In the above disclosed tibial insert, wherein said insert is manufactured by 3-D printing, or, by molding.

According to a first aspect of the present disclosure, there is provided an implantable medical device, comprising: a circuit configured to be fixedly attached to an implantable prosthetic device; a power component; a device coupled between the circuit and the power component, the device configured to transition back and forth between a closed state in which the circuit is electrically coupled to the power component and an opened state in which the circuit is electrically uncoupled from the power component; and a control circuit configured to detect an electrical condition and to set the device to the opened state responsive to the electrical condition, and to set the device to the close state responsive to the lapsing of a delay.

According to a second aspect of the present disclosure, there is provided an implantable medical device, comprising: a circuit configured to be fixedly attached to an implantable prosthetic device; a battery; a fuse coupled between the circuit and the battery, the fuse configured to transition back and forth between a closed state in which the circuit is electrically coupled to the power component and an opened state in which the circuit is electrically uncoupled from the power component; and a control circuit configured to detect an electrical condition and to set the fuse to the opened state responsive to the electrical condition, to count the number of times the fuse has transitioned from the closed state to the open states, and to permanently set the fuse to the opened state responsive to the count exceeding a threshold count.

Disclosed herein is a method, comprising electrically opening a fuse that is disposed between a circuit and a battery, at least the fuse and the circuit being disposed on an implanted prosthetic device.

Disclosed herein is an implantable medical device, comprising: at least one sensor configured to generate a sensor signal; and a control circuit configured to cause the at least one sensor to generate the sensor signal at a frequency that is related to a telemedicine code.

Disclosed herein is an implantable medical device, comprising: at least one sensor configured to generate a sensor signal; and a control circuit configured to cause the at least one sensor to generate the sensor signal at a frequency that allows a doctor to qualify for payment under a telemedicine insurance code.

Disclosed herein is an implantable medical device, comprising: at least one sensor configured to generate a sensor signal; and a control circuit configured to cause the at least one sensor to generate the sensor signal at a frequency that allows a doctor to qualify for full payment under a telemedicine insurance code.

Disclosed herein is a method, comprising, generating a sensor signal that is related to an implanted medical device at a frequency that allows a doctor to qualify for payment available under a telemedicine insurance code.

Disclosed herein is a method, comprising, generating a sensor signal that is related to an implanted medical device at a frequency that allows a doctor to qualify for full payment available under a telemedicine insurance code.

Disclosed herein is an implantable prosthesis, comprising: a housing; and an implantable circuit disposed in the housing and configured to generate at least one first signal representative of a movement; to determine whether the signal meets at least one first criterion; and to send the signal to a remote location in response to determining that the signal meets the at least one first criterion.

Disclosed herein is a base station, comprising: a housing; and a base-station circuit disposed in the housing and configured to receive, from an implantable prosthesis, at least first signal representative of a movement; to send the at least one first signal to a destination; to receive at least one second signal from a source; and to send the at least one second signal to the implantable prosthesis.

Disclosed herein is a method, comprising opening a fuse disposed on an implantable prosthesis between a power source and an implantable circuit in response to a current through the fuse exceeding an overcurrent threshold.

Disclosed herein is a method, comprising opening a fuse disposed on an implantable prosthesis between a power source and an implantable circuit in response to a current through the fuse exceeding an overcurrent threshold for at least a threshold time.

According to a sixth aspect of the present disclosure, there is provided a method, comprising opening a fuse disposed on an implantable prosthesis between a power source and an implantable circuit in response to a voltage across the fuse exceeding an overvoltage threshold.

Disclosed herein is a method, comprising opening a fuse disposed on an implantable prosthesis between a power source and an implantable circuit in response to a voltage across the fuse exceeding an overvoltage threshold for at least a threshold time.

Disclosed herein is a method, comprising opening a fuse disposed on an implantable prosthesis between a power source and an implantable circuit in response to a temperature exceeds an overtemperature threshold.

Disclosed herein is a method, comprising opening a fuse disposed on an implantable prosthesis between a power source and an implantable circuit in response to a temperature exceeding an overtemperature threshold for at least a threshold length of time.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; and transmitting the sensor signal to a remote location.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; sampling the sensor signal; and transmitting the samples to a remote location.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; determining whether the sensor signal represents a qualified event; and transmitting the signal to a remote location in response to determining that the sensor signal represents a qualified event.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; receiving a polling signal from a remote location; and transmitting the sensor signal to the remote location in response to the polling signal.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; generating a message that includes the sensor signal or data representative of the sensor signal; and transmitting the message to a remote location.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; generating a data packet that includes the sensor signal or data representative of the sensor signal; and transmitting the data packet to a remote location.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; encrypting at least a portion of the sensor signal or data representative of the sensor signal; and transmitting the encrypted sensor signal to a remote location.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; encoding at least a portion of the sensor signal or data representative of the sensor signal; and transmitting the encoded sensor signal to a remote location.

Disclosed herein is a method, comprising: generating a sensor signal in response to a movement of a subject in which a prosthesis is implanted; transmitting the sensor signal to a remote location; and entering an implantable circuit associated with the prosthesis into a lower-power mode after transmitting the sensor signal.

Disclosed herein is a method, comprising: generating a first sensor signal in response to a movement of a subject in which a prosthesis is implanted; transmitting the first sensor signal to a

remote location; entering at least one component of an implantable circuit associated with the prosthesis into a lower-power mode after transmitting the sensor signal; and generating a second sensor signal in response to a movement of the subject after an elapse of a low-power-mode time for which the implantable circuit is configured.

Disclosed herein is a method, comprising: receiving a sensor signal from a prosthesis implanted in a subject; and transmitting the received sensor signal to a destination.

Disclosed herein is a method, comprising: sending an inquiry to a prosthesis implanted in a subject, receiving a sensor signal from a prosthesis after sending the inquiry; and transmitting the received sensor signal to a destination.

Disclosed herein is a method, comprising: receiving a sensor signal and at least one identifier from a prosthesis implanted in a subject; determining whether the identifier is correct; and transmitting the received sensor signal to a destination in response to determining that the identifier is correct.

Disclosed herein is a method, comprising: receiving a message including a sensor signal from a prosthesis implanted in a subject; decrypting at least a portion of the message; and transmitting the decrypted message to a destination.

Disclosed herein is a method, comprising: receiving a message including a sensor signal from a prosthesis implanted in a subject; decoding at least a portion of the message; and transmitting the decoded message to a destination.

Disclosed herein is a method, comprising: receiving a message including a sensor signal from a prosthesis implanted in a subject; encoding at least a portion of the message; and transmitting the encoded message to a destination.

Disclosed herein is a method, comprising: receiving a message including a sensor signal from a prosthesis implanted in a subject; encrypting at least a portion of the message; and transmitting the encrypted message to a destination.

Disclosed herein is a method, comprising: receiving a data packet including a sensor signal from a prosthesis implanted in a subject; decrypting at least a portion of the data packet; and transmitting the decrypted data packet to a destination.

Disclosed herein is a method, comprising: receiving a data packet including a sensor signal from a prosthesis implanted in a subject; decoding at least a portion of the data packet; and transmitting the decoded data packet to a destination.

Disclosed herein is a method, comprising: receiving a data packet including a sensor signal from a prosthesis implanted in a subject; encoding at least a portion of the data packet; and transmitting the encoded data packet to a destination.

Disclosed herein is a method, comprising: receiving a data packet including a sensor signal from a prosthesis implanted in a subject; encrypting at least a portion of the data packet; and transmitting the encrypted data packet to a destination.

Disclosed herein is a method, comprising: receiving a sensor signal from a prosthesis implanted in a subject; decrypting at least a portion of the sensor signal; and transmitting the decrypted sensor signal to a destination.

Disclosed herein is a method, comprising: receiving a sensor signal from a prosthesis implanted in a subject; decoding at least a portion of the sensor signal; and transmitting the decoded sensor signal to a destination.

Disclosed herein is a method, comprising: receiving a sensor signal from a prosthesis implanted in a subject; encoding at least a portion of the sensor signal; and transmitting the encoded sensor signal to a destination.

Disclosed herein is a method, comprising: receiving a sensor signal from a prosthesis implanted in a subject; encrypting at least a portion of the sensor signal; and transmitting the encrypted sensor signal to a destination.

Disclosed herein is an implantable circuit for an implantable prosthesis.

Disclosed herein is an implantable prosthesis including an implantable circuit.

Disclosed herein is an implantable prosthesis including a fuse.

Disclosed herein is a base station for communication with an implantable prosthesis.

Disclosed herein is a monitoring-session-data collection, analysis, and status-reporting system implemented as a component of one or more computer systems, each computer system having one or more processors, one or more memories, one or more network connections, and access to one or more mass-storage devices, the one or more the monitoring-session-data collection, data-analysis, and status-reporting system comprising: a monitoring-session-data-receiving component that receives monitoring-session-data, including acceleration data generated by sensors within or proximal to a prosthesis attached or implanted within a patient, from an external monitoring-session-data source and that stores the received monitoring-session-data in one or more of the one or more memories and one or more mass-storage devices; a monitoring-session-data-processing component that prepares the monitoring-session-data for processing, determines component trajectories representing motion modes and additional metric values from the monitoring-session-data; and a monitoring-session-data-analysis component that determines a prosthesis status and a patient status from the motion modes and additional metric values, distributes the determined prosthesis status and patient status to target computer systems through the network connections, and when indicated by the determined prosthesis status and patient

CLAIMS

1. An implantable medical device, comprising:

a circuit configured to be fixedly attached to an implantable prosthetic device;

a power component;

a device coupled between the circuit and the power component, the device configured to transition back and forth between a closed state in which the circuit is electrically coupled to the power component and an opened state in which the circuit is electrically uncoupled from the power component; and

a control circuit configured to detect an electrical condition and to set the device to the opened state responsive to the electrical condition, and to set the device to the close state responsive to the lapsing of a delay.

2. An implantable medical device, comprising:

a circuit configured to be fixedly attached to an implantable prosthetic device;

a battery;

a fuse coupled between the circuit and the battery, the fuse configured to transition back and forth between a closed state in which the circuit is electrically coupled to the power component and an opened state in which the circuit is electrically uncoupled from the power component; and

a control circuit configured to detect an electrical condition and to set the fuse to the opened state responsive to the electrical condition, to count the number of times the fuse has transitioned from the closed state to the open states, and to permanently set the fuse to the opened state responsive to the count exceeding a threshold count.

3. The implantable medical device of claim 1, wherein the circuit includes an implantable reporting processor.

4. The implantable medical device of claim 1, wherein the power component includes a battery.

5. The implantable medical device of claim 1, wherein the device includes a fuse.

6. The implantable medical device of claim 1, wherein the device includes a resettable fuse.

7. The implantable medical device of claim 1, wherein the device includes a switch.

8. The implantable medical device of claim 1, wherein the electrical condition is a current through the device exceeding a threshold current.

9. The implantable medical device of claim 1, wherein the electrical condition is a voltage across the device exceeding a threshold voltage.

10. The implantable medical device of claim 1, wherein the electrical condition is a temperature exceeding a threshold temperature.

11. The implantable medical device of claim 1, wherein the electrical condition is a temperature of the circuit exceeding a threshold temperature.

12. The implantable medical device of claim 1, wherein the electrical condition is a temperature of the power component exceeding a threshold temperature.

13. The implantable medical device of claim 1, wherein the electrical condition is a temperature of the device exceeding a threshold temperature.

14. The implantable medical device of claim 1, wherein the electrical condition is a current through the device exceeding a threshold current for at least a threshold time.

15. The implantable medical device of claim 1, wherein the electrical condition is a voltage across the device exceeding a threshold voltage for at least a threshold time.

16. The implantable medical device of claim 1, further comprising at least one mechanical component that is configured to function while the device uncouples the circuit from the power component.

17. The implantable medical device of claim 1, wherein the control circuit is further configured to:

determine a count corresponding to the number of times that the fuse transitioned from the closed state to the opened state, and

maintain the fuse in a permanently opened state responsive to the count exceeding a threshold count.

18. The implantable medical device of claim 1 further comprising a switch electrically coupled between the device and the circuit and configured to transition between a closed state and an open state, wherein the control circuit is configured to control the switch based on a power mode of the implantable medical device.