CLAIMS

1. A face mask comprising:

a cover shield shaped to cover nose and mouth of a wearer, the cover shield having an inner surface that faces the wearer when the cover shield covers the nose and the mouth of the wearer;

a microphone coupled to the inner surface of the cover shield, the microphone configured to receive sound waves and further configured to generate audio data based on the sound waves;

a transceiver configured to communicate bidirectionally with a mobile device; and

a controller configured to control the transceiver to transmit the generated audio data to the mobile device;

wherein the controller is further configured to selectively operate the face mask in a face-to-face mode, wherein in the face-to-face mode, the transceiver is configured to transmit the audio data and an instruction message, to the mobile device, the instruction message comprising a command to output the sound waves on a speaker of the mobile device.

2. The face mask of claim 1, further comprising:

a notification module coupled to the cover shield,

wherein the transceiver is configured to receive from the mobile device, a status signal indicative of an incoming phone call on the mobile device, and

wherein in response to the transceiver receiving the status signal, the controller is further configured to control the notification module to generate a notification signal for informing the wearer about the incoming phone call.

3. The face mask of claim 2, wherein the notification module comprises a speaker, and the notification signal is a sound; or the notification module comprises an actuator, and the notification signal is a haptic signal.

4. The face mask of claim 1, further comprising:

an answer button operable to provide a user input,

wherein in response to the answer button being operated, the controller is configured to transmit to the mobile device, a command signal comprising instructions for the mobile device to answer a phone call.

5. The face mask of claim 1, wherein the transceiver is configured to receive a call connection status signal indicative of a connected phone call, and wherein the transceiver is further configured to transmit the audio data to the mobile device, in response to receiving the connection status signal.

6. The face mask of claim 1, further comprising:

a pair of extension panels coupled to opposite ends of the cover shield, wherein the pair of extension panels extend from the opposite ends of the cover shield towards the ears of the wearer.

7. The face mask of claim 6, further comprising at least one of:

an acoustic transducer coupled to one extension panel of the pair of extension panels, wherein the transceiver is further configured to receive audio data from the mobile device, and wherein the acoustic transducer is configured to convert the received audio data to sound waves;

a pulse sensor coupled to one extension panel of the pair of extension panels, wherein the extension panels cover temples of the wearer, and wherein the pulse sensor is configured to measure pulse of blood flow at the temple of the wearer; or

a temperature sensor coupled to one extension panel of the pair of extension panels, wherein the extension panels cover temples of the wearer, and wherein the temperature sensor is configured to measure temperature at the temple of the wearer.

8. The face mask of claim 1, wherein the microphone is positioned to the cover shield such that, in use, the microphone is facing the mouth of the wearer.

9. The face mask of claim 1, further comprising:

a second speaker configured to amplify the sound waves received by the microphone.

10. The face mask of claim 9, wherein in the face-to-face mode, the second speaker is configured to output the amplified sound waves.

11. The face mask of claim 1, further comprising:

a sensing device coupled to the cover shield, the sensing device configured to provide a measurement,

wherein the transceiver is further configured to transmit the measurement to the mobile device.

12. The face mask of claim 11, further comprising:

an analytic processor configured to assess well-being of the wearer based on the measurement, and further configured to generate a warning signal based on the assessment,

wherein the transceiver is further configured to transmit the warning signal to the mobile device.

13. The face mask of claim 11, wherein the sensing device comprises at least one of: a fall sensor configured to detect a sudden drop in the wearer's vertical position, pedometer configured to measure steps taken by the wearer, an air humidity sensor configured to measure a humidity level of air in an inner space between the cover shield and skin of the wearer, or an air analyser configured to measure a concentration of carbon dioxide in an inner space between the cover shield and skin of the wearer.

14. The face mask of claim 1, wherein the instruction message comprises a second command to turn on the speaker.

15. The face mask of claim 1, wherein the controller is further configured to selectively operate the face mask in an over-the-air mode, wherein in in the over-the-air mode, the transceiver is configured to transmit the audio data, to the mobile device, and/or receive incoming audio data, from the mobile device.

16. The face mask of claim 15, wherein the controller is further configured to selectively operate the face mask one of the over-the-air mode or face-to-face mode, based on a mode selection input provided by a user.

17. The face mask of claim 16, further comprising:

a voice recognition module configured to recognise voice commands in the sound waves received in the microphone, and further configured to generate controller signals based on the recognised voice commands, wherein the mode selection input is provided through the controller signals generated by the voice recognition module.

18. The face mask of claim 16, further comprising:

a mode switch operable to provide the mode selection input.

19. The face mask of claim 16, wherein the transceiver is further configured to receive a third command comprising the mode selection input from the mobile device.

20. The face mask of claim 1, wherein the microphone is further configured to digitally encode the sound waves to generate the audio data, packetize the audio data to generate the packetized audio data, and wherein the transceiver is configured to transmit the packetized audio data over a short range wireless network and the instruction message, to the mobile device.