

TITLE OF INVENTION

Wireless Communication Headset System

CROSS REFERENCES TO RELATED APPLICATIONS

This PCT application claims priority to US non-provisional application number 16/813,980 that was filed by the applicant, Ronald Snagg, on March 10, 2020.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

Not Applicable

REFERENCE TO APPENDIX

Not Applicable

BACKGROUND OF THE INVENTION**FIELD OF THE INVENTION**

The present invention relates to the field of electricity and electric communication technique including wireless communication networks, more specifically, a direct mode connection management device. (H04W76/14)

SUMMARY OF INVENTION

The wireless communication headset system is a private communication system. The wireless communication headset system comprises a wireless routing device, a plurality of communication stations, and a plurality of wireless communication links. The wireless communication headset system supports audio and text-based communication between the plurality of communication stations. The wireless communication

1 headset system supports a broadcast model of communication. By
2 broadcast is meant that: a) any first individual communication
3 station selected from the plurality of communication stations
4 receives any audio and text-based message transmitted by any
5 second individual communication station selected from the
6 plurality of communication stations; and, b) any audio and text-
7 based message transmitted by any first individual communication
8 station selected from the plurality of communication stations is
9 received by all the unselected individual communication stations
10 remaining in the plurality of communication stations. The
11 wireless routing device establishes a wireless communication
12 link selected from the plurality of wireless communication link
13 with each individual communication station contained in the
14 plurality of communication stations. The wireless routing
15 device is a repeater that receives an audio or text-based
16 message from any first individual communication station selected
17 from the plurality of communication stations and retransmits the
18 received message to each individual communication station
19 remaining in the plurality of communication stations.

20 These together with additional objects, features and
21 advantages of the wireless communication headset system will be
22 readily apparent to those of ordinary skill in the art upon
23 reading the following detailed description of the presently

1 preferred, but nonetheless illustrative, embodiments when taken
2 in conjunction with the accompanying drawings.

3 In this respect, before explaining the current embodiments
4 of the wireless communication headset system in detail, it is to
5 be understood that the wireless communication headset system is
6 not limited in its applications to the details of construction
7 and arrangements of the components set forth in the following
8 description or illustration. Those skilled in the art will
9 appreciate that the concept of this disclosure may be readily
10 utilized as a basis for the design of other structures, methods,
11 and systems for carrying out the several purposes of the
12 wireless communication headset system.

13 It is therefore important that the claims be regarded as
14 including such equivalent construction insofar as they do not
15 depart from the spirit and scope of the wireless communication
16 headset system. It is also to be understood that the phraseology
17 and terminology employed herein are for purposes of description
18 and should not be regarded as limiting.

19 **BRIEF DESCRIPTION OF DRAWINGS**

20 The accompanying drawings, which are included to provide a
21 further understanding of the invention are incorporated in and
22 constitute a part of this specification, illustrate an
23 embodiment of the invention and together with the description
24 serve to explain the principles of the invention. They are

1 meant to be exemplary illustrations provided to enable persons
2 skilled in the art to practice the disclosure and are not
3 intended to limit the scope of the appended claims.

4 Figure 1 is a perspective view of an embodiment of the
5 disclosure.

6 Figure 2 is a perspective view of an embodiment of the
7 disclosure.

8 Figure 3 is a perspective view of an embodiment of the
9 disclosure.

10 Figure 4 is a schematic diagram of an embodiment of the
11 disclosure.

12 Figure 5 is a view of an embodiment of the disclosure.

13 **DETAILED DESCRIPTION OF THE EMBODIMENT**

14 The following detailed description is merely exemplary in
15 nature and is not intended to limit the described embodiments of
16 the application and uses of the described embodiments. As used
17 herein, the word "exemplary" or "illustrative" means "serving as
18 an example, instance, or illustration." Any implementation
19 described herein as "exemplary" or "illustrative" is not
20 necessarily to be construed as preferred or advantageous over
21 other implementations. All of the implementations described
22 below are exemplary implementations provided to enable persons
23 skilled in the art to practice the disclosure and are not
24 intended to limit the scope of the appended claims. Furthermore,

1 there is no intention to be bound by any expressed or implied
2 theory presented in the preceding technical field, background,
3 brief summary or the following detailed description.

4 Detailed reference will now be made to one or more
5 potential embodiments of the disclosure, which are illustrated
6 in Figures 1 through 5.

7 The wireless communication headset system 100 (hereinafter
8 invention) is a private communication system. The invention 100
9 comprises a wireless routing device 101, a plurality of
10 communication stations 102, and a plurality of wireless
11 communication links 103. The plurality of wireless
12 communication links 103 establishes communication links between
13 the wireless routing device 101 and each of the plurality of
14 communication stations 102.

15 The invention 100 supports audio and text-based
16 communication between the plurality of communication stations
17 102. The invention 100 supports a broadcast model of
18 communication. By broadcast is meant that: a) any first
19 individual communication station selected from the plurality of
20 communication stations 102 receives any audio or text-based
21 message transmitted by any second individual communication
22 station selected from the plurality of communication stations
23 102; and, b) any audio or text-based message transmitted by any
24 first individual communication station selected from the

1 plurality of communication stations is received by all the
2 unselected individual communication station remaining in the
3 plurality of communication stations 102.

4 The invention 100 further supports private communication
5 facility between a subset of communication stations selected
6 from the plurality of communication stations 102. By private
7 communication facility is meant that communications between the
8 communication stations contained in the subset of communication
9 stations selected from the plurality of communication stations
10 102 are broadcast on a separate communication channel such that
11 communications between the subset of communication stations not
12 accessible from any communication station not contained within
13 the subset of communication stations.

14 The wireless routing device 101 establishes a wireless
15 communication link selected from the plurality of wireless
16 communication links 103 with each individual communication
17 station contained in the plurality of communication stations
18 102. The wireless routing device 101 is a repeater that
19 receives an audio or text-based message from any first
20 individual communication station selected from the plurality of
21 communication stations 102 and retransmits the audio or text-
22 based message to each unselected individual communication
23 station remaining in the plurality of communication stations
24 102.

Each of the plurality of wireless communication links 103 is a structured data exchange mechanism that is established between the wireless routing device 101 and an individual headset 121 selected from the plurality of headsets 104. Each of the plurality of wireless communication links 103 uses a wireless IEEE 802.11x communication protocol such that a physical electric connection between any individual headset 121 selected from the plurality of communication stations 102 and the wireless routing device 101 is not required.

The wireless routing device 101 is an electrical device. The wireless routing device 101 acts as a repeater. The wireless routing device 101 establishes a wireless communication link selected from the plurality of wireless communication links 103 with each individual communication station selected from the plurality of communication stations 102. The wireless routing device 101 receives an audio message from any first individual communication station selected from the plurality of communication stations 102 and retransmits the audio message to each unselected individual communication station remaining in the plurality of communication stations 102. The wireless routing device 101 terminates the plurality of wireless communication links 103. Each wireless communication link established by the wireless routing device 101 uses an IEEE 802.11x communication protocol. The wireless routing device 101

1 is a commercially available electric device commonly sold as a
2 "WiFi™ router". The design and use of the wireless routing
3 device 101 described above are well-known and documented in the
4 electrical arts.

5 The wireless routing device 101 comprises a plurality of
6 routing transceivers 111, a logical device 112, and a reset
7 switch 113. The plurality of routing transceivers 111, the
8 logical device 112, and the reset switch 113 are electrically
9 interconnected.

10 Each of the plurality of routing transceivers 111 is an
11 electrical device. The transceiver is defined elsewhere in this
12 disclosure. Each of the plurality of routing transceivers 111
13 creates and maintains the plurality of wireless communication
14 links 103 between the wireless routing device 101 and the
15 plurality of communication stations 102. Each of the plurality
16 of routing transceivers 111 is a multichannel device. By
17 multichannel device is meant that each of the plurality of
18 routing transceivers 111 simultaneously manages and maintains
19 each of the multiple wireless communication links selected from
20 the plurality of wireless communication links 103 formed between
21 the plurality of communication stations 102 and the wireless
22 routing device 101.

23 The plurality of routing transceivers 111 comprises a
24 headset routing transceiver 114 and a text station routing

1 transceiver 115. The plurality of routing transceivers 111 may
2 operate in a fully wireless or wired capability.

3 The headset routing transceiver 114 is an electrical
4 device. The transceiver is defined elsewhere in this
5 disclosure. The headset routing transceiver 114 creates and
6 maintains the plurality of wireless communication links 103
7 between the wireless routing device 101 and the plurality of
8 headsets 104. The headset routing transceiver 114 is a
9 multichannel device. By multichannel device is meant that the
10 headset routing transceiver 114 simultaneously manages and
11 maintains each of the multiple wireless communication links
12 selected from the plurality of wireless communication links 103
13 formed between the plurality of communication stations 102 and
14 the wireless routing device 101.

15 The text station routing transceiver 115 is an electrical
16 device. The transceiver is defined elsewhere in this
17 disclosure. The text station routing transceiver 115 creates
18 and maintains the plurality of wireless communication links 103
19 between the wireless routing device 101 and the plurality of
20 text stations 105. The text station routing transceiver 115 is
21 a multichannel device. By multichannel device is meant that the
22 text station routing transceiver 115 simultaneously manages and
23 maintains each of the multiple wireless communication links
24 selected from the plurality of wireless communication links 103

1 formed between the plurality of communication stations 102 and
2 the wireless routing device 101.

3 The logical device 112 is an electric circuit. The logical
4 device 112 manages, regulates, and operates the wireless routing
5 device 101. The logical device 112 controls the operation of
6 the plurality of routing transceivers 111. The logical device
7 112 monitors the reset switch 113. The logic module 112
8 operates: a) a speech to text technology 701; and, b) a text to
9 speech technology 702. The speech to text technology 701 and
10 the text to speech technology 702 are known technologies used in
11 speech recognition systems. The logic module 112 processes
12 audio messages received from the plurality of headset 104
13 through the speech to text technology 701 such that the logic
14 module 112 transmits a text translation of the received audio
15 message to the plurality of text stations 105 through the text
16 station routing transceiver 115. The logic module 112 processes
17 text-based messages received from the plurality of text stations
18 105 through the text to speech technology 102 such that the
19 logic module 112 transmits an audio transcription of the
20 received text-based message to the plurality of headsets 104
21 through the headset routing transceiver 114.

22 The reset switch 113 is a momentary switch. The actuation
23 of the reset switch 113 indicates to the logical device 112 that
24 the plurality of routing transceivers 111 should terminate each

1 individual wireless communication link selected from the
2 plurality of wireless communication links 103 such that the
3 communication network formed by the invention 100 is shut down.
4 The communication network is then reestablished by
5 reestablishing each individual wireless communication link
6 selected from the plurality of wireless communication links 103.

7 The plurality of communication stations 102 comprises a
8 plurality of headsets 104 and a plurality of text stations 105.

9 Each of the plurality of headsets 104 is a hands-free
10 communication device selected from the group consisting of
11 earbuds and headphones. The term earbuds are defined elsewhere
12 in this disclosure. The term headphones are defined elsewhere
13 in this disclosure. Each of the plurality of headsets 104 forms
14 a wireless communication link selected from the plurality of
15 wireless communication links 103 with the wireless routing
16 device 101. Each wireless communication link uses an IEEE
17 802.11x communication protocol. The plurality of headsets 104
18 comprises a collection of individual headsets 121.

19 Each of the plurality of headsets 104 is a hands-free
20 communication device selected from the group consisting of
21 earbuds and headphones. The term earbuds are defined elsewhere
22 in this disclosure. The term headphones are defined elsewhere
23 in this disclosure. Each of the plurality of headsets 104 forms
24 a wireless communication link selected from the plurality of

1 wireless communication links 103 with the wireless routing
2 device 101. Each wireless communication link uses an IEEE
3 802.11x communication protocol. Each of the plurality of
4 headsets 104 generates the audio message transmitted over the
5 wireless communication link. Each of the plurality of headsets
6 104 announces any audio messages received over the wireless
7 communication link.

8 Any first individual headset 121 selected from the
9 plurality of headsets 104 transmits an audio message over the
10 wireless communication link to the wireless routing device 101.
11 Any first individual headset 121 selected from the plurality of
12 headsets 104 receives any audio messages transmitted over the
13 wireless communication link by the wireless routing device 101
14 that were transmitted by any second individual headset 121
15 selected from the plurality of headsets 104.

16 The plurality of headsets 104 comprises a collection of
17 individual headsets 121.

18 The individual headset 121 is a wireless communication
19 device. The individual headset 121 is selected from the group
20 consisting of headphones and earbuds. The individual headset
21 121 establishes a wireless communication link selected from the
22 plurality of wireless communication links 103 with the wireless
23 routing device 101. The individual headset 121 generates and
24 transmits an audio message to the wireless routing device 101

1 over the wireless communication link. The individual headset
2 121 receives an audio message that is transmitted from the
3 wireless routing device 101 over the wireless communication
4 link. Each individual headset 121 further comprises an
5 individual headset 121 transceiver 122, an individual headset
6 121 speaker 123, an individual headset 121 microphone 124, an
7 individual headset 121 linking switch 125, and an individual
8 headset 121 near field communication circuit 126. The
9 individual headset 121 transceiver 122, the individual headset
10 121 speaker 123, the individual headset 121 microphone 124, the
11 individual headset 121 linking switch 125, and the individual
12 headset 121 near field communication circuit 126 are
13 electrically interconnected.

14 The individual headset 121 transceiver 122 is an electrical
15 device. The transceiver is defined elsewhere in this
16 disclosure. The individual headset 121 transceiver 122 creates
17 and maintains the wireless communication link selected from the
18 plurality of wireless communication links 103 between the
19 wireless routing device 101 and the individual headset 121
20 transceiver 122.

21 The individual headset 121 speaker 123 is a transducer.
22 The individual headset 121 speaker 123 receives electrical
23 signals from the individual headset 121 transceiver 122. The
24 individual headset 121 speaker 123 converts the received

1 electrical signals into acoustic energy that is used to announce
2 the received audio message.

3 The individual headset 121 microphone 124 is a transducer.
4 The individual headset 121 microphone 124 detects acoustic
5 energy in the vicinity of the individual headset 121 and
6 converts the detected acoustic energy into an electric signal.
7 The individual headset 121 microphone 124 transmits the
8 generated electric signal to the individual headset 121
9 transceiver 122. The individual headset 121 transceiver 122
10 transmits the received electric signals to the wireless routing
11 device 101 over the wireless communication link as an audio
12 message.

13 The individual headset 121 transceiver 122 monitors the
14 individual headset 121 linking switch 125. The individual
15 headset 121 linking switch 125 is a momentary switch. The
16 actuation of the individual headset 121 linking switch 125
17 indicates to the individual headset 121 transceiver 122 that the
18 individual headset 121 should establish a wireless communication
19 link selected from the plurality of wireless communication links
20 103 with the wireless routing device 101 such that the
21 individual headset 121 joins the communication network formed by
22 the invention 100.

23 The individual headset 121 near field communication circuit
24 126 is an implementation of an RFID (Radio Frequency

1 Identification) technology known as Near Field Communication.
2 The terms RFID and Near Field Communication are defined
3 elsewhere in this disclosure. The individual headset 121 near
4 field communication circuit 126 establishes the initial subset
5 of communication stations selected from the plurality of
6 communication stations 102 used to operate the private
7 communication facility.

8 The actuation of the individual headset 121 linking switch
9 125 initiates the transmission of an RFID interrogation signal
10 by the individual headset 121 near field communication circuit
11 126 of the transmitting individual headset 121. If a receiving
12 individual head set 121 is within the effective range of the
13 transmitting head set 121 (typically 10 cm), then the receiving
14 individual head set 121: a) identifies and available
15 communication channel that is separate from the current
16 broadcast channel; b) changes operation to the identified
17 separate communication channel; and, c) transmits to the
18 transmitting individual headset 121 the identified separate
19 communication channel. Upon receipt of the RFID response,
20 transmitting individual headset 121 changes operation to the
21 identified separate communication channel thereby establishing
22 the initial subset of communication stations selected from the
23 plurality of communication stations 102 using the private
24 communication facility.

1 To add additional communication stations selected from the
2 plurality of communication stations 102, the communication
3 station to be added actuation of the individual headset 121
4 linking switch 125 thereby initiating the transmission of an
5 RFID interrogation signal by the individual headset 121 near
6 field communication circuit 126 to become the transmitting
7 individual headset 121. If the receiving individual head set
8 121 is already a member of an existing subset of communication
9 stations selected from the plurality of communication stations
10 102 using the private communication facility, then the
11 individual headset 121 near field communication circuit 126 of
12 the receiving individual headset 121 transmits to the individual
13 headset 121 near field communication circuit 126 of the
14 transmitting individual headset 121 the communication channel
15 information of the existing subset of communication stations
16 associated with the private communication facility.

17 The procedure described in the previous three paragraphs
18 work for all communication stations selected from the plurality
19 of communication stations 102 independent of whether the
20 communication station is selected from the plurality of headsets
21 104 or the plurality of text stations 105.

22 In the first potential embodiment of the disclosure, the
23 plurality of headsets 104 comprises a first headset 131 and a
24 second headset 141.

1 The first headset 131 further comprises a first headset 131
2 transceiver 132, a first headset 131 speaker 133, a first
3 headset 131 microphone 134, and a first headset 131 linking
4 switch 135, and a first headset 131 near field communication
5 circuit 136. The first headset 131 transceiver 132, the first
6 headset 131 speaker 133, the first headset 131 microphone 134,
7 the first headset 131 linking switch 135, and the first headset
8 131 near field communication circuit 136 are electrically
9 interconnected.

10 The first headset 131 is a headset used to join the
11 communication network formed by the invention 100. The first
12 headset 131 transceiver 132 is the individual headset 121
13 transceiver 122 associated with the first headset 131. The
14 first headset 131 speaker 133 is the individual headset 121
15 speaker 123 associated with the first headset 131. The first
16 headset 131 microphone 134 is the individual headset 121
17 microphone 124 associated with the first headset 131. The first
18 headset 131 linking switch 135 is the individual headset 121
19 linking switch 125 associated with the first headset 131. The
20 first headset 131 near field communication circuit 136 is the
21 individual headset 121 near field communication circuit 126
22 associated with the first headset 131.

23 The second headset 141 further comprises a second headset
24 141 transceiver 142, a second headset 141 speaker 143, a second

1 headset 141 microphone 144, and a second headset 141 linking
2 switch 145, and a second headset 141 near field communication
3 circuit 146. The second headset 141 transceiver 142, the second
4 headset 141 speaker 143, the second headset 141 microphone 144,
5 the second headset 141 linking switch 145, and the second
6 headset 141 near field communication circuit 146 are
7 electrically interconnected.

8 The second headset 141 is a headset used to join the
9 communication network formed by the invention 100. The second
10 headset 141 transceiver 142 is the individual headset 121
11 transceiver 122 associated with the second headset 141. The
12 second headset 141 speaker 143 is the individual headset 121
13 speaker 123 associated with the second headset 141. The second
14 headset 141 microphone 144 is the individual headset 121
15 microphone 124 associated with the second headset 141. The
16 second headset 141 linking switch 145 is the individual headset
17 121 linking switch 125 associated with the second headset 141.
18 The second headset 141 near field communication circuit 146 is
19 the individual headset 121 near field communication circuit 126
20 associated with the second headset 141.

21 Each of the plurality of text stations 105 is a text-based
22 communication device selected from the group consisting of
23 earbuds and headphones. The term earbuds are defined elsewhere
24 in this disclosure. The term headphones are defined elsewhere

1 in this disclosure. Each of the plurality of text stations 105
2 forms a wireless communication link selected from the plurality
3 of wireless communication links 103 with the wireless routing
4 device 101. Each wireless communication link uses an IEEE
5 802.11x communication protocol. The plurality of text stations
6 105 comprises a collection of individual text stations 521.

7 The individual text station 521 is a wireless communication
8 device. The individual text station 521 establishes a wireless
9 communication link selected from the plurality of wireless
10 communication links 103 with the wireless routing device 101.
11 The individual text station 521 generates and transmits a text-
12 based message to the wireless routing device 101 over the
13 wireless communication link. The individual text station 521
14 receives the text-based message that is transmitted from the
15 wireless routing device 101 over the wireless communication
16 link. The individual text station 521 transceiver 522 creates
17 and maintains the wireless communication link selected from the
18 plurality of wireless communication links 103 between the text
19 station routing transceiver 115 and each individual text station
20 521 transceiver 522.

21 Any first individual text station 521 selected from the
22 plurality of text stations 105 transmits a text-based message
23 over the wireless communication link to the wireless routing
24 device 101. Any first individual text station 521 selected from

1 the plurality of text stations 105 receives any text-based
2 messages transmitted over the wireless communication link by the
3 wireless routing device 101 that were transmitted by any second
4 individual text station 521. Each of the plurality of text
5 stations 105 generates the text-based message transmitted over
6 the wireless communication link. Each of the plurality of text
7 stations 105 displays the text-based messages received over the
8 wireless communication link. Each individual text station 521
9 further comprises an individual text station 521 transceiver
10 522, an individual text station 521 logic module 523, an
11 individual text station 521 display 524, and an individual text
12 station 521 interface 525, and an individual text station 521
13 near field communication circuit 526.

14 The individual text station 521 transceiver 522, the
15 individual text station 521 logic module 523, the individual
16 text station 521 display 524 the individual text station 521
17 interface 525, and the individual text station 521 near field
18 communication circuit 526 are electrically interconnected.

19 The individual text station 521 transceiver 522 is an
20 electrical device. The transceiver is defined elsewhere in this
21 disclosure. The individual text station 521 transceiver 522
22 creates and maintains the wireless communications link selected
23 from the plurality of wireless communication links 103 between

1 the plurality of text stations 105 and each individual text
2 station 521 transceiver 522.

3 The individual text station 521 logic module 523 is a
4 programmable electrical device. The individual text station 521
5 logic module 523 receives a text-based message from the
6 individual text station 521 transceiver 522. The individual
7 text station 521 logic module 523 converts the received
8 electrical signals into a text-based message that is displayed
9 on the individual text station 521 display 524.

10 The individual text station 521 display 524 is an
11 electrical device used to display the text-based message
12 transmitted from the individual text station 521 logic module
13 523. The individual text station 521 interface 525 receives a
14 text-based message from the user of the individual text station
15 521 and transmits the text-based message to the individual text
16 station 521 logic module 523 for transmission to the plurality
17 of text stations 105 by the individual text station 521
18 transceiver 522.

19 The individual text station 521 near field communication
20 circuit 526 is an implementation of an RFID (Radio Frequency
21 Identification) technology known as Near Field Communication.
22 The terms RFID and Near Field Communication are defined
23 elsewhere in this disclosure. The individual text station 521
24 near field communication circuit 526 establishes the initial

1 subset of communication stations selected from the plurality of
2 communication stations 102 used to operate the private
3 communication facility.

4 The individual text station 521 interface 525 initiates the
5 transmission of an RFID interrogation signal by the individual
6 text station 521 near field communication circuit 526 of the
7 transmitting individual text station 521. If a receiving
8 individual text station 521 is within the effective range of the
9 transmitting text station 521 (typically 10 cm), then the
10 receiving individual text station 521: a) identifies and
11 available communication channel that is separate from the
12 current broadcast channel; b) changes operation to the
13 identified separate communication channel; and, c) transmits to
14 the transmitting individual text station 521 the identified
15 separate communication channel. Upon receipt of the RFID
16 response, transmitting individual text station 521 changes
17 operation to the identified separate communication channel
18 thereby establishing the initial subset of communication
19 stations selected from the plurality of communication stations
20 102 using the private communication facility.

21 To add additional communication stations selected from the
22 plurality of communication stations 102, individual text station
23 521 linking switch 125 of the individual text station 521 to be
24 added thereby initiates the transmission of an RFID

1 interrogation signal by the individual text station 521 near
2 field communication circuit 526 to become the transmitting
3 individual text station 521. If the receiving individual head
4 set 121 is already a member of an existing subset of
5 communication stations selected from the plurality of
6 communication stations 102 using the private communication
7 facility, then the individual text station 521 near field
8 communication circuit 526 of the receiving individual text
9 station 521 transmits to the individual text station 521 near
10 field communication circuit 526 of the transmitting individual
11 text station 521 the communication channel information of the
12 existing subset of communication stations associated with the
13 private communication facility.

14 The procedure described in the previous three paragraphs
15 work for all communication stations selected from the plurality
16 of communication stations 102 independent of whether the
17 communication station is selected from the plurality of headsets
18 104 or the plurality of text stations 105.

19 In the first potential embodiment of the disclosure, the
20 plurality of text stations 105 further comprises a first text
21 station 531 and a second text station 541.

22 The first text station 531 further comprises a first text
23 station 531 transceiver 532, a first text station 531 logic
24 module 533, a first text station 531 display 534, first text

1 station 531 interface 535, and a first text station 531 near
2 field communication circuit 536. The first text station 531
3 transceiver 532, the first text station 531 logic module 533,
4 the first text station 531 display 534 the first text station
5 531 interface 535, and the first text station 531 near field
6 communication circuit 536 are electrically interconnected.

7 The first text station 531 is a headset used to join the
8 communication network formed by the invention 100. The first
9 text station 531 transceiver 532 is the individual text station
10 521 transceiver 522 associated with the first text station 531.
11 The first text station 531 logic module 533 is the individual
12 text station 521 logic module 523 associated with the first text
13 station 531. The first text station 531 display 534 is the
14 individual text station 521 display 524 associated with the
15 first text station 531. The first text station 531 interface
16 535 is the individual text station 521 interface 525 associated
17 with the first text station 531. The first text station 531
18 near field communication circuit 536 is the individual text
19 station 521 near field communication circuit 526 associated with
20 the first text station 531.

21 The second text station 541 further comprises a second text
22 station 541 transceiver 542, a second text station 541 logic
23 module 543, a second text station 541 display 544, a second text
24 station 541 interface 545, and a second text station 541 near

1 field communication circuit 546. The second text station 541
2 transceiver 542, the second text station 541 logic module 543,
3 the second text station 541 display 544 and the second text
4 station 541 interface 545, and the second text station 541 near
5 field communication circuit 546 are electrically interconnected.

6 The second text station 541 is a headset used to join the
7 communication network formed by the invention 100. The second
8 text station 541 transceiver 542 is the individual text station
9 521 transceiver 522 associated with the second text station 541.
10 The second text station 541 logic module 543 is the individual
11 text station 521 logic module 523 associated with the second
12 text station 541. The second text station 541 display 544 is
13 the individual text station 521 display 524 associated with the
14 second text station 541. The second text station 541 interface
15 545 is the individual text station 521 interface 525 associated
16 with the second text station 541. The second text station 541
17 near field communication circuit 546 is the individual text
18 station 521 near field communication circuit 526 associated with
19 the second text station 541.

20 The following definitions were used in this disclosure:

21 Announce: As used in this disclosure, to announce means to
22 generate audible sounds over a transducer.

1 Audio: As used in this disclosure, audio refers to the
2 reproduction of a sound that simulates the sound that was
3 originally created.

4 Audio Device: As used in this disclosure, an audio device
5 is a device that generates audible sound waves.

6 Audio Source: As used in this disclosure, an audio source
7 is a device that generates electrical signals that can be
8 converted into audible sounds by an audio device such as a
9 speaker.

10 Broadcast: As used in this disclosure, a broadcast refers
11 to a radio frequency transmission intended to be received by a
12 plurality of receivers.

13 Communication Link: As used in this disclosure, a
14 communication link refers to the structured exchange of data
15 between two objects.

16 Display: As used in this disclosure, a display is a
17 surface upon which is presented an image, potentially including,
18 but not limited to, graphic images and text, that is
19 interpretable by an individual viewing the projected image in a
20 meaningful manner. A display device refers to an electrical
21 device used to present these images.

22 Earphone: As used in this disclosure, an earphone refers
23 to a device that converts electrical signals into audible sounds
24 that are worn or listened to in contact with the ear.

1 IEEE: As used in this disclosure, the IEEE (pronounced "I
2 triple E") is an acronym for the Institute of Electrical and
3 Electronic Engineers.

4 Hands-Free: As used in this disclosure, hands-free refers
5 to a design characteristic of a device that allows the device to
6 be used or operated without the use of the hands.

7 Headphone: As used in this disclosure, a headphone is a
8 device that comprises one or two earphones that are held to the
9 ear, typically through the use of a band placed on top of the
10 head. The headphone comprises one or more speakers and an
11 optional microphone to allow for: 1) private access to an audio
12 communication system; and, 2) hands free access to an audio
13 communication system. Headset is a synonym for headphone.

14 Interface: As used in this disclosure, an interface is a
15 physical or virtual boundary that separates two different
16 systems across which information is exchanged.

17 Logic Module: As used in this disclosure, a logic module
18 is a readily and commercially available electrical device that
19 accepts digital and analog inputs, processes the digital and
20 analog inputs according to previously specified logical
21 processes and provides the results of these previously specified
22 logical processes as digital or analog outputs. The disclosure
23 allows, but does not assume, that the logic module is
24 programmable.

1 Logical Device: As used in this disclosure, a logical
2 device is an electrical device that processes externally
3 provided inputs to generate outputs that are determined from a
4 previously determined logical functions. A logical device may
5 or may not be programmable.

6 Microphone: As used in this disclosure, a microphone is a
7 transducer that converts the energy from vibration into
8 electrical energy. The sources of vibrations include, but are
9 not limited to, acoustic energy.

10 Momentary Switch: As used in this disclosure, a momentary
11 switch is a biased switch in the sense that the momentary switch
12 has a baseline position that only changes when the momentary
13 switch is actuated (for example, when a pushbutton switch is
14 pushed or a relay coil is energized). The momentary switch then
15 returns to the baseline position once the actuation is
16 completed. This baseline position is called the "normal"
17 position. For example, a "normally open" momentary switch
18 interrupts (open) the electric circuit in the baseline position
19 and completes (closes) the circuit when the momentary switch is
20 activated. Similarly, a "normally closed" momentary switch
21 will complete (close) an electric circuit in the baseline
22 position and interrupt (open) the circuit when the momentary
23 switch is activated.

1 Near Field Communication: As used in this disclosure, near
2 field communication, commonly referred to as NFC, is an RFID
3 technology and communication protocol that is commonly
4 implemented on personal data devices. The operating range of
5 near field technology is generally less than 20 centimeters.

6 Network: As used in this disclosure, a network refers to a
7 data communication or data exchange structure where data is
8 electronically transferred between nodes, also known as
9 terminals, which are electrically attached to the network. In
10 common usage, the operator of the network is often used as an
11 adjective to describe the network. For example, a
12 telecommunication network would refer to a network run by a
13 telecommunication organization while a banking network will
14 refer to a network operated by an organization involved in
15 banking.

16 Repeater: As used in this disclosure, a repeater is an
17 electrical device that receives a first signal from a first
18 communication channel and transmits a duplicate second signal
19 over a second communication channel. When a radio frequency
20 wireless communication channel is used as both the first
21 communication channel and the second communication channel the
22 frequencies of operation of the first communication channel and
23 the second communication channels may or may not be identical.

1 RFID: As used in this disclosure, RFID refers to Radio
2 Frequency Identification technology. RFID is a wireless
3 technology that uses electromagnetic field to identify and
4 retrieve data from tracking tags that are placed on or near an
5 object.

6 RFID Interrogator: As used in this disclosure, an RFID
7 interrogator is a device that transmits a radio signal at
8 frequency designed to activate RFID tracking tags that are tuned
9 to operate at that frequency.

10 RFID Tracking Tag: As used in this disclosure, an RFID
11 tracking tag is a reflective antenna that receives a radio
12 signal from an RFID Interrogator and uses the energy received
13 from the RFID interrogator signal to reflect a modified signal
14 back to the RFID interrogator. The modified signal generally
15 contains identification information about the RFID tag. The
16 RFID interrogator receives and records these reflected signals.
17 RFID tags are generally tuned to respond to a specific
18 frequency. The RFID tracking tag as described to this point is
19 a passive, or unpowered RFID tracking tag. There are also
20 available within RFID technology active, or powered, RFID
21 tracking tags. An active RFID tracking tag acts as a beacon
22 that actively transmits identification information in a manner
23 that can be received and recorded by an RFID interrogator.

1 Within this disclosure, both passive and active RFID tracking
2 tags are used.

3 Speaker: As used in this disclosure, a speaker is an
4 electrical transducer that converts an electrical signal into an
5 audible sound.

6 Speech Recognition: As used in this disclosure, an speech
7 recognition refers to a collection of commercially available
8 algorithms that capture process a digital representation of an
9 audible sound in a manner that allows an electronically operated
10 device, such as a computer, to extract data from the digital
11 representation of an audible sound and take a subsequent action
12 based on the data extracted from the audible sound.

13 Switch: As used in this disclosure, a switch is an
14 electrical device that starts and stops the flow of electricity
15 through an electric circuit by completing or interrupting an
16 electric circuit. The act of completing or breaking the
17 electrical circuit is called actuation. Completing or
18 interrupting an electric circuit with a switch is often referred
19 to as closing or opening a switch respectively. Completing or
20 interrupting an electric circuit is also often referred to as
21 making or breaking the circuit respectively.

22 Transceiver: As used in this disclosure, a transceiver is
23 a device that is used to generate, transmit, and receive
24 electromagnetic radiation such as radio signals.

1 Transducer: As used in this disclosure, a transducer is a
2 device that converts a physical quantity, such as pressure or
3 brightness into an electrical signal or a device that converts
4 an electrical signal into a physical quantity.

5 WiFi™: As used in this disclosure, WiFi™ refers to the
6 physical implementation of a collection of wireless electronic
7 communication standards commonly referred to as IEEE 802.11x.

8 Wireless: As used in this disclosure, wireless is an
9 adjective that is used to describe a communication channel
10 between two devices that does not require the use of physical
11 cabling.

12 With respect to the above description, it is to be realized
13 that the optimum dimensional relationship for the various
14 components of the invention described above and in Figures 1
15 through 5 include variations in size, materials, shape, form,
16 function, and manner of operation, assembly and use, are deemed
17 readily apparent and obvious to one skilled in the art, and all
18 equivalent relationships to those illustrated in the drawings
19 and described in the specification are intended to be
20 encompassed by the invention.

21 It shall be noted that those skilled in the art will
22 readily recognize numerous adaptations and modifications which
23 can be made to the various embodiments of the present invention
24 which will result in an improved invention, yet all of which

1 will fall within the spirit and scope of the present invention
2 as defined in the following claims. Accordingly, the invention
3 is to be limited only by the scope of the following claims and
4 their equivalents.

5

CLAIMS

What is claimed is:

1. A wireless communication system comprising
a wireless routing device, a plurality of communication
stations, and a plurality of wireless communication
links;
wherein the plurality of wireless communication links
establishes communication links between the wireless
routing device and each of the plurality of
communication stations;
wherein the wireless communication system supports
audio and text-based communication between the
plurality of communication stations;
wherein the wireless communication system is a private
communication system;
wherein the wireless communication system supports a
broadcast model of communication;
wherein by broadcast is meant that: a) any first
individual communication station selected from the
plurality of communication stations receives any
audio or text-based message transmitted by any
second individual communication station selected
from the plurality of communication stations; and,
b) any audio or text-based message transmitted by

1 any first individual communication station selected
2 from the plurality of communication stations is
3 received by all the unselected individual
4 communication station remaining in the plurality of
5 communication stations.

6 2. The wireless communication system according to claim 1
7 wherein the wireless communication system supports a
8 private communication facility;
9 wherein by private communication facility is meant that
10 communications between the communication stations
11 contained in the subset of communication stations
12 selected from the plurality of communication
13 stations are broadcast on a separate communication
14 channel such that communications between the subset
15 of communication stations not accessible from any
16 communication station not contained within the
17 subset of communication stations.

18 3. The wireless communication system according to claim 2
19 wherein the wireless routing device establishes a
20 wireless communication link selected from the
21 plurality of wireless communication links with each
22 individual communication station contained in the
23 plurality of communication stations;

1 wherein the wireless routing device receives a message
2 from any first individual communication station
3 selected from the plurality of communication
4 stations and retransmits the message to each
5 unselected individual communication station
6 remaining in the plurality of communication
7 stations;

8 wherein the message is selected from the group
9 consisting of an audio message and a text-based
10 message.

11 4. The wireless communication system according to claim 3
12 wherein each of the plurality of wireless communication
13 links is a structured data exchange mechanism that is
14 established between the wireless routing device and an
15 individual headset selected from the plurality of
16 headsets.

17 5. The wireless communication system according to claim 4
18 wherein the wireless routing device terminates the
19 plurality of wireless communication links.

20 6. The wireless communication system according to claim 5
21 wherein the wireless routing device comprises a
22 plurality of routing transceivers, a logical device,
23 and a reset switch;

1 wherein the plurality of routing transceivers, the
2 logical device, and the reset switch are
3 electrically interconnected.

- 4 7. The wireless communication system according to claim 6
5 wherein the plurality of communication stations
6 comprises a plurality of headsets and a plurality of
7 text stations;
8 wherein each of the plurality of headsets is a hands-
9 free communication device selected from the group
10 consisting of earbuds and headphones;
11 wherein each of the plurality of headsets forms a
12 wireless communication link selected from the
13 plurality of wireless communication links with the
14 wireless routing device;
15 wherein each of the plurality of text stations is a
16 text-based communication device;
17 wherein each of the plurality of text stations forms a
18 wireless communication link selected from the
19 plurality of wireless communication links with the
20 wireless routing device.

- 21 8. The wireless communication system according to claim 7
22 wherein each of the plurality of routing transceivers
23 is an electrical device;

1 wherein each of the plurality of routing transceivers
2 creates and maintains the plurality of wireless
3 communication links between the wireless routing
4 device and the plurality of communication stations;
5 wherein each of the plurality of routing transceivers
6 is a multichannel device;

7 wherein by multichannel device is meant that each of
8 the plurality of routing transceivers simultaneously
9 manages and maintains each of the multiple wireless
10 communication links selected from the plurality of
11 wireless communication links formed between the
12 plurality of communication stations and the wireless
13 routing device.

- 14 9. The wireless communication system according to claim 8
15 wherein the plurality of headsets comprises a
16 collection of individual headsets;
17 wherein each of the plurality of headsets is a hands-
18 free communication device selected from the group
19 consisting of earbuds and headphones;
20 wherein each of the plurality of headsets forms a
21 wireless communication link selected from the
22 plurality of wireless communication links with the
23 wireless routing device;

1 wherein each of the plurality of headsets announces any
2 audio messages received over the wireless
3 communication link;

4 wherein any first individual headset selected from the
5 plurality of headsets transmits an audio message
6 over the wireless communication link to the wireless
7 routing device;

8 wherein any first individual headset selected from the
9 plurality of headsets receives any audio messages
10 transmitted over the wireless communication link by
11 the wireless routing device that were transmitted by
12 any second individual headset selected from the
13 plurality of headsets.

14 10. The wireless communication system according to claim 9

15 wherein the plurality of text stations comprises a
16 collection of individual text stations;

17 wherein the individual text station is a wireless
18 communication device;

19 wherein the individual text station establishes a
20 wireless communication link selected from the
21 plurality of wireless communication links with the
22 wireless routing device;

1 wherein the individual text station generates and
2 transmits a text-based message to the wireless
3 routing device over the wireless communication link;
4 wherein the individual text station receives the text-
5 based message that is transmitted from the wireless
6 routing device over the wireless communication link;
7 wherein the individual text station transceiver creates
8 and maintains the wireless communication link
9 selected from the plurality of wireless
10 communication links between the text station routing
11 transceiver and each individual text station
12 transceiver;
13 wherein any first individual text station selected from
14 the plurality of text stations transmits a text-
15 based message over the wireless communication link
16 to the wireless routing device;
17 wherein any first individual text station selected from
18 the plurality of text stations receives any text-
19 based messages transmitted over the wireless
20 communication link by the wireless routing device
21 that were transmitted by any second individual text
22 station;

1 wherein each of the plurality of text stations
2 generates the text-based message transmitted over
3 the wireless communication link;
4 wherein each of the plurality of text stations displays
5 the text-based messages received over the wireless
6 communication link.

- 7 11. The wireless communication system according to claim 10
8 wherein the plurality of routing transceivers comprises
9 a headset routing transceiver and a text station
10 routing transceiver;
11 wherein the headset routing transceiver is an
12 electrical device;
13 wherein the headset routing transceiver creates and
14 maintains the plurality of wireless communication
15 links between the wireless routing device and the
16 plurality of headsets;
17 wherein the headset routing transceiver is a
18 multichannel device;
19 wherein by multichannel device is meant that the
20 headset routing transceiver simultaneously manages
21 and maintains each of the multiple wireless
22 communication links selected from the plurality of
23 wireless communication links formed between the

1 plurality of communication stations and the wireless
2 routing device;

3 wherein the text station routing transceiver is an
4 electrical device;

5 wherein the text station routing transceiver creates
6 and maintains the plurality of wireless
7 communication links between the wireless routing
8 device and the plurality of text stations;

9 wherein the text station routing transceiver is a
10 multichannel device;

11 wherein by multichannel device is meant that the text
12 station routing transceiver simultaneously manages
13 and maintains each of the multiple wireless
14 communication links selected from the plurality of
15 wireless communication links formed between the
16 plurality of communication stations and the wireless
17 routing device.

18 12. The wireless communication system according to claim 11

19 wherein the logical device is an electric circuit;

20 wherein the logical device controls the operation of
21 the plurality of routing transceivers;

22 wherein the logical device monitors the reset switch.

23 13. The wireless communication system according to claim 12

1 wherein the logic module operates: a) a speech to text
2 technology; and, b) a text to speech technology;

3 wherein the logic module processes audio messages
4 received from the plurality of headset through the
5 speech to text technology such that the logic module
6 transmits a text translation of the received audio
7 message to the plurality of text stations through
8 the text station routing transceiver;

9 wherein the logic module processes text-based messages
10 received from the plurality of text stations through
11 the text to speech technology such that the logic
12 module transmits an audio transcription of the
13 received text-based message to the plurality of
14 headsets through the headset routing transceiver.

15 14. The wireless communication system according to claim 13

16 wherein the reset switch is a momentary switch;

17 wherein the actuation of the reset switch indicates to
18 the logical device that the plurality of routing
19 transceivers should terminate each individual
20 wireless communication link selected from the
21 plurality of wireless communication links such that
22 the communication network formed by the wireless
23 communication system is shut down;

1 wherein the communication network is then reestablished
2 by reestablishing each individual wireless
3 communication link selected from the plurality of
4 wireless communication links.

5 15. The wireless communication system according to claim 14
6 wherein the individual headset is a wireless
7 communication device;

8 wherein the individual headset is selected from the
9 group consisting of headphones and earbuds;

10 wherein the individual headset establishes a wireless
11 communication link selected from the plurality of
12 wireless communication links with the wireless
13 routing device;

14 wherein the individual headset generates and transmits
15 an audio message to the wireless routing device over
16 the wireless communication link;

17 wherein the individual headset receives an audio
18 message that is transmitted from the wireless
19 routing device over the wireless communication link.

20 16. The wireless communication system according to claim 15
21 wherein each individual headset further comprises an
22 individual headset transceiver, an individual
23 headset speaker, an individual headset microphone,

1 an individual headset linking switch, and an
2 individual headset near field communication circuit;
3 wherein the individual headset transceiver, the
4 individual headset speaker, the individual headset
5 microphone, the individual headset linking switch,
6 and the near field communication circuit are
7 electrically interconnected;
8 wherein the individual headset transceiver is an
9 electrical device;
10 wherein the individual headset transceiver creates and
11 maintains the wireless communication link selected
12 from the plurality of wireless communication links
13 between the wireless routing device and the
14 individual headset transceiver;
15 wherein the individual headset speaker is a transducer;
16 wherein the individual headset speaker receives
17 electrical signals from the individual headset
18 transceiver;
19 wherein the individual headset speaker converts the
20 received electrical signals into acoustic energy
21 that is used to announce the received audio message;
22 wherein the individual headset microphone is a
23 transducer;

1 wherein the individual headset microphone detects
2 acoustic energy in the vicinity of the individual
3 headset and converts the detected acoustic energy
4 into an electric signal;

5 wherein the individual headset microphone transmits the
6 generated electric signal to the individual headset
7 transceiver;

8 wherein the individual headset transceiver transmits
9 the received electric signals to the wireless
10 routing device over the wireless communication link
11 as an audio message;

12 wherein the individual headset transceiver monitors the
13 individual headset linking switch;

14 wherein the individual headset linking switch is a
15 momentary switch;

16 wherein the actuation of the individual headset linking
17 switch indicates to the individual headset
18 transceiver that the individual headset should
19 establish a wireless communication link selected
20 from the plurality of wireless communication links
21 with the wireless routing device such that the
22 individual headset joins the communication network
23 formed by the wireless communication system;

1 wherein the individual headset near field communication
2 circuit establishes the private communication
3 facility.

4 17. The wireless communication system according to claim 16

5 wherein the plurality of headsets comprises a first
6 headset, a second headset, and an Nth headset;

7 wherein the first headset further comprises a first
8 headset transceiver, a first headset speaker, a
9 first headset microphone, a first headset linking
10 switch, and a first headset nearfield communication
11 circuit;

12 wherein the first headset transceiver, the first
13 headset speaker, the first headset microphone, the
14 first headset linking switch, and the first headset
15 nearfield communication circuit are electrically
16 interconnected;

17 wherein the second headset further comprises a second
18 headset transceiver, a second headset speaker, a
19 second headset microphone, a second headset linking
20 switch, and a second headset nearfield communication
21 circuit;

22 wherein the second headset transceiver, the second
23 headset speaker, the second headset microphone, the
24 second headset linking switch, and the second

1 headset nearfield communication circuit are
2 electrically interconnected;

3 wherein the Nth headset further comprises a Nth headset
4 transceiver, a Nth headset speaker, a Nth headset
5 microphone, a Nth headset linking switch, and a Nth
6 headset nearfield communication circuit;

7 wherein the Nth headset transceiver, the Nth headset
8 speaker, the Nth headset microphone, the Nth headset
9 linking switch, and the Nth headset nearfield
10 communication circuit are electrically
11 interconnected;

12 wherein the first headset transceiver is the individual
13 headset transceiver associated with the first
14 headset;

15 wherein the first headset speaker is the individual
16 headset speaker associated with the first headset;

17 wherein the first headset microphone is the individual
18 headset microphone associated with the first
19 headset;

20 wherein the first headset linking switch is the
21 individual headset linking switch associated with
22 the first headset;

23 wherein the first headset near field communication
24 circuit is the individual headset near field

1 communication circuit associated with the first
2 headset;

3 wherein the second headset transceiver is the
4 individual headset transceiver associated with the
5 second headset;

6 wherein the second headset speaker is the individual
7 headset speaker associated with the second headset;

8 wherein the second headset microphone is the individual
9 headset microphone associated with the second
10 headset;

11 wherein the second headset linking switch is the
12 individual headset linking switch associated with
13 the second headset;

14 wherein the second headset near field communication
15 circuit is the individual headset near field
16 communication circuit associated with the second
17 headset;

18 wherein the Nth headset transceiver is the individual
19 headset transceiver associated with the Nth headset;

20 wherein the Nth headset speaker is the individual
21 headset speaker associated with the Nth headset;

22 wherein the Nth headset microphone is the individual
23 headset microphone associated with the Nth headset;

1 wherein the Nth headset linking switch is the
2 individual headset linking switch associated with
3 the Nth headset;

4 wherein the Nth headset near field communication
5 circuit is the individual headset near field
6 communication circuit associated with the Nth
7 headset.

8 18. The wireless communication system according to claim 17
9 wherein each individual text station further comprises
10 an individual text station transceiver, an
11 individual text station logic module, an individual
12 text station display, an individual text station
13 interface, and an individual text station near field
14 communication circuit;

15 wherein the individual text station transceiver, the
16 individual text station logic module, the individual
17 text station display, the individual text station
18 interface, and the individual text station near
19 field communication circuit are electrically
20 interconnected;

21 wherein the individual text station transceiver is an
22 electrical device;

23 wherein the individual text station transceiver creates
24 and maintains the wireless communications link

1 selected from the plurality of wireless
2 communication links between the plurality of text
3 stations and each individual text station
4 transceiver;

5 wherein the individual text station logic module is a
6 programmable electrical device;

7 wherein the individual text station logic module
8 receives a text-based message from the individual
9 text station transceiver;

10 wherein the individual text station logic module
11 converts the received electrical signals into a
12 text-based message that is displayed on the
13 individual text station display;

14 wherein the individual text station display is an
15 electrical device used to display the text-based
16 message transmitted from the individual text station
17 logic module;

18 wherein the individual text station interface receives
19 a text-based message from the user of the individual
20 text station and transmits the text-based message to
21 the individual text station logic module for
22 transmission to the plurality of text stations by
23 the individual text station transceiver;

1 wherein the individual text station near field
2 communication circuit establishes the private
3 communication facility.

4 19. The wireless communication system according to claim 18

5 wherein the plurality of text stations further
6 comprises a first text station, a second text
7 station, and an Nth text station;

8 wherein the first text station further comprises a
9 first text station transceiver, a first text station
10 logic module, a first text station display, a first
11 text station interface, and a first text station
12 near field communication circuit;

13 wherein the first text station transceiver, the first
14 text station logic module, the first text station
15 display, the first text station interface, and the
16 first text station near field communication circuit
17 are electrically interconnected;

18 wherein the first text station is a headset used to
19 join the communication network formed by the
20 wireless communication system;

21 wherein the first text station transceiver is the
22 individual text station transceiver associated with
23 the first text station;

1 wherein the first text station logic module is the
2 individual text station logic module associated with
3 the first text station;

4 wherein the first text station display is the
5 individual text station display associated with the
6 first text station;

7 wherein the first text station interface is the
8 individual text station interface associated with
9 the first text station;

10 wherein the first text station near field communication
11 circuit is the individual text station near field
12 communication circuit associated with the first text
13 station;

14 wherein the second text station further comprises a
15 second text station transceiver, a second text
16 station logic module, a second text station display,
17 a second text station interface, and a second near
18 field communication circuit;

19 wherein the second text station transceiver, the second
20 text station logic module, the second text station
21 display, the second text station interface, and the
22 second near field communication circuit are
23 electrically interconnected;

wherein the second text station is a headset used to
join the communication network formed by the
wireless communication system;

wherein the second text station transceiver is the
individual text station transceiver associated with
the second text station;

wherein the second text station logic module is the
individual text station logic module associated with
the second text station;

wherein the second text station display is the
individual text station display associated with the
second text station;

wherein the second text station interface is the
individual text station interface associated with
the second text station

wherein the second text station near field
communication circuit is the individual text station
near field communication circuit associated with the
second text station;

wherein the Nth text station further comprises a Nth
text station transceiver, a Nth text station logic
module, a Nth text station display, a Nth text
station interface, and a Nth near field
communication circuit;

1 wherein the Nth text station transceiver, the Nth text
2 station logic module, the Nth text station display,
3 the Nth text station interface, and the Nth near
4 field communication circuit are electrically
5 interconnected;

6 wherein the Nth text station is a headset used to join
7 the communication network formed by the wireless
8 communication system;

9 wherein the Nth text station transceiver is the
10 individual text station transceiver associated with
11 the Nth text station;

12 wherein the Nth text station logic module is the
13 individual text station logic module associated with
14 the Nth text station;

15 wherein the Nth text station display is the individual
16 text station display associated with the Nth text
17 station;

18 wherein the Nth text station interface is the
19 individual text station interface associated with
20 the Nth text station

21 wherein the Nth text station near field communication
22 circuit is the individual text station near field
23 communication circuit associated with the Nth text
24 station.

CLAIMS

1. A wireless communication system comprising:

a wireless routing device, a plurality of communication stations, and a plurality of wireless communication links;

5 in which the plurality of wireless communication links establishes communication links between the wireless routing device and each of the plurality of communication stations;

in which the wireless communication system supports audio and text-based communication between the plurality of communication stations;

in which the wireless communication system is a private communication system;

10 in which the wireless communication system supports a broadcast model of communication;

in which by broadcast is meant that: (a) any first individual communication station selected from the plurality of communication stations receives any audio or text-based message transmitted by any second individual communication station selected from the plurality of communication stations; and, (b) any audio or text-based message transmitted by any first individual communication station selected from the plurality of communication stations is received by all the unselected individual communication station remaining in the plurality of communication stations;

15 in which the wireless routing device comprises a plurality of routing transceivers, a logical device, and a reset switch;

20 in which the plurality of routing transceivers, the logical device, and the reset switch are electrically interconnected;

in which the plurality of communication stations comprises a plurality of headsets and a plurality of text stations;

25 in which each of the plurality of headsets is a hands-free communication device selected from the group consisting of earbuds and headphones;

in which each of the plurality of headsets forms a wireless communication link selected from the plurality of wireless communication links with the wireless routing device;

in which each of the plurality of text stations is a text-based communication device; and

in which each of the plurality of text stations forms a wireless communication link selected from the plurality of wireless communication links with the wireless routing device.

2. A wireless communication system according to Claim 1,

5 in which the wireless communication system supports a private communication facility; and

in which by private communication facility is meant that communications between the communication stations contained in the subset of communication stations selected from the plurality of communication stations are broadcast on a separate communication
10 channel such that communications between the subset of communication stations not accessible from any communication station not contained within the subset of communication stations.

3. A wireless communication system according to Claim 2,

15 in which the wireless routing device establishes a wireless communication link selected from the plurality of wireless communication links with each individual communication station contained in the plurality of communication stations;

in which the wireless routing device receives a message from any first individual communication station selected from the plurality of communication stations and retransmits the message to each unselected individual communication station remaining
20 in the plurality of communication stations; and

in which the message is selected from the group consisting of an audio message and a text-based message.

4. A wireless communication system according to Claim 3, in which each of the plurality of wireless communication links is a structured data exchange mechanism that is established
25 between the wireless routing device and an individual headset selected from the plurality of headsets.

5. A wireless communication system according to Claim 4, in which the wireless routing device terminates the plurality of wireless communication links.

6. A wireless communication system according to Claim 5,

in which each of the plurality of routing transceivers is an electrical device;

in which each of the plurality of routing transceivers creates and maintains the plurality of wireless communication links between the wireless routing device and the plurality of communication stations;

5 in which each of the plurality of routing transceivers is a multichannel device; and

in which by multichannel device is meant that each of the plurality of routing transceivers simultaneously manages and maintains each of the multiple wireless communication links selected from the plurality of wireless communication links formed between the plurality of communication stations and the wireless routing device.

10 7. A wireless communication system according to Claim 6,

in which the plurality of headsets comprises a collection of individual headsets;

in which each of the plurality of headsets is a hands-free communication device selected from the group consisting of earbuds and headphones;

15 in which each of the plurality of headsets forms a wireless communication link selected from the plurality of wireless communication links with the wireless routing device;

in which each of the plurality of headsets announces any audio messages received over the wireless communication link;

in which any first individual headset selected from the plurality of headsets transmits an audio message over the wireless communication link to the wireless routing device; and

20 in which any first individual headset selected from the plurality of headsets receives any audio messages transmitted over the wireless communication link by the wireless routing device that were transmitted by any second individual headset selected from the plurality of headsets.

8. A wireless communication system according to Claim 7,

25 in which the plurality of text stations comprises a collection of individual text stations;

in which the individual text station is a wireless communication device;

in which the individual text station establishes a wireless communication link selected from the plurality of wireless communication links with the wireless routing device;

in which the individual text station generates and transmits a text-based message to the wireless routing device over the wireless communication link;

in which the individual text station receives the text-based message that is transmitted from the wireless routing device over the wireless communication link;

5 in which the individual text station transceiver creates and maintains the wireless communication link selected from the plurality of wireless communication links between the text station routing transceiver and each individual text station transceiver;

10 in which any first individual text station selected from the plurality of text stations transmits a text-based message over the wireless communication link to the wireless routing device;

in which any first individual text station selected from the plurality of text stations receives any text-based messages transmitted over the wireless communication link by the wireless routing device that were transmitted by any second individual text station;

15 in which each of the plurality of text stations generates the text-based message transmitted over the wireless communication link; and

in which each of the plurality of text stations displays the text-based messages received over the wireless communication link.

9. A wireless communication system according to Claim 8,

20 in which the plurality of routing transceivers comprises a headset routing transceiver and a text station routing transceiver;

in which the headset routing transceiver is an electrical device;

in which the headset routing transceiver creates and maintains the plurality of wireless communication links between the wireless routing device and the plurality of headsets;

in which the headset routing transceiver is a multichannel device;

25 in which by multichannel device is meant that the headset routing transceiver simultaneously manages and maintains each of the multiple wireless communication links selected from the plurality of wireless communication links formed between the plurality of communication stations and the wireless routing device;

in which the text station routing transceiver is an electrical device;

in which the text station routing transceiver creates and maintains the plurality of wireless communication links between the wireless routing device and the plurality of text stations;

in which the text station routing transceiver is a multichannel device; and

5 in which by multichannel device is meant that the text station routing transceiver simultaneously manages and maintains each of the multiple wireless communication links selected from the plurality of wireless communication links formed between the plurality of communication stations and the wireless routing device.

10. A wireless communication system according to Claim 9,

10 in which the logical device is an electric circuit;

in which the logical device controls the operation of the plurality of routing transceivers; and

in which the logical device monitors the reset switch.

11. A wireless communication system according to Claim 10,

15 in which the logic module operates: (a) a speech to text technology; and, (b) a text to speech technology;

in which the logic module processes audio messages received from the plurality of headset through the speech to text technology such that the logic module transmits a text translation of the received audio message to the plurality of text stations through the text station routing transceiver; and

20

in which the logic module processes text-based messages received from the plurality of text stations through the text to speech technology such that the logic module transmits an audio transcription of the received text-based message to the plurality of headsets through the headset routing transceiver.

25 12. A wireless communication system according to Claim 11,

in which the reset switch is a momentary switch;

in which the actuation of the reset switch indicates to the logical device that the plurality of routing transceivers should terminate each individual wireless communication link selected from the plurality of wireless communication links such that the

communication network formed by the wireless communication system is shut down;
and

in which the communication network is then reestablished by reestablishing each
individual wireless communication link selected from the plurality of wireless
communication links.

13. A wireless communication system according to Claim 12,

in which the individual headset is a wireless communication device;

in which the individual headset is selected from the group consisting of headphones and
earbuds;

in which the individual headset establishes a wireless communication link selected from
the plurality of wireless communication links with the wireless routing device;

in which the individual headset generates and transmits an audio message to the wireless
routing device over the wireless communication link; and

in which the individual headset receives an audio message that is transmitted from the
wireless routing device over the wireless communication link.

14. A wireless communication system according to Claim 13,

in which each individual headset further comprises an individual headset transceiver, an
individual headset speaker, an individual headset microphone, an individual headset
linking switch, and an individual headset near field communication circuit;

in which the individual headset transceiver, the individual headset speaker, the
individual headset microphone, the individual headset linking switch, and the near field
communication circuit are electrically interconnected;

in which the individual headset transceiver is an electrical device;

in which the individual headset transceiver creates and maintains the wireless
communication link selected from the plurality of wireless communication links
between the wireless routing device and the individual headset transceiver;

in which the individual headset speaker is a transducer;

in which the individual headset speaker receives electrical signals from the individual
headset transceiver;

in which the individual headset speaker converts the received electrical signals into acoustic energy that is used to announce the received audio message;

in which the individual headset microphone is a transducer;

5 in which the individual headset microphone detects acoustic energy in the vicinity of the individual headset and converts the detected acoustic energy into an electric signal;

in which the individual headset microphone transmits the generated electric signal to the individual headset transceiver;

in which the individual headset transceiver transmits the received electric signals to the wireless routing device over the wireless communication link as an audio message;

10 in which the individual headset transceiver monitors the individual headset linking switch;

in which the individual headset linking switch is a momentary switch;

15 in which the actuation of the individual headset linking switch indicates to the individual headset transceiver that the individual headset should establish a wireless communication link selected from the plurality of wireless communication links with the wireless routing device such that the individual headset joins the communication network formed by the wireless communication system; and

in which the individual headset near field communication circuit establishes the private communication facility.

20 15. A wireless communication system according to Claim 14,

in which the plurality of headsets comprises a first headset, a second headset, and an Nth headset;

25 in which the first headset further comprises a first headset transceiver, a first headset speaker, a first headset microphone, a first headset linking switch, and a first headset nearfield communication circuit;

in which the first headset transceiver, the first headset speaker, the first headset microphone, the first headset linking switch, and the first headset nearfield communication circuit are electrically interconnected;

in which the second headset further comprises a second headset transceiver, a second headset speaker, a second headset microphone, a second headset linking switch, and a second headset nearfield communication circuit;

5 in which the second headset transceiver, the second headset speaker, the second headset microphone, the second headset linking switch, and the second headset nearfield communication circuit are electrically interconnected;

in which the Nth headset further comprises a Nth headset transceiver, a Nth headset speaker, a Nth headset microphone, a Nth headset linking switch, and a Nth headset nearfield communication circuit;

10 in which the Nth headset transceiver, the Nth headset speaker, the Nth headset microphone, the Nth headset linking switch, and the Nth headset nearfield communication circuit are electrically interconnected;

in which the first headset transceiver is the individual headset transceiver associated with the first headset;

15 in which the first headset speaker is the individual headset speaker associated with the first headset;

in which the first headset microphone is the individual headset microphone associated with the first headset;

20 in which the first headset linking switch is the individual headset linking switch associated with the first headset;

in which the first headset near field communication circuit is the individual headset near field communication circuit associated with the first headset;

in which the second headset transceiver is the individual headset transceiver associated with the second headset;

25 in which the second headset speaker is the individual headset speaker associated with the second headset;

in which the second headset microphone is the individual headset microphone associated with the second headset;

30 in which the second headset linking switch is the individual headset linking switch associated with the second headset;

in which the second headset near field communication circuit is the individual headset near field communication circuit associated with the second headset;

in which the Nth headset transceiver is the individual headset transceiver associated with the Nth headset;

5 in which the Nth headset speaker is the individual headset speaker associated with the Nth headset;

in which the Nth headset microphone is the individual headset microphone associated with the Nth headset;

10 in which the Nth headset linking switch is the individual headset linking switch associated with the Nth headset; and

in which the Nth headset near field communication circuit is the individual headset near field communication circuit associated with the Nth headset.

16. A wireless communication system according to Claim 15,

15 in which each individual text station further comprises an individual text station transceiver, an individual text station logic module, an individual text station display, an individual text station interface, and an individual text station near field communication circuit;

20 in which the individual text station transceiver, the individual text station logic module, the individual text station display, the individual text station interface, and the individual text station near field communication circuit are electrically interconnected;

in which the individual text station transceiver is an electrical device;

in which the individual text station transceiver creates and maintains the wireless communications link selected from the plurality of wireless communication links between the plurality of text stations and each individual text station transceiver;

25 in which the individual text station logic module is a programmable electrical device;

in which the individual text station logic module receives a text-based message from the individual text station transceiver;

in which the individual text station logic module converts the received electrical signals into a text-based message that is displayed on the individual text station display;

in which the individual text station display is an electrical device used to display the text-based message transmitted from the individual text station logic module;

in which the individual text station interface receives a text-based message from the user of the individual text station and transmits the text-based message to the individual text station logic module for transmission to the plurality of text stations by the individual text station transceiver; and

in which the individual text station near field communication circuit establishes the private communication facility.

17. A wireless communication system according to Claim 16,

in which the plurality of text stations further comprises a first text station, a second text station, and an Nth text station;

in which the first text station further comprises a first text station transceiver, a first text station logic module, a first text station display, a first text station interface, and a first text station near field communication circuit;

in which the first text station transceiver, the first text station logic module, the first text station display, the first text station interface, and the first text station near field communication circuit are electrically interconnected;

in which the first text station is a headset used to join the communication network formed by the wireless communication system;

in which the first text station transceiver is the individual text station transceiver associated with the first text station;

in which the first text station logic module is the individual text station logic module associated with the first text station;

in which the first text station display is the individual text station display associated with the first text station;

in which the first text station interface is the individual text station interface associated with the first text station;

in which the first text station near field communication circuit is the individual text station near field communication circuit associated with the first text station;

in which the second text station further comprises a second text station transceiver, a second text station logic module, a second text station display, a second text station interface, and a second near field communication circuit;

5 in which the second text station transceiver, the second text station logic module, the second text station display, the second text station interface, and the second near field communication circuit are electrically interconnected;

in which the second text station is a headset used to join the communication network formed by the wireless communication system;

10 in which the second text station transceiver is the individual text station transceiver associated with the second text station;

in which the second text station logic module is the individual text station logic module associated with the second text station;

in which the second text station display is the individual text station display associated with the second text station;

15 in which the second text station interface is the individual text station interface associated with the second text station

in which the second text station near field communication circuit is the individual text station near field communication circuit associated with the second text station;

20 in which the Nth text station further comprises a Nth text station transceiver, a Nth text station logic module, a Nth text station display, a Nth text station interface, and a Nth near field communication circuit;

in which the Nth text station transceiver, the Nth text station logic module, the Nth text station display, the Nth text station interface, and the Nth near field communication circuit are electrically interconnected;

25 in which the Nth text station is a headset used to join the communication network formed by the wireless communication system;

in which the Nth text station transceiver is the individual text station transceiver associated with the Nth text station;

30 in which the Nth text station logic module is the individual text station logic module associated with the Nth text station;

in which the Nth text station display is the individual text station display associated with the Nth text station;

in which the Nth text station interface is the individual text station interface associated with the Nth text station; and

- 5 in which the Nth text station near field communication circuit is the individual text station near field communication circuit associated with the Nth text station.