. The network controller 132 includes a Bluetooth network component 135, a Wi-Fi network component 136, and a cellular network component 137. The server 150 includes a server processor 151, a server memory 152, a server transceiver 153. The electronic mixer 170 includes a mixer transceiver 171 and a mixer processor 172. The mixer processor 172 includes an internal clock 173.

[0010] In the preferred system 100, the earphones 110 is in communication with the user mobile device 130 through a network connection 120. In the earphones 110, the heart rate sensor 111 is electronically connected to the ADC 117. The heartbeat sensor 111 is electronically connected to the heart rate monitor 112. The heart rate monitor 112 is electronically connected to the heart rate transmitter 113. The heart rate monitor 112 is electronically coupled with the internal clock 118. Audio receiver 114 is electronically connected to the first audio output channel 115. Audio receiver 114 is electronically connected to the second audio output channel 116. In the user mobile device 130, the device

transceiver 131 is electronically coupled with the device processor 135. The device processor 134 is electronically coupled with the user interface 133. The device processor 134 is electronically coupled with the device memory 138. The device processor 134 is electronically coupled with the network controller 132. The device processor is electronically coupled with the internal clock 139. The network controller 132 is electronically coupled with the user interface 133.

[0011] In addition, the user mobile device 130 is in communication with the server 150 through network connection 140. The server processor 151 is electronically connected to the server memory 152. The server processor 151 is electronically connected to the server transceiver 153. The server memory 152 is electronically coupled with the server transceiver 153.

[0012] Additionally, the server 150 is in communication with the electronic mixer 170 through network connection 160. The mixer transceiver 171 is electronically coupled with the mixer processor 172. The mixer processor 172 is electronically coupled with the internal clock 173.

[0013] In operation, the system 100 involves fur main components: the earphones 110, the user mobile device 130, the server 150, and the electronic mixer 170. The heartbeat sensor 111 detects a user's heartbeat over a period of thirty seconds measured by the internal clock 118. The heartbeat sensor 111 creates an analog signal of the heartbeat data. The ADC 117 of the heartbeat sensor 111 converts the analog heartbeat data to a digital heartbeat data and transmits the heartbeat data to the heart rate monitor 112. The heart rate monitor 112 then transmits user's heart rate data to heart rate transmitter 113. The heart rate transmitter 113 transmits the heart rate data to the device transceiver 131 of the user

mobile device 130. The device transceiver 131 transmits heart rate data to the device processor 134. The device processor 134 calculates the current Heart Variability Value (HRV) data 232. The device processor 134 stores the current HRV data 232 in the device memory 138. The device processor 134 retrieves the HRV threshold data 231 (further discussed in Figure 4) from server memory 152. In particular, the server transceiver 153 transmits the HRV threshold data 231 to the device transceiver 131. The device processor 134 retrieves the HRV threshold data 231 from the device transceiver 131. The device processor 134 compares the current HRV data 232 with the HRV threshold data 231 from the user profile database 200. When the current HRV data 232 is lower than the HRV threshold data 231, the device processor 134 sends a visual alert to the user interface 133 (further discussed in Figure 9). The device processor 134 sends an audio alert to the first audio output channel 115 and the second audio output channel 116 (further discussed in Figure 9). The user interface 133 displays the screen as further discussed in Figure 7. A new composite audio file is created by selecting "Construct a New SoundPackage" button 709. The user interface 133 displays the screen as further discussed in Figure 5. The name field for the composite audio file 501, the base tone frequency field 504, the offset frequency field 505, the "on/off" field for overlay 506, the overlay category field 507, the overlay name field 508, the emphasis field for overlay 509, the "on/off" field for background 510, the background name field 511, the emphasis field for background 512, the "on/off" field for affirmation 513, the affirmation category field 514, the affirmation name field 515, and the emphasis field for affirmation 516 are stored onto the input database 214, as further discussed in Figure 5 and Figure 2. The server processor 151 retrieves the input database 214 and transmits to the server transceiver 153. The server

transceiver 153 transmits the input database 214 to the mixer transceiver 171. The mixer processor 172 retrieves the input database 214 and creates the composite audio file 234. The mixer processor 172 transmits the composite audio file 234 to the mixer transceiver 171. The mixer transceiver 171 transmits the composite audio file 234 to the server transceiver 153. The server transceiver 153 transmits the composite audio file 234 to the server processor 151. The server processor 151 stores the composite audio file 234 in the audio file database 233 (as further discussed in Figure 2). The device processor 134 retrieves the composite audio file 234 from the server memory 152. In particular, the server transceiver 153 transmits the composite audio file 234 to the device transceiver 131. The device transceiver 131 transmits the composite audio file 234 to the device processor 134. The device processor 134 stores the composite audio file 234 as the composite audio file 238 on the device memory 138. When the user selects to start the composite audio file playback on the visual alert on the user interface 133 (further discussed in Figure 7), the device processor 134 retrieves the composite audio file 238 and transmits the composite audio file 238 to the device transceiver 131. The device transceiver 131 transmits the composite audio file to the audio receiver 114. The audio receiver 114 outputs the composite audio file 234 into the first audio output channel 115 and the second audio output channel 116.

[0014] In an alternative embodiment of the present invention, "History" is selected on the user interface 133 to set an existing composite audio file as further discussed in Figure 6.

[0015] In an alternative embodiment of the present invention, the composite audio file 238 on the device memory is the sample audio file 254. In particular, the server

processor 151 retrieves the sample audio file 254 from the default database 250 in the server memory 152. The server processor 151 transmits the sample audio file 254 to the server transceiver 153. The server transceiver 153 transmits the sample audio file 254 to the device transceiver 131. The device transceiver 131 transmits the sample audio file 254 to the device processor 134. The device processor 134 stores the sample audio file 254 as the composite audio file 238 on the device memory 138.

[0016] In an alternative embodiment of the present invention, the connection 120 is an LTE connection, a Bluetooth connection, a Wi-Fi connection, a LAN connection, a network connection, or other similar connection.

[0017] In an alternative embodiment of the present invention, the connection 140 is an LTE connection, a Bluetooth connection, a Wi-Fi connection, a LAN connection, a network connection, or other similar connection.

[0018] In an alternative embodiment of the present invention, the audio receiver 114 is a transceiver.

[0019] In an alternative embodiment of the present invention, the user mobile device 130 is but not limited to a smartphone, table, computer, or any other portable electronic device.

[0020] In an alternative embodiment of the present invention, the device processor 134 compares the current HRV data 232 with the default HRV threshold data 229 when there is no HRV threshold data 231 set by the user or automatically calculated from HRV data of over ten hours.

[0021] In an alternative embodiment of the present invention, the electronic mixer 170 is but not limited to Soundation.

[0022] In an alternative embodiment of the present invention, the earphones 110 is but not limited to Jabra Elite Sport Earbuds, Bose SoundSport Pulse, Philips Action Fit.

[0023] Figure 2A illustrates the server memory 152 of the server 150 according to an embodiment of the present invention. The server memory 152 includes a user profile database 200 and a default database 250. The user profile database 200 includes a personal database 210, a default HRV data threshold 229, a sample HRV data 230, an HRV threshold data 231, an input database 214, an audio file database 233, an HRV look up table 239. The personal database 210 includes a username data 211, a password data 212, and an age data 213. In the preferred embodiment, the username data 211 is in string format, and the password data 212 is in string format. In the preferred embodiment, the age data 213 is in integer format from 0 to 120. The audio file database 233 includes a composite audio file 234. The composite audio file 234 includes a composite audio file name 235, a running time 236, an average HRV data 237, and an HRV table 238. In the preferred embodiment, the composite audio file name 235 are in string format. The running time 236 is in hours, minutes, seconds format. The average HRV data is in integer format.

[0024] Figure 2B illustrates the device memory 138 of the user mobile device 130 that is part of the system 100. The device memory 138 includes a current HRV data 232, a composite audio file 240, and an audio alert tone 241. In the preferred embodiment, the current HRV data is in integer format.

[0025] The input database 214 includes a name for the composite audio file 215, a base tone frequency 216, an offset frequency 217, an "on/off" field for overlay 218, an

overlay category 219, an overlay name 220, an emphasis for overlay 221, an "on/off" field for background 222, a background name 223, an emphasis for background 224, an "on/off" field for affirmation 225, an affirmation category 226, an affirmation name 227, and an emphasis for affirmation 228. In the preferred embodiment, the name for the composite audio file 215, the overlay name 220, the background name 223, and the affirmation name 227 are in string format. In the preferred embodiment, the overlay category 251 can be Synth, Piano, Asian, Country or any of the categories at random. In the preferred embodiment, the affirmation category 253 can be Feel Good, Relax, Guided Meditation, and AI Generated. In the preferred embodiment, the base tone frequency 216 is in an integer format from 100 to 800. In the preferred embodiment, the offset frequency 217 is in an integer format from 4 to 13. In the preferred embodiment, the emphasis for overlay 221, the emphasis for background 224, and the emphasis for affirmation 228 are in an integer format from 0 to 1600.

[0026] The default database 250 includes an overlay category 251, a background audio file 252, an affirmation category 253, and sample audio file 254. In the preferred embodiment, the overlay category 256 can be Synth, Piano, Asian, Country or any of the categories at random. The overlay category 251 includes an overlay audio file 255. In the preferred embodiment, the overlay audio file 255 is named in a string format. In the preferred embodiment, the background audio file 252 is named in a string format. In the preferred embodiment, the affirmation category 253 can be Feel Good, Relax, Guided Meditation, and AI Generated. The affirmation category 253 includes an affirmation audio file 256. In the preferred embodiment, the affirmation audio file 256 is named in a string format. In the preferred embodiment, the sample audio file 254 is named in a string format.

[0027] In operation, upon receiving the personal data from the user mobile device 130 including the username data 211, the password data 212, and the age data 213 through the network connection 140 from the device transceiver 131 of the user mobile device 130 to the server transceiver 153 on the server 150, the received data is stored in the personal database 210 within the user profile database 200. In particular, the device processor 134 retrieves the username data 211, the password data 212 and the age data 213 from the user interface 133. The device processor 134 transmits the username data 211, the password data 212 and the age data 213 to the device transceiver 131. The device transceiver 131 transmits the username data 211, the password data 212 and the age data 213 to the server transceiver 153. The server processor 151 retrieves the username data 211, the password data 212 and the age data 213 from the server transceiver 153. Upon receiving the age data 213 from the server transceiver 153, the server processor 151 outputs the default HRV threshold data 229. When the age data 213 is between 20 and 30, the default HRV threshold data 229 is 50. When the age data 213 is between 30 and 40, the default HRV threshold data 229 is 40. When the age data 213 is larger than 40, the default HRV threshold data 229 is 30. The server processor 151 stores the username data 211, the password data 212 and the age data 213 to the server memory 152 in the personal database 210 within the user profile database 200. The server processor 151 also stores the default HRV threshold data 229 to the server memory 152.

[0028] In further operation, upon receiving the input data through the user interface 133 of the user mobile device 130 through the network connection 140 from the device transceiver 134 of the user mobile device 130 to the server receiver 153 on the server 150, the received data is stored in the input database 214 within user profile database 200. In

This would work better after Figure 5

particular, the device processor 134 receives the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the "on/off" field for overlay 218, the overlay category 219, the overlay name 220, the emphasis for overlay 221, the "on/off" field for background 222, the background name 223, the emphasis for background 224, the "on/off" field for affirmation 225, the affirmation category 226, the affirmation name 227, and the emphasis for affirmation 228 from the user interface 133. The device processor 134 transmits the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the "on/off" field for overlay 218, the overlay category 219, the overlay name 220, the emphasis for overlay 221, the "on/off" field for background 222, the background name 223, the emphasis for background 224, the "on/off" field for affirmation 225, the affirmation category 226, the affirmation name 227, and the emphasis for affirmation 228 to the device transceiver 131. The device transceiver 131 transmits the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the "on/off" field for overlay 218, the overlay category 219, the overlay name 220, the emphasis for overlay 221, the "on/off" field for background 222, the background name 223, the emphasis for background 224, the "on/off" field for affirmation 225, the affirmation category 226, the affirmation name 227, and the emphasis for affirmation 228 to the server transceiver 153. The server processor 151 receivers the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the "on/off" field for overlay 218, the overlay category 219, the overlay name 220, the emphasis for overlay 221, the "on/off" field for background 222, the background name 223, the emphasis for background 224, the "on/off" field for affirmation 225, the affirmation category 226, the affirmation name 227, and the emphasis for affirmation 228

from the server transceiver 153. The server processor 151 stores the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the "on/off" field for overlay 218, the overlay category 219, the overlay name 220, the emphasis for overlay 221, the "on/off" field for background 222, the background name 223, the emphasis for background 224, the "on/off" field for affirmation 225, the affirmation category 226, the affirmation name 227, and the emphasis for affirmation 228 to the server memory 152 in the input database 214.

[0029] In further operation, the server processor 151 retrieves the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217 from the input database 214 in the server memory 152. The server processor 151 retrieves the on/off overlay 218 from the input database 214. If the on/off overlay 218 is "on", then server processor 151 retrieves the overlay category 219, the overlay name 220, and the emphasis for overlay 221. The server processor 151 retrieves the overlay category 251 from the default database 250 within the server memory 152 that matches the overlay category 219. The server processor 151 retrieves the overlay audio file 255 in the overlay category 251 from the server memory 152 with a file name that matches the overlay name 220. The server processor 151 retrieves the on/off background 222 from the input database 214. If the on/off background 222 is "on", then server processor 151 retrieves the background name 223 and the emphasis for background 224. The server processor 151 retrieves the background audio file 252 from the default database 250 within the server memory 152 with a file name that matches the background name 223. The server processor 151 retrieves the on/off affirmation 225 from the input database 214. If the on/off affirmation 225 is "on", then server processor 151 retrieves the affirmation category 226, the affirmation

name 227, and the emphasis for affirmation 228. The server processor 151 retrieves the affirmation category 253 from the default database 250 within the server memory 152 that matches the affirmation category 226. The server processor 151 retrieves the affirmation audio file 256 in the affirmation category 253 from the server memory 152 with a file name that matches the affirmation name 227.

[0030] In further operation, the server processor 151 transmits the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the overlay audio file 255, the emphasis for overlay 221, the background audio file 252, the emphasis for background 224, the affirmation audio file 256, and the emphasis for affirmation 228 to the server transceiver 153. The server transceiver 153 transmits the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the overlay audio file 255, the emphasis for overlay 221, the background audio file 252, the emphasis for background 224, the affirmation audio file 256, and the emphasis for affirmation 228 to the mixer transceiver 171 (further discussed in Figure 3). The server transceiver 153 receives the running time 235 and the composite audio file 234 named with the name for the composite audio file 215 from the mixer transceiver 171. The server processor 151 retrieves the receives the running time 236 and the composite audio file 234 from the server transceiver 153. The server processor 151 stores the running time 236 and the composite audio file 234 in the audio file database 233 within user profile database 200 of server memory 152.

[0031] In further operation, upon receiving the digital heartbeat data through the network connection 120 from the heart rate transmitter 113 of the earphones 110 to the device transceiver 131, the device processor 134 retrieves the digital heartbeat data from

the device transceiver 131. The device processor 134 calculates the HRV data and stores as the current HRV data 232 on the device memory 138.

[0032] In further operation, upon receiving the composite audio file 234 through the network connection 140 from the server transceiver 153 of the server 150 to the device transceiver 131, the device processor 134 retrieves the composite audio file 234 from the device transceiver 131. The device processor 134 stores the composite audio file 234 as the composite audio file 240 on the device memory 138.

[0033] In an alternative embodiment of the present invention, the server 150 includes more than one user profile database 200.

[0034] In an alternative embodiment of the present invention, the audio file database 233 includes more than one composite audio file 234.

[0035] In an alternative embodiment of the present invention, the overlay category 251, the background audio file 252, and the affirmation category 253 include more than one overlay audio file 255, more than one background audio file 252, and more than one affirmation audio file 256.

[0036] Figure 3 illustrates a flowchart 300 of a process for making the composite audio file 234. The process shown in the flowchart 300 involves steps at the user mobile device 130, the server 150 and the electronic mixer 170.

[0037] At the first step 301, the mixer processor 172 receives the name for the composite audio file 215, the base tone frequency 216, the offset frequency 217, the overlay audio file 255, the emphasis for overlay 221, the background audio file 252, the emphasis for background 224, the affirmation audio file 256, and the emphasis for affirmation 228

to the mixer transceiver 171. Next, at step 302, the mixer processor 172 calculates the running time of the overlay audio file 255, the background audio file 252, and the affirmation audio file 256. Next, at step 303, the mixer processor sets the running time 235 of composite audio file as the longest running time of the overlay audio file 255, the background audio file 252, and the affirmation audio file 256. Next, at step 304, the mixer processor 172 mixes the overlay audio file 255 with the emphasis for overlay 221, with the background audio file 252 with the emphasis for background 224, with the affirmation audio file 256 with the emphasis for affirmation, with the base tone frequency 216 and the offset frequency 217. Next, at step 305, the electronic mixer outputs the composite audio file 234 with the name for the composite audio file 215 and the running time 236 to the mixer transceiver 171.

[0038] Figure 4 illustrates a flowchart 400 of a process for setting HRV threshold data 231. The process shown in the flowchart 400 involve steps at the earphones 110, the user mobile device 130, and the server 150.

[0039] At the first step 401, the heartbeat sensor 111 detects a user's heartbeat for over thirty seconds. Next, at step 402, the heartbeat sensor 111 creates an analog signal of the heartbeat data. Next, at step 403, the ADC 117 of the heartbeat sensor 111 converts the analog heartbeat data to a digital heartbeat data. Next, at step 404, the ADC 117 of the heartbeat sensor 111 transmits the digital heartbeat data to the heart rate monitor 112. Next, at step 405, the heart rate monitor 112 then transmits user's heart rate data to heart rate transmitter 113. Next, at step 406, the heart rate transmitter 113 transmits the heart rate data to the device transceiver 131 of the user mobile device 130. Next, at step 407, the device transceiver 131 transmits heart rate data to the device processor 134. Next, at step

408, the device processor 134 calculates the current Heart Variability Value (HRV) data 232. Next, at step 409, the device processor 134 transmits the current HRV data 232 to the device transceiver 131. Next, at step 410, the device transceiver 131 transmits the current HRV data 232 to the server transceiver 153. Next, at step 411, the server transceiver 153 transmits the current HRV data 232 to the server processor 151. Next, at step 412, the server processor 151 stores the current HRV data 232 in the HRV lookup table 239 of the user profile database 200 in the server memory 152. Next, at step 413, the server processor 151 determines whether there are more than 120 current HRV data 232 stored in the HRV lookup table 239 in the server memory 152. If no, then the server processor 151 sends a signal to the device processor 134 to send a signal to the heartbeat sensor 111 to repeat step 401 through step 412. If yes, then the server processor 151 proceeds to step 414. At step 414, the server processor 151 retrieves the data from the HRV lookup table 239 in the server memory 152. Next, at step 415, the server processor 151 calculates the 25th percentile of the data from step 413. Next, at step 416, the server processor 151 stores the data from step 415 as the HRV threshold data 231 in the user profile database 200 in the server memory 200.

[0040] In an alternative embodiment of the present invention, at step 416, the server processor 151 stores the threshold HRV data field 706 inputted by the user as the HRV threshold data 231 in the server memory 152 as further discussed in Figure 7.

[0041] In an alternative embodiment of the present invention, at step 416, the server processor 151 stores the hourly HRV target 707 inputted by the user as the HRV threshold data 231 in the server memory 152 as further discussed in Figure 7.

[0042] Figure 5 illustrates the user interface 133 of the user mobile device 130 according to an embodiment of the present invention. Each input field represents data that will be associated with the input database 214. The input fields include a name field for the composite audio file 501, a "Rename" button 502, a "Save" button 503, a base tone frequency field 504, an offset frequency field 505, an "on/off" field for overlay 506, an overlay category field 507, an overlay name field 508, an emphasis field for overlay 509, an "on/off" field for background 510, a background name field 511, an emphasis field for background 512, an "on/off" field for affirmation 513, an affirmation category field 514, an affirmation name field 515, and an emphasis field for affirmation 516.

[0043] The name field for the composite audio file 502 represents the name of the composite audio file. In the preferred embodiment, the name data for the composite audio file 502 is in string, and the default name data is the date and time of name creation in integer format. The "Rename" button 502 represents the field selected by the user to modify the name field for the composite audio file 501. The "Save" button 503 represents the field selected by the user to associate the input data with the input database 214. The base tone frequency field 504 represents the frequency of base tone in the composite audio file 234 set by the user. In the preferred embodiment, the base tone frequency is between 100Hz and 800Hz. Also in the preferred embodiment, the initial base tone frequency is 432Hz. The offset frequency field 505 represents the offset between the frequencies in the composite audio file 234 set by the user. In the preferred embodiment, the offset frequency 505 is between 4Hz and 13Hz. Also in the preferred embodiment, the initial offset frequency is 10Hz.

[0044] The "on/off" field for overlay 506 represents the field selected by the user whether to add overlay audio file to the compsite audio file. The overlay category field 507 represents the categories of overlay selected by the user. In the preferred embodiment, the overlay category can be Synth, Piano, Asian, Country or any of the categories at random. The overlay name field 508 represents the name of the overlay selected by the user or at random. In the preferred embodiment, the name of the overlay is in string format. The emphasis field for overlay 509 represents the volume of the overlay set by the user. In the preferred embodiment the default emphasis of the overlay is twice the amplitude of base or beat tone.

[0045] The "on/off" field for background 510 represents the field selected by the user whether to add background audio file to the composite audio file. The background name field 511 represents the name of the background selected by the user. In the preferred embodiment the name of the background is in string format. The emphasis field for background 512 represents the volume of the background set by the user.

[0046] The "on/off" field for affirmation 513 represents the field selected by the user whether to add affirmation audio file to the composite audio file. The affirmation category field 514 represents the categories of affirmation selected by the user. In the preferred embodiment, the affirmation category can be Feel Good, Relax, Guided Meditation, and AI Generated. The affirmation name field 515 represents the name of the affirmation selected by the user. In the preferred embodiment, the name of the affirmation is in string format. The emphasis field for affirmation 516 represents volume of the affirmation set by the user.

[0047] In operation, as described with respect to the system 100 in Figure 1, a user is presented with this screen to create a composite audio file. The user selects the "Rename" button 502 to input a name for the composite audio file in the name field for the composite audio file 501. The user then uses from up and down arrows to set the base tone frequency and the offset frequency in base tone frequency field 504 and the offset frequency field 505. Additionally, when the user selects "On" for the "on/off" field for overlay 506, the user selects the overlay category from a scroll down menu in the overlay category field 507. The user then selects the overlay from a scroll down menu in the overlay name field 508. The user then uses from up and down arrows to set the emphasis for the overlay in the overlay emphasis field 509.

[0048] When the user selects "On" for the "on/off" field for background 510, the user then selects the background from a scroll down menu in the background name field 511. The user then uses from up and down arrows to set the emphasis for the background in the background emphasis field 512. When the user selects "On" for the "on/off" field for affirmation 513, the user selects the affirmation category from a scroll down menu in the affirmation category field 514. The user then selects the affirmation from a scroll down menu in the affirmation name field 515. The user then uses from up and down arrows to set the emphasis for the affirmation in the overlay emphasis field 516.

[0049] Once the user presses "Save" button 503, then a user data profile 200 is created. The name field for the composite audio file 501, a base tone frequency field 504, an offset frequency field 505, an "on/off" field for overlay 506, an overlay category field 507, an overlay name field 508, an emphasis field for overlay 509, an "on/off" field for background 510, a background name field 511, an emphasis field for background 512, an

"on/off" field for affirmation 513, an affirmation category field 514, an affirmation name field 515, and an emphasis field for affirmation 516 are transmitted from the user interface 133 to the device transceiver 131 and then transmitted from device transceiver 131 to server 150 through network connection 140.

[0050] In an alternative embodiment of the present invention, the background name field 511 includes, but not limited to, ocean, rain, thunderstorm, brook, and white noise.

[0051] In an alternative embodiment of the present invention, the affirmation category field 514 include drop down menus, but not limited to, three male voices, three female voice, other voice characteristics and accents.

[0052] In an alternative embodiment of the present invention, the affirmation category field 514 include, but not limited to, AI Generated. The user can input text in a text box from a drop down menu. The device processor 134 transmits the text input to the device transceiver 131. The device transceiver 131 transmits the text input to the server transceiver 153. The server transceiver 153 transmits the text input to the server processor 151. The server processor 151 queries a ChatGPT model using the text input to generate thirty phrases. The server processor 151 runs the thirty phrases through a voice model selected by the user in the affirmation category field drop down menu and saves as the affirmation audio file 256. The server processor 151 stores the affirmation audio file 256 in the default database 250 of the server memory 152.

[0053] In an alternative embodiment of the present invention, the affirmation category field 514 include drop down menus, but not limited to voices of celebrities.

[0054] In an alternative embodiment of the present invention, the overlay audio files include, but are not limited to, Beetles overlay and Lady Gage overlay.

[0055] Figure 6 illustrates the user interface 133 of the user mobile device 130 according to an embodiment of the present invention. Each output field represents data that will be associated with the audio file database 233. Each output field represents data that are associated with the composite audio file name 235, the running time 236, and the average HRV data 238, in the audio file database 233. The output fields include the composite audio file name field 601, running time field 602, and average HRV data field 603. The input button includes a "set" button 604. The composite audio file name field 601 represents the name of the composite audio file. In the preferred embodiment, the composite audio file name field 601 is in string format. The running time field 602 represents the running time of the composite audio file. In preferred embodiment, the running time field 602 is in hours, minutes, and seconds format. The average HRV data field 603 represents the average HRV during the activation of the composite audio file. The "set" button 604 represents the field selected by the user to associate the composite audio file name field 601 with the composite audio file name 235 in the audio file database 233.

[0056] In operation, as described with respect to the system 100 in Figure 1, a user is presented with this screen to set a composite audio file as the composite audio file to be activated. The server processor 151 retrieves the composite audio file 234, the composite audio file name 235, the running time 236, and average HRV data 237 from the audio file database 233 within server memory 152. The server processor 151 transmits the composite audio file 234, the composite audio file name 235, the running time 236, and the average

HRV data 237 to the server transceiver 153. The server transceiver 153 transmits the composite audio file 234, the composite audio file name 235, running time 236, and the average HRV data 237 to the device transceiver 131. The device processor 134 retrieves the composite audio file 234, the composite audio file name 235, running time 236, and the average HRV data 237 from the device transceiver 131. The device processor 134 transmits the composite audio file 234, the composite audio file name 235, running time 236, and the average HRV data 237 to the user interface 133. The device processor 134 stores the composite audio file 234 as the composite audio file 240 on the device memory 138. In particular, the composite audio file name 235 is outputted to the composite audio file name field 501, the running time 236 is outputted to the running time field 502, and the average HRV data 237 is outputted to the average HRV data field 503. When the user selects "set" button, the device processor 134 receives the composite audio file name 235 from the user interface 133. The device processor 134 retrieves the composite audio file 234 that matches the composite audio file name 235 from the device memory 138.

[0057] Figure 7 illustrates the user interface 133 of the user mobile device 130 according to an embodiment of the present invention. Each input and output field represents data that ~~will be associated~~ is stored with the user profile database 200. The input fields include a "start/stop" button 701 for activating therapy, a composite audio file name field 702, an "on/off" button 705 for monitoring stress, a threshold HRV data field 706, an "on/off" button 707 for activating hourly HRV targets, an earphone connection field 708, a button 709 to construct a new user profile for composite audio file, and a "History" button 710. The output fields include a listen time field 703, a previous HRV data field 711, a current HRV data field 704. The "start/stop" button 701 represents the field selected by the

user whether to start playing the composite audio file. The composite audio file name field 702 represents the name of the composite audio file. In the preferred embodiment, the composite audio file name field 702 is in string format. The "on/off" button 705 represents the field selected by the user whether to update HRV data every five minutes. The threshold HRV data field 706 represents the HRV threshold data set by the user. In preferred embodiment, the threshold HRV data field 706 is in integer format. The "on/off" button 707 represents the field selected by the user whether to update the HRV threshold data every hour. The earphone connection field 708 represents the device name of the earphones 110. The button 709 to construct a new user profile for composite audio file represents the user's selection to the user interface 133 as further discussed in Figure 5. The "History" button 710 represents the user's selection to the user interface 133 as further discussed in Figure 6. The listen time field 703 represents the duration of the composite audio file has been playing. The previous HRV data field 711 represents the HRV data measured at the start of the composite audio file playing. The current HRV data field 704 represents the current HRV data. In preferred embodiment, the listen time field 703 is in hours, minutes, and seconds format. The previous HRV data field 711 and the current HRV data field 704 are in integer format.

[0058] In operation, as described with respect to the system 100 in Figure 1, a user is presented with this screen to display the user's current HRV reading start playing the composite audio file. The server processor 151 retrieves the composite audio file 234 and the composite audio file name 235 from the audio file database 233 within server memory 152. The server processor 151 transmits the composite audio file 234 and the composite audio file name 235 to the server transceiver 153. The server transceiver 153 transmits the

composite audio file 234 and the composite audio file name 235 to the device transceiver 131. The device processor 134 retrieves the composite audio file 234 and the composite audio file name 235 from the device transceiver 131. The device processor 134 transmits the composite audio file name 235 to the user interface 133. In particular, the composite audio file name 235 is outputted to the composite audio file name field 702. When the user selects "start" on the "start/off" button 701 to start playing the composite audio file 234, the internal clock 139 of the device processor 134 starts tracking the time. The device processor 134 then outputs the time data as listen time field 703 on the user interface 133. The heartbeat sensor 111 detects a user's heartbeat over a period of thirty seconds measured by the internal clock 118. The heartbeat sensor 111 creates an analog signal of the heartbeat data. The ADC 117 of the heartbeat sensor 111 converts the analog heartbeat data to a digital heartbeat data and transmits the heartbeat data to the heart rate monitor 112. The heart rate monitor 112 then transmits user's heart rate data to heart rate transmitter 113. The heart rate transmitter 113 transmits the heart rate data to the device transceiver 131 of the user mobile device 130. The device transceiver 131 transmits heart rate data to the device processor 134. The device processor 134 calculates the current Heart Variability Value (HRV) data 232. The device processor 134 stores the current HRV data 232 in the device memory 138. The device processor 134 outputs the current HRV data 232 as the previous HRV data field 711 and the current HRV data field 704 on the user interface 133. The device processor 134 transmits the current HRV data 232 to the device transceiver 131. The device transceiver 131 transmits the current HRV data 232 to server transceiver 153. The server transceiver 153 transmits the current HRV data 232 to the server processor 151. The server processor 151 stores the current HRV data 232 in the HRV table 238 of

the audio file database 233 in the server memory 152. As every five minutes are accumulated on the internal clock 139 of the device processor 134, the device processor sends a signal to the heart rate monitor 112 to signal the heartbeat sensor 111 to detect a user's heartbeat over a period of thirty seconds measured by the internal clock 118. The heartbeat sensor 111 creates an analog signal of the heartbeat data. The ADC 117 of the heartbeat sensor 111 converts the analog heartbeat data to a digital heartbeat data and transmits the heartbeat data to the heart rate monitor 112. The heart rate monitor 112 then transmits user's heart rate data to heart rate transmitter 113. The heart rate transmitter 113 transmits the heart rate data to the device transceiver 131 of the user mobile device 130. The device transceiver 131 transmits heart rate data to the device processor 134. The device processor 134 calculates the current Heart Variability Value (HRV) data 232. The device processor 134 stores the current HRV data 232 in the device memory 138. The device processor 134 outputs the current HRV data 232 as the current HRV data field 704 on the user interface 133.

[0059] In further operation, when the user selects "on" of the "on/off" button 705 for monitoring stress, an audio alert and a visual alert will be displayed to the user when the current HRV data 232 is lower than the HRV threshold data 231 (as further discussed in Figure 9). The user uses the up and down arrow to input an integer value in increments from 20 to 100 into the HRV threshold data field 706 on the user interface 133. The device processor 134 then transmits the HRV threshold data field 706 to the device transceiver 131. The device transceiver 131 then transmits the HRV threshold data field 706 to the server transceiver 153. The server transceiver 153 transmits the HRV threshold data field 706 to the server processor 151. The server processor 151 stores the HRV threshold data

field 706 as the HRV threshold data 231 in the user profile database 200 of the server memory 152. When the user selects "on" of the "on/off" button 707 for activating hourly HRV targets, as every hour passes by the internal clock 139 of the device processor 134, the user uses the up and down arrow to input an integer for the HRV threshold data on the user interface 133.

[0060] Figure 8 illustrates a flowchart of a process for calculating average HRV data from a plurality of HRV data. The process shown in the flowchart 800 involves steps at the earphones 110, the device 130, and the server 150.

[0061] At the first step 801, the heartbeat sensor 111 detects a user's heartbeat for over thirty seconds. Next, at step 802, the heartbeat sensor 111 creates an analog signal of the heartbeat data. Next, at step 803, the ADC 117 of the heartbeat sensor 111 converts the analog heartbeat data to a digital heartbeat data. Next, at step 804, the ADC 117 of the heartbeat sensor 111 transmits the digital heartbeat data to the heart rate monitor 112. Next, at step 805, the heart rate monitor 112 then transmits user's heart rate data to heart rate transmitter 113. Next, at step 806, the heart rate transmitter 113 transmits the heart rate data to the device transceiver 131 of the user mobile device 130. Next, at step 807, the device transceiver 131 transmits heart rate data to the device processor 134. Next, at step 808, the device processor 134 calculates the current Heart Variability Value (HRV) data 232. Next, at step 809, the device processor 134 transmits the current HRV data 232 to the device transceiver 131. Next, at step 810, the device transceiver 131 transmits the current HRV data 232 to the server transceiver 153. Next, at step 811, the server transceiver 153 transmits the current HRV data 232 to the server processor 151. Next, at step 812, the server processor 151 stores the current HRV data 232 in the HRV table 238 of the audio

file database 233 in the server memory 152. Next, at the step 813, the server processor 151 determines whether there are more than two current HRV data 232 stored in the HRV table 238. If no, then the server processor sends a signal to the device processor 134 to send a signal to the heartbeat sensor 111 to repeat step 801 through step 812. If yes, then the server processor 151 proceeds to step 814. At step 814, the server processor 151 calculates the average of the data in the HRV table 238. Next, at step 815, the server processor 151 stores the data from the step 814 as the average HRV data 237 in the audio file database 233 in the server memory 152.

[0062] Figure 9 illustrates a flowchart 900 of a process for alerting user to ~~play the composite audio file. The~~ process shown in the flowchart 900 involves steps at the earphone 110, the device 130, and the server 150.

[0063] At the first step 901, the device processor 134 determine whether the current HRV data 232 in the device memory 138 is lower than the HRV threshold data 231 from the user profile database 200 on the server memory 152. If yes, then at step 902, the device processor 134 transmits a message to the user interface 133 to alert the user to activate the playback of the composite audio file 240, as further discussed in Figure 7. At step 903, the device processor 134 retrieves the audio alert tone 241 from the device memory 138. Next, at step 904, the device processor 134 transmits the audio alert tone 241 to the audio receiver 114. Next, at step 905, the audio receives 114 transmits the audio alert tone 241 to the first audio output channel 115 and the second audio output channel 116.

[0064] In an alternative embodiment of the present invention, the HRV threshold data 231 in the server memory 152 is the threshold HRV data field 706 inputted by the user as further discussed in Figure 7.

[0065] In an alternative embodiment of the present invention, the HRV threshold data 231 in the server memory 152 is the hourly HRV target 707 inputted by the user as further discussed in Figure 7.

[0066] While particular elements, embodiments, and applications of the present invention have been shown and described, it is understood that the invention is not limited thereto because modifications may be made by those skilled in the art, particularly in light of the foregoing teaching. It is therefore contemplated by the appended claims to cover such modifications and incorporate those features which come within the spirit and scope of the invention.

insert Verification for full patent

CLAIMS

1. A system comprising:

a set of earphones, wherein said set of earphones detects a plurality of a user's heartbeats, records the user's heartbeats data; and

a user mobile device, wherein said user mobile device receives the said heartbeats data from said set of earphones, calculates a heart rate variability (HRV) data, and when said HRV data is lower than a predetermined HRV threshold data, generates an audio alert to the said set of earphones.

2. The system of claim 1 wherein said user mobile device further includes a user interface, said user interface generates an alert to the user.

3. The system of claim 1 further includes a server, said server stores said predetermined HRV threshold data.

4. A method for increasing a user's heart rate variability (HRV), said method including:

detecting a plurality of a user's heartbeats to record the user's heartbeats data using a set of earphones;

transmitting said heartbeats data to a user mobile device;

calculating said HRV data using said user mobile device;

comparing said HRV data to a predetermined HRV threshold data using said user mobile device;

generating a composite audio file when said HRV data is lower than said predetermined HRV threshold data; and

stimulating a biaural beat in said user in response to receiving said composite audio file using said set of earphones where a first audio channel of said set of earphones includes a first frequency and a tone and where a second audio channel of said set of earphones includes a tone of a second frequency determined by a set frequency offset added to said first frequency.

5. The method of claim 4 further including:

adjusting said predetermined HRV threshold data using said user mobile device.

6. The method of claim 4 wherein generating a composite audio file includes mixing an overlay audio file, a background audio file, and an affirmation audio file using an electronic mixer.

7. A system for increasing a user's heart rate variability (HRV), said system including:

a set of earphones, wherein said set of earphones detects a plurality of a user's heartbeats, records the user's heartbeats data;

a user mobile device, wherein said user mobile device receives the said heartbeats data from said set of earphones, calculates a heart rate variability (HRV) data, and ~~generates a playback command~~ of a composite audio file when said HRV data is lower than a predetermined HRV threshold data;

a server, wherein said server stores said predetermined HRV threshold data; and

an electronic mixer, wherein said electronic mixer generates said composite audio file where a first tone includes a first frequency and where a second tone of a second frequency determined by a set frequency offset added to said first frequency.

8. The system of claim 7 wherein said user mobile device further includes a user interface, said user interface generates said playback command of said composite audio file to the user.

9. The system of claim 7 wherein said user mobile device is a smart phone.

10. The system of claim 7 wherein said server stores at least one said composite audio file.

ABSTRACT

A [method and/or system] is provided which [describe invention as claimed]

Figure 1

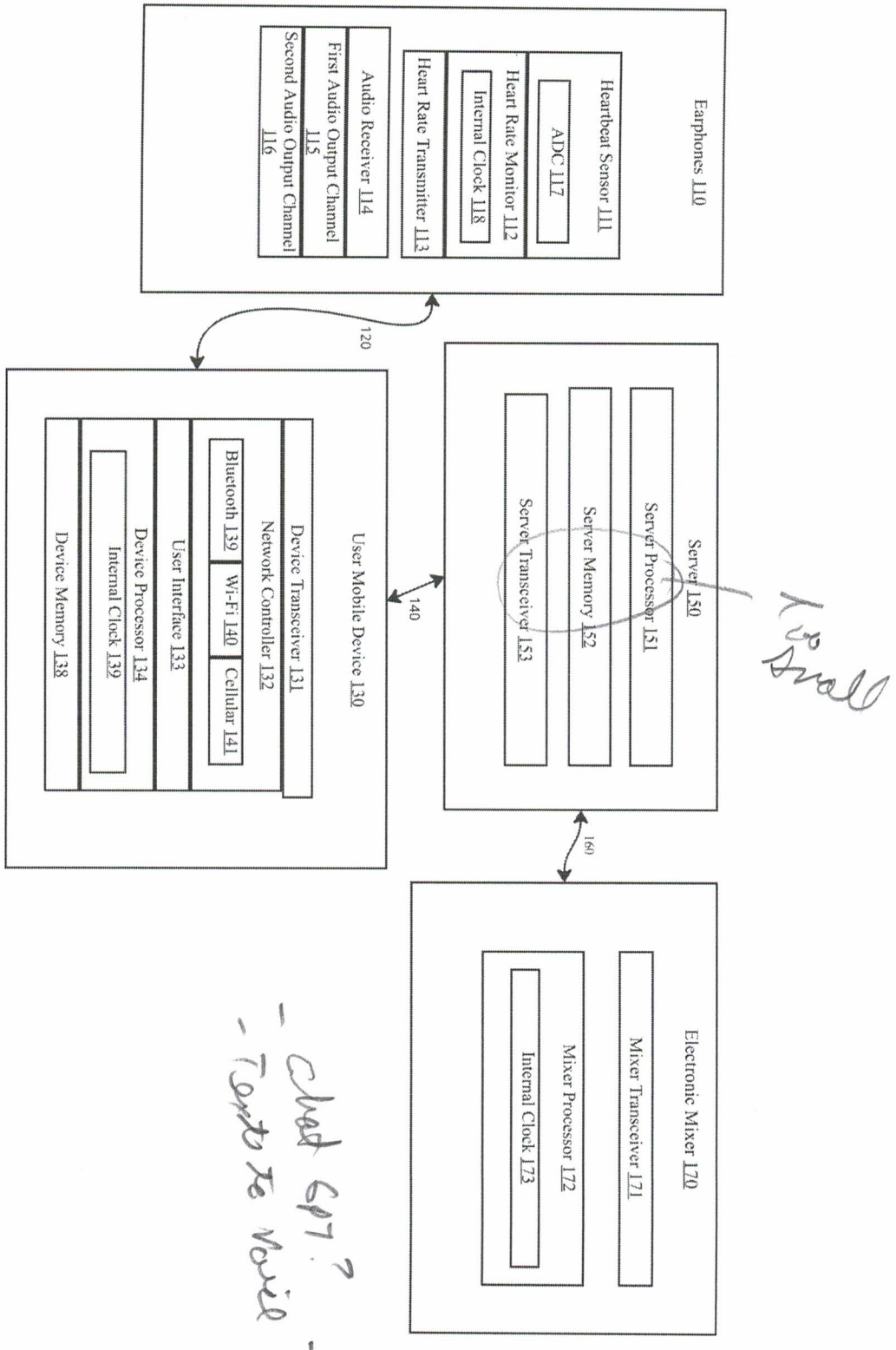

Earphones 110
Heartbeat Sensor 111
ADC 117
Heart Rate Monitor 112
Internal Clock 118
Heart Rate Transmitter 113
Audio Receiver 114
First Audio Output Channel 115
Second Audio Output Channel 116
120
Server 150
Server Processor 151
Server Memory 152
Server Transceiver 153
140
User Mobile Device 130
Device Transceiver 131
Network Controller 132
Bluetooth 139
Wi-Fi 140
Cellular 141
User Interface 133
Device Processor 134
Internal Clock 139
Device Memory 138
160
Electronic Mixer 170
Mixer Transceiver 171
Mixer Processor 172
Internal Clock 173

Figure 2A

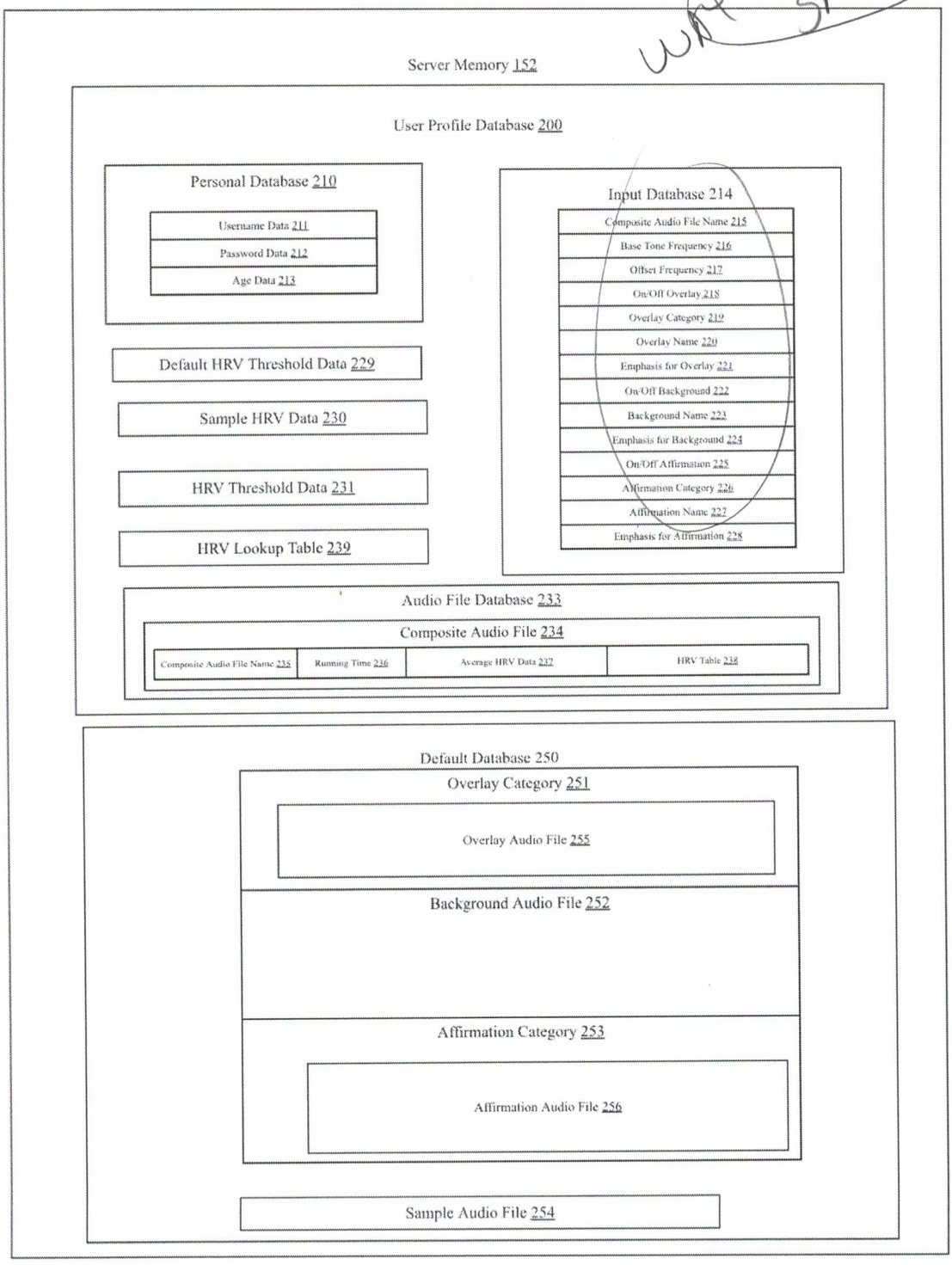

Server Memory 152
User Profile Database 200
Personal Database 210
Username Data 211
Password Data 212
Age Data 213
Input Database 214
Composite Audio File Name 215
Base Tone Frequency 216
Offset Frequency 217
On/Off Overlay 218
Overlay Category 219
Overlay Name 220
Emphasis for Overlay 221
On/Off Background 222
Background Name 223
Emphasis for Background 224
On/Off Affirmation 225
Affirmation Category 226
Affirmation Name 227
Emphasis for Affirmation 228
Default HRV Threshold Data 229
Sample HRV Data 230
HRV Threshold Data 231
HRV Lookup Table 239
Audio File Database 233
Composite Audio File 234
Composite Audio File Name 235
Running Time 236
Average HRV Data 237
HRV Table 238
Default Database 250
Overlay Category 251
Overlay Audio File 255
Background Audio File 252
Affirmation Category 253
Affirmation Audio File 256
Sample Audio File 254

Figure 2B

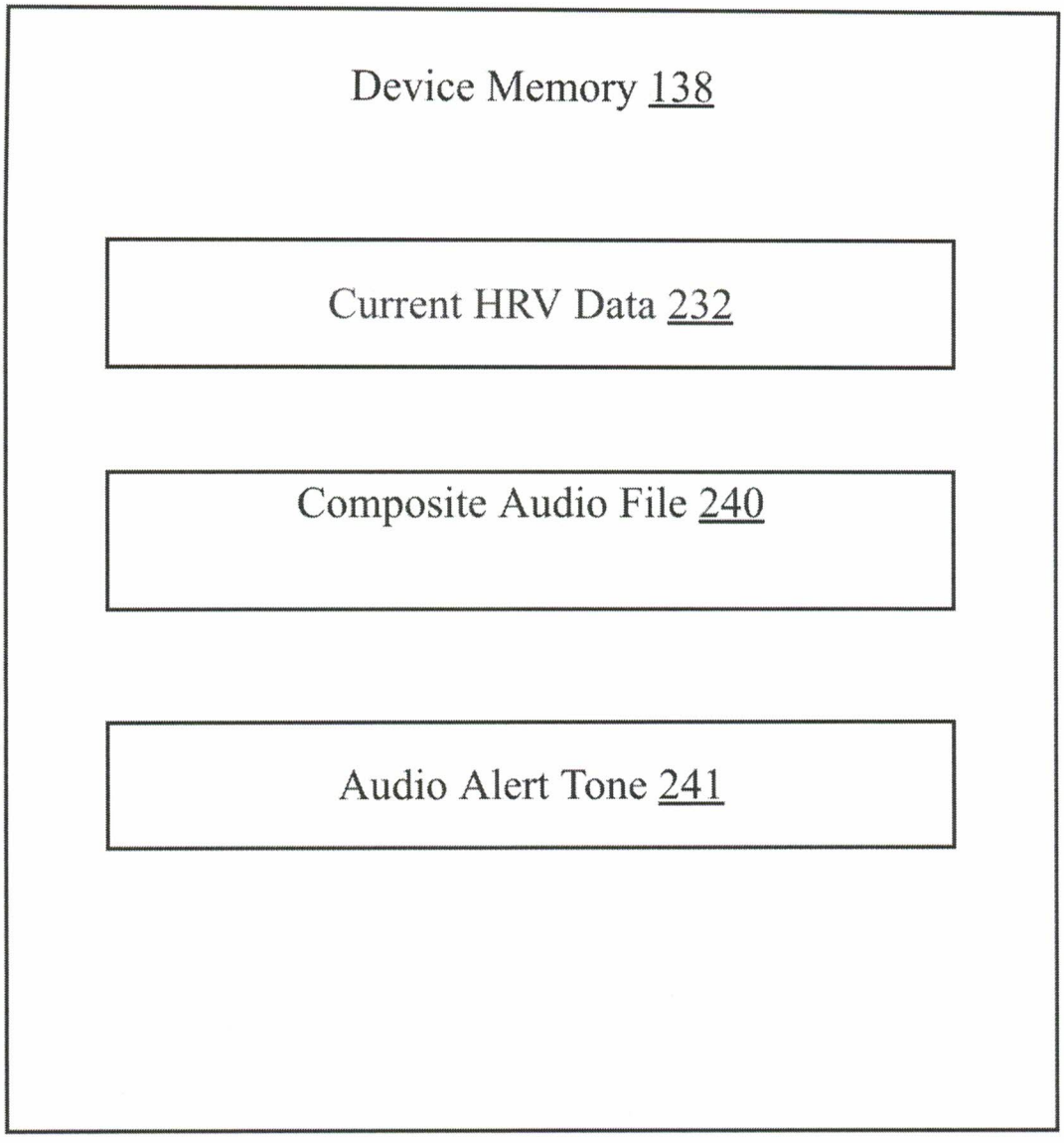

Device Memory 138
Current HRV Data 232
Composite Audio File 240
Audio Alert Tone 241

Figure 3

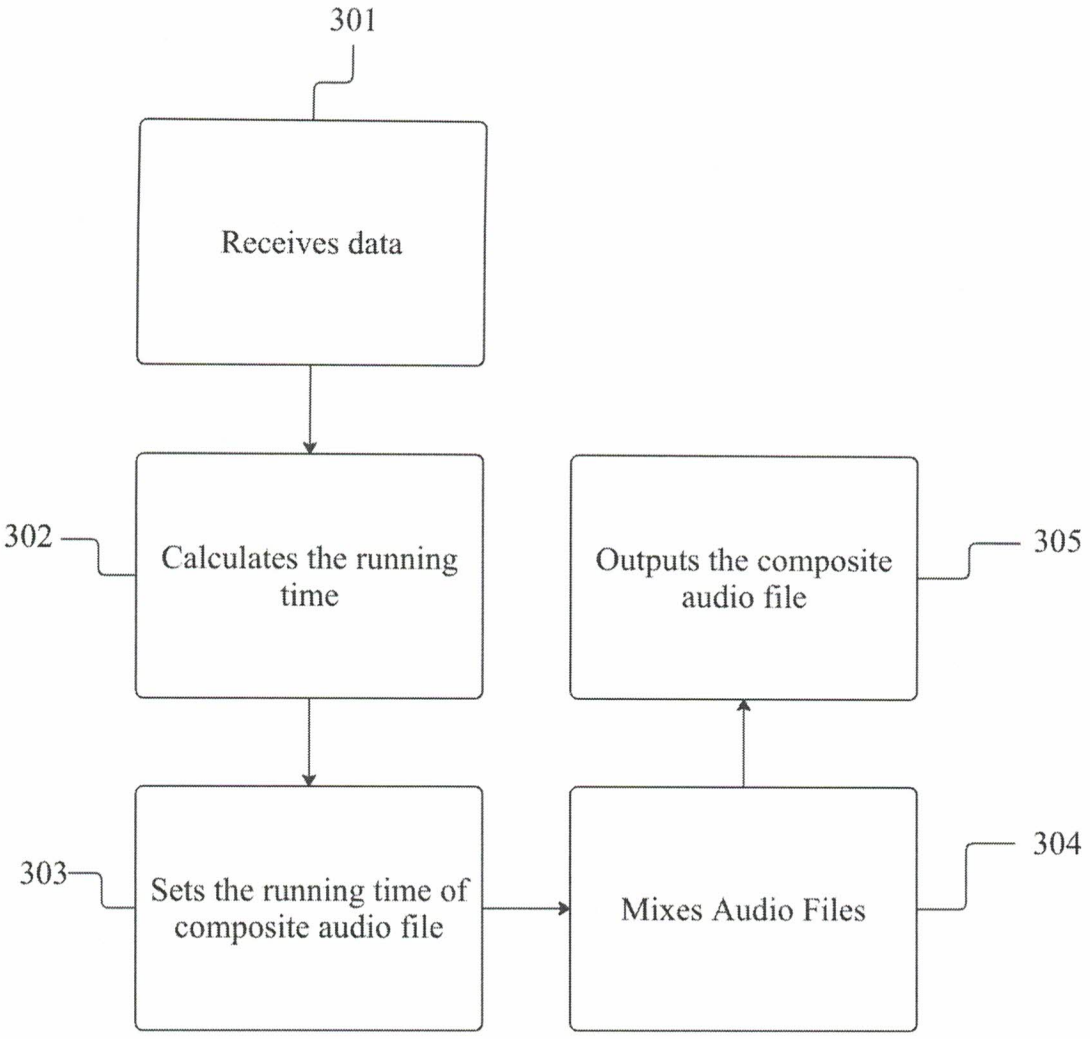

301
Receives data
302
Calculates the running time
303
Sets the running time of composite audio file
304
Mixes Audio Files
305
Outputs the composite audio file

Figure 4

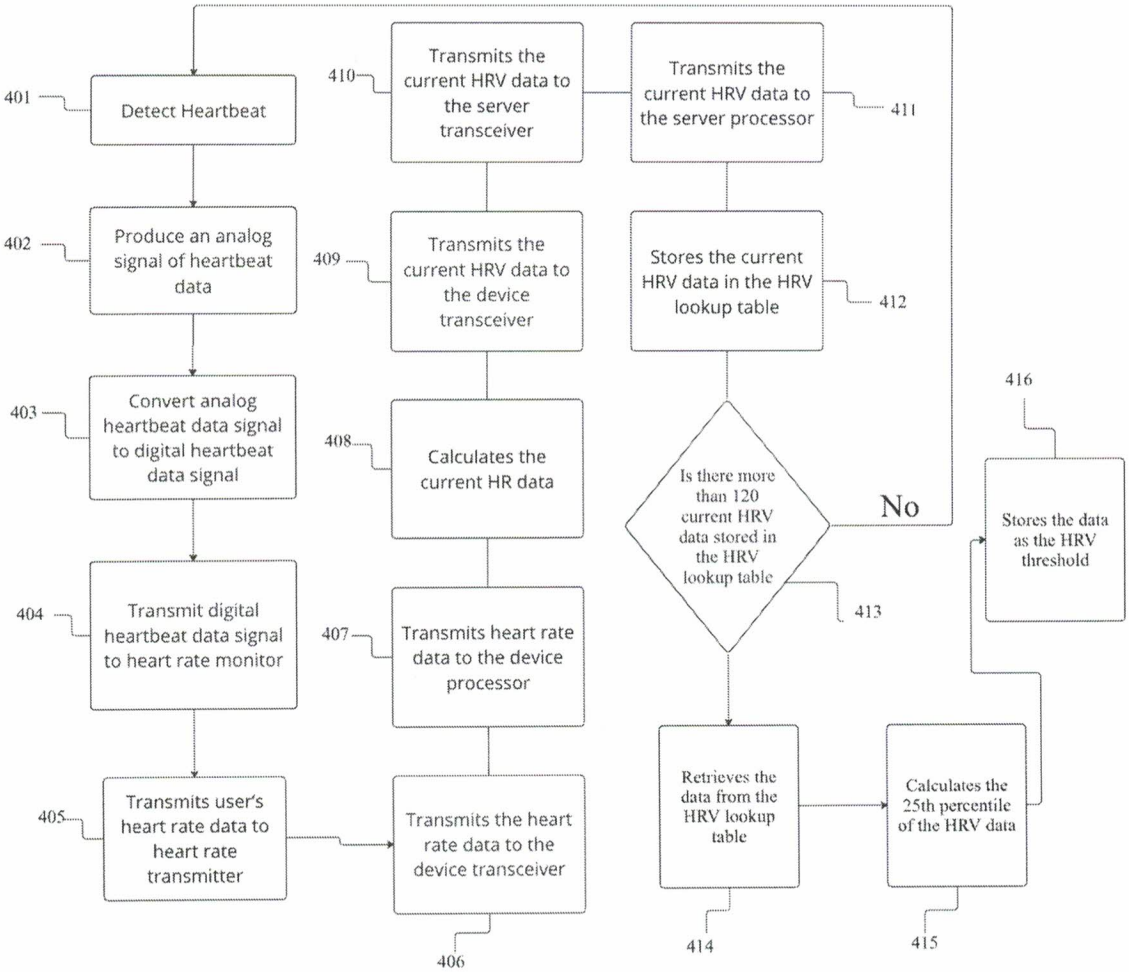

401
Detect Heartbeat
402
Produce an analog signal of heartbeat data
403
Convert analog heartbeat data signal to digital heartbeat data signal
404
Transmit digital heartbeat data signal to heart rate monitor
405
Transmits user's heart rate data to heart rate transmitter
406
Transmits the heart rate data to the device transceiver
407
Transmits heart rate data to the device processor
408
Calculates the current HR data
409
Transmits the current HRV data to the device transceiver
410
Transmits the current HRV data to the server transceiver
411
Transmits the current HRV data to the server processor
412
Stores the current HRV data in the HRV lookup table
413
Is there more than 120 current HRV data stored in the HRV lookup table
No
414
Retrieves the data from the HRV lookup table
415
Calculates the 25th percentile of the HRV data
416
Stores the data as the HRV threshold

Figure 5

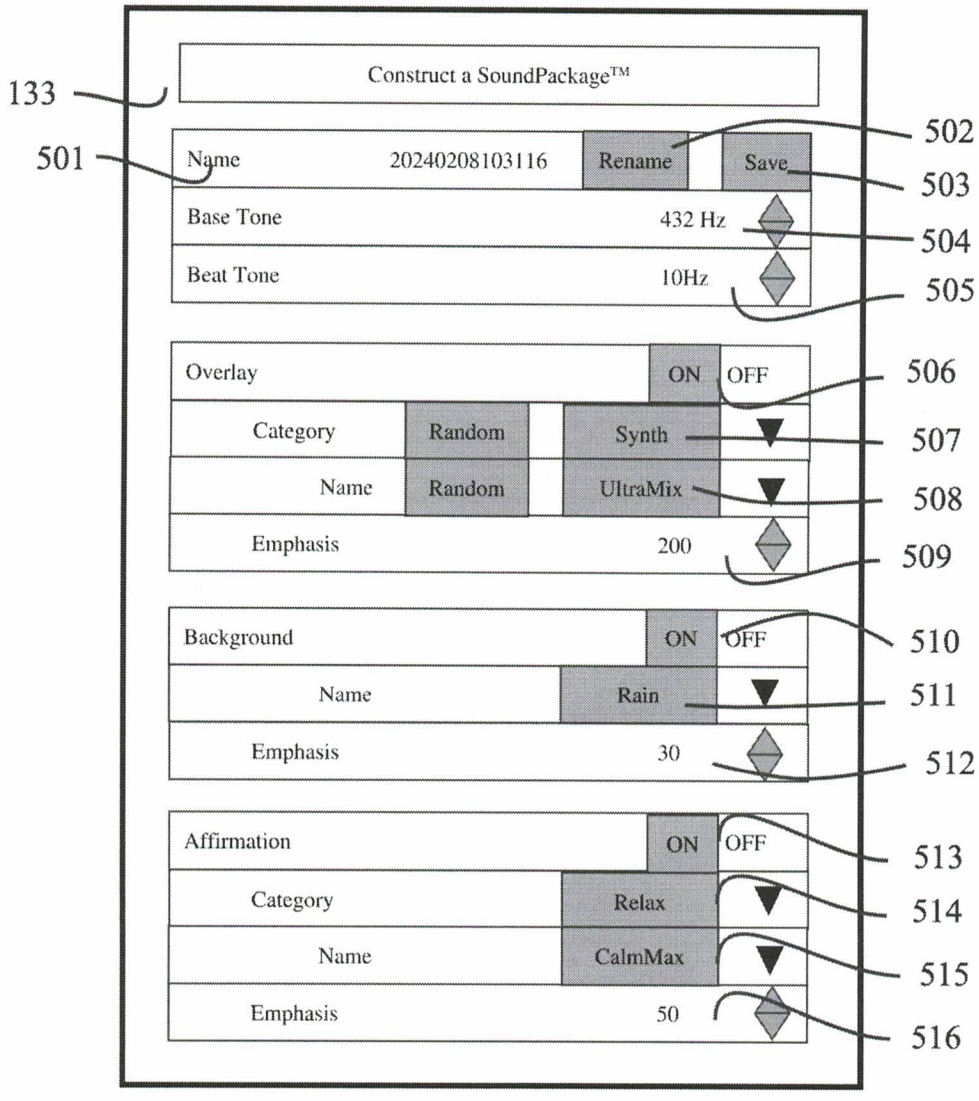

Construct a SoundPackage™
133
501
Name
20240208103116
Rename
Save
502
503
Base Tone
432 Hz
504
Beat Tone
10Hz
505
Overlay
ON
OFF
506
Category
Random
Synth
507
Name
Random
UltraMix
508
Emphasis
200
509
Background
ON
OFF
510
Name
Rain
511
Emphasis
30
512
Affirmation
ON
OFF
513
Category
Relax
514
Name
CalmMax
515
Emphasis
50
516

Figure 6

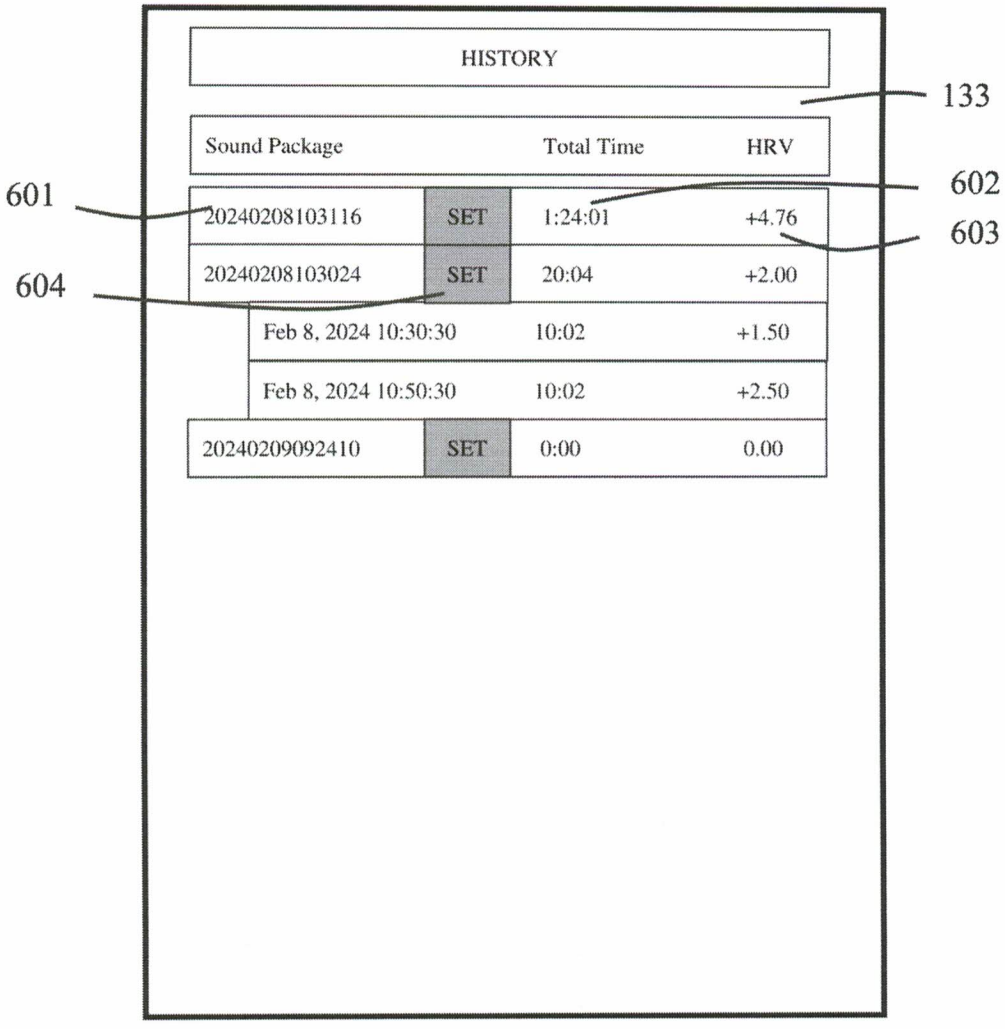

HISTORY
133
Sound Package
Total Time
HRV
601
602
603
604
20240208103116
SET
1:24:01
+4.76
20240208103024
SET
20:04
+2.00
Feb 8, 2024 10:30:30
10:02
+1.50
Feb 8, 2024 10:50:30
10:02
+2.50
20240209092410
SET
0:00
0.00

Figure 7

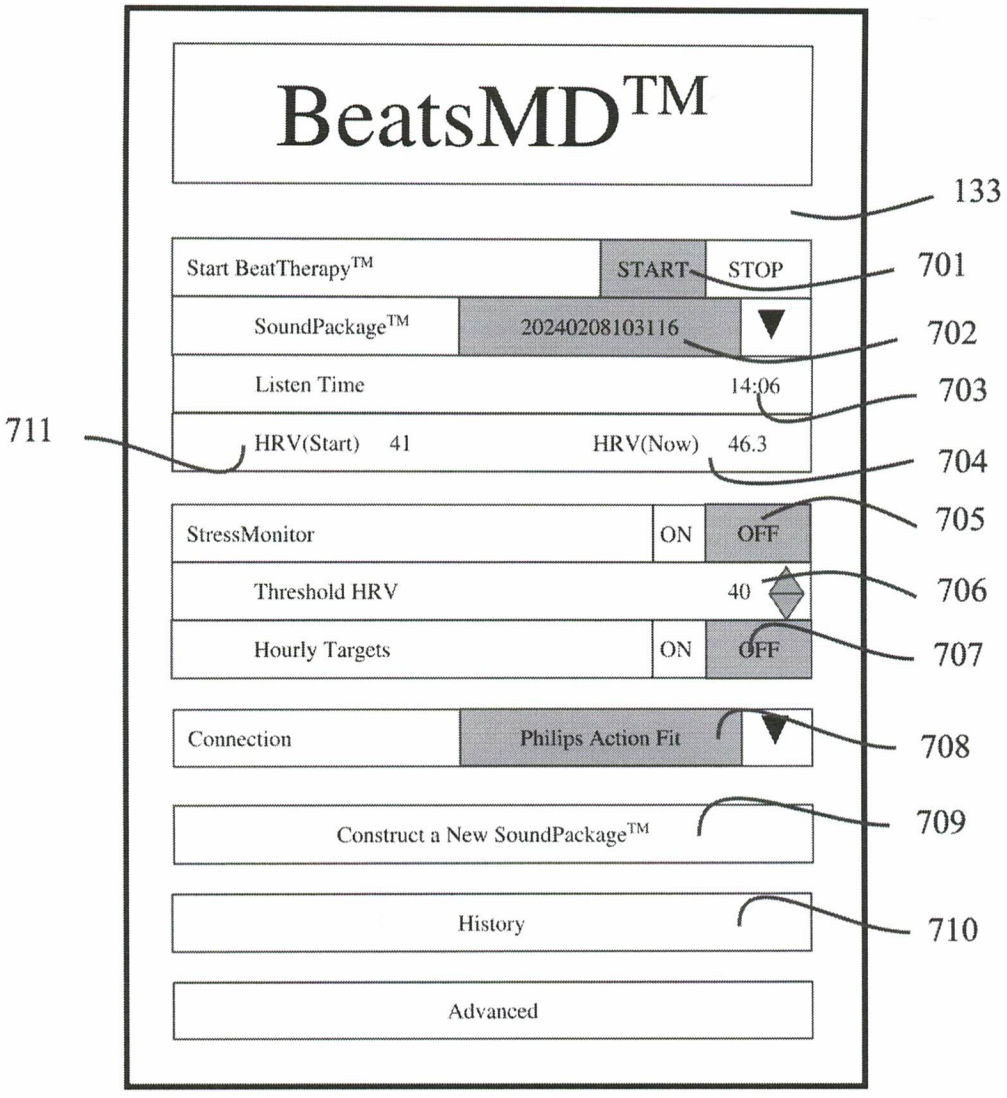

BeatsMD™
133
Start BeatTherapy™
START
STOP
701
SoundPackage™
20240208103116
702
Listen Time
14:06
703
711
HRV(Start) 41
HRV(Now) 46.3
704
StressMonitor
ON
OFF
705
Threshold HRV
40
706
Hourly Targets
ON
OFF
707
Connection
Philips Action Fit
708
Construct a New SoundPackage™
709
History
710
Advanced

Figure 8

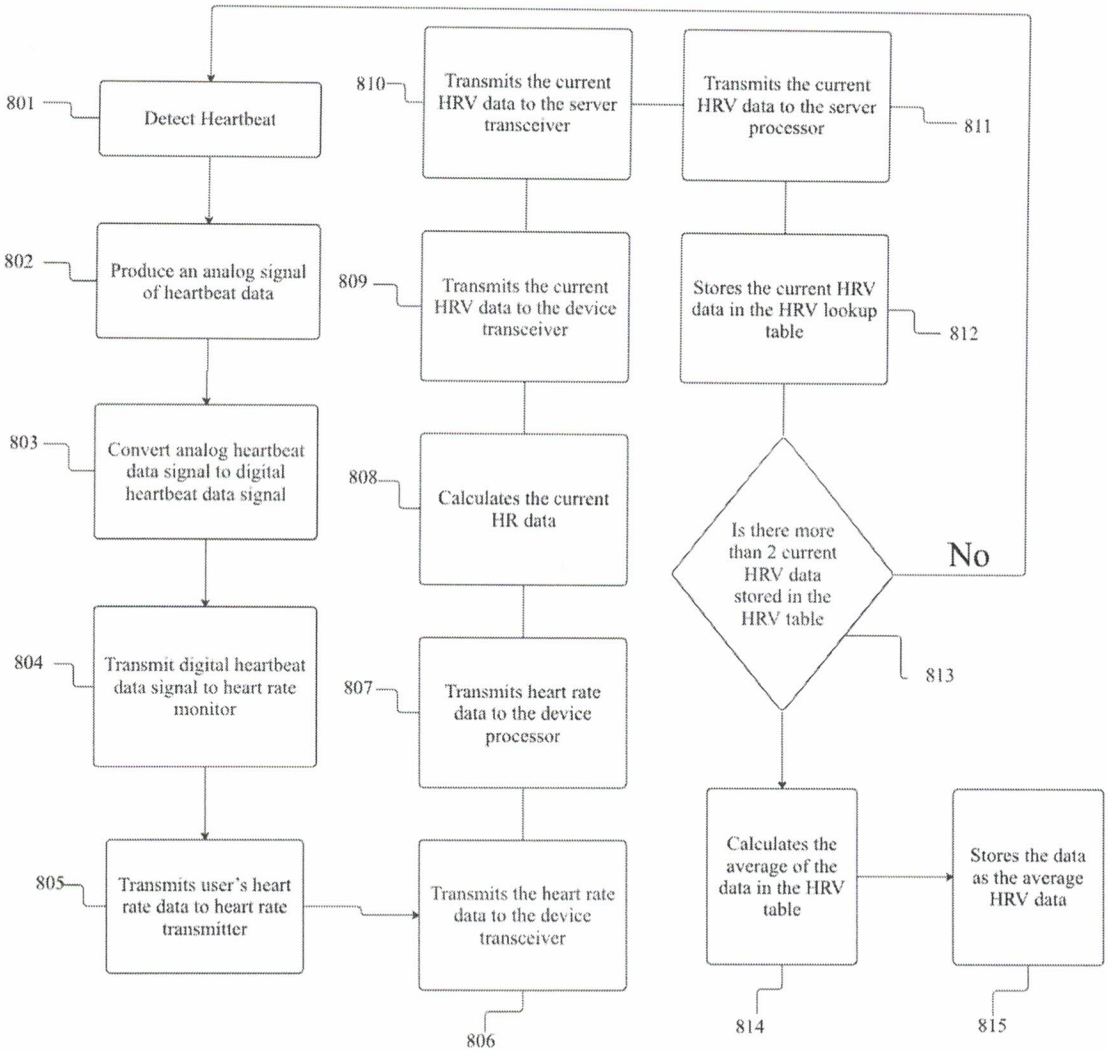
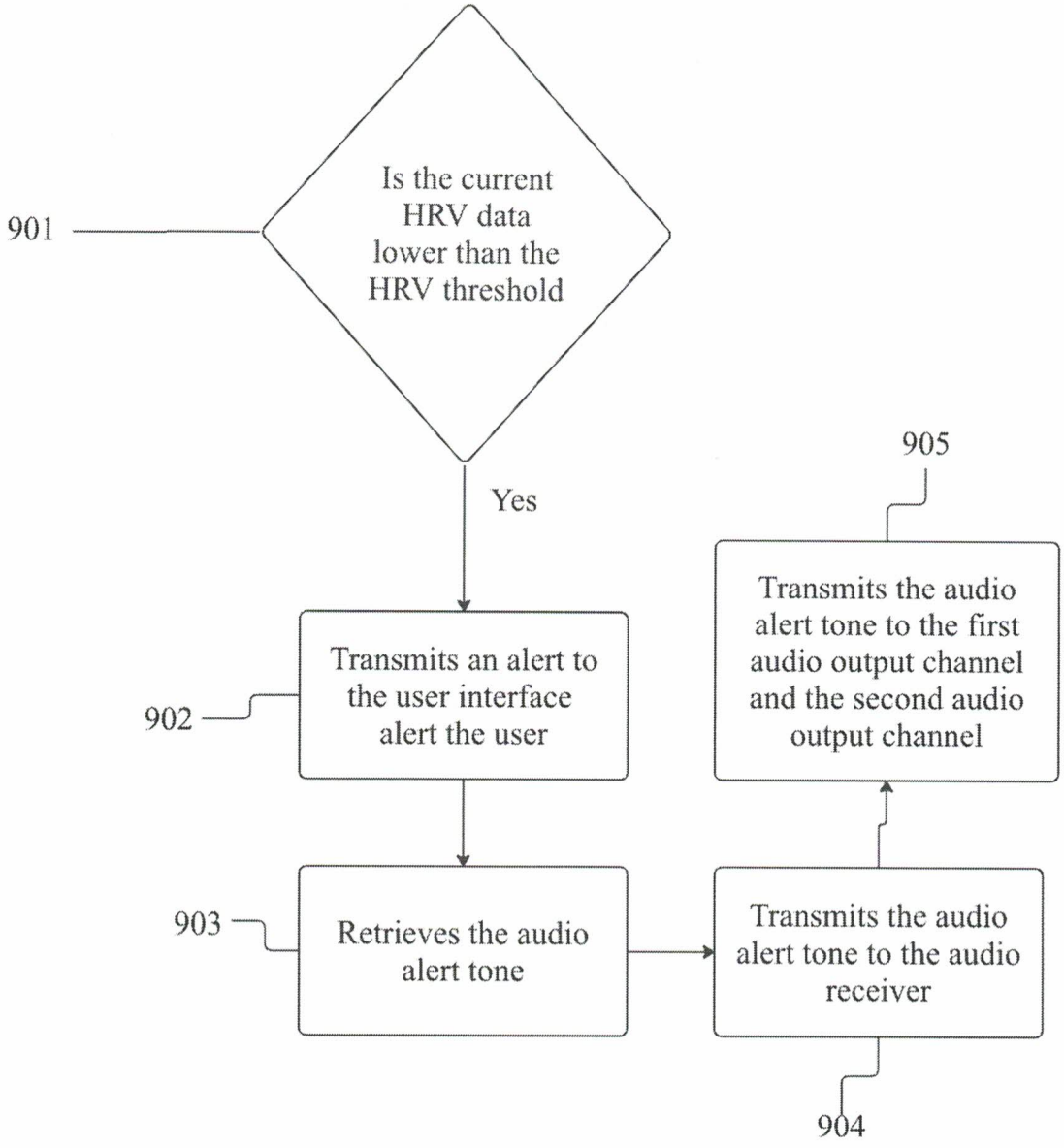

801
Detect Heartbeat
802
Produce an analog signal of heartbeat data
803
Convert analog heartbeat data signal to digital heartbeat data signal
804
Transmit digital heartbeat data signal to heart rate monitor
805
Transmits user's heart rate data to heart rate transmitter
806
Transmits the heart rate data to the device transceiver
807
Transmits heart rate data to the device processor
808
Calculates the current HR data
809
Transmits the current HRV data to the device transceiver
810
Transmits the current HRV data to the server transceiver
811
Transmits the current HRV data to the server processor
812
Stores the current HRV data in the HRV lookup table
813
Is there more than 2 current HRV data stored in the HRV table
No
814
Calculates the average of the data in the HRV table
815
Stores the data as the average HRV data

Figure 9


Is the current HRV data lower than the HRV threshold
901
Yes
Transmits an alert to the user interface alert the user
902
Retrieves the audio alert tone
903
Transmits the audio alert tone to the audio receiver
904
Transmits the audio alert tone to the first audio output channel and the second audio output channel
905