CLAIMS

1. A backrest for a mobility device, the backrest comprising:

a backboard having a front side and a rear side;

a resiliently compressible cushioning having a cushioning surface, and overlying and affixed to the backboard front side, whereby, responsive to user pressure, the cushioning compresses and the cushioning moves rearward, and, responsive to a reduction in user pressure, the cushioning expands and the cushioning surface moves frontward;

a heating element at the cushioning surface; and

a cooling assembly having a cooling element at the cushioning surface;

wherein the backboard has a cooling opening therethrough;

the cooling element is a heat conduction pad;

the cooling assembly further comprises

a Peltier chip bonded to the heat conduction pad;

a heat sink abutting the Peltier chip; and

a floating mount for the Peltier chip and heat sink;

when in use, the heating element and cooling element move rearward and frontward with the rearward and frontward movement of cushioning surface; and

the Peltier chip moves with the heat conduction pad responsive to user pressure, within the cooling opening, and the heat sink dissipates heat at the backboard rear side.

2. The backrest of claim 1, wherein the heat conduction pad contains a liquid or gel.

3. The backrest of claim 1, wherein the heat conduction pad contains a liquid silicone gel.

4. The backrest of claim 1, wherein the floating mount comprises a pivot mount affixed to the backboard.

5. The backrest of claim 1, further comprising: a fan; and a fan air flow path that includes the heat sink, wherein in use a fan generated flow of air passes over the heat sink.

6. The backrest of claim 5, wherein the heat sink includes fins, and the fan generated flow of air passes over the fins.

7. The backrest of claim 1, wherein:

the cushioning comprises compressible foam and a fabric cover bonded to the compressible foam; and

the heating element comprises a heating wire interposed between the foam and the fabric cover.

8. The backrest of claim 1, further comprising:

a processing unit connected to the heating element and the cooling element;

a battery connected to the processing unit; and

a user control connected to the processing unit,

wherein, in use the processing unit directs electrical power from the battery to the heating element or the cooling element, responsive to user instructions from the user control.

9. The backrest of claim 8, further comprising at least one sensor connected to the processing unit, the at least one sensor selected from the group consisting of: pressure sensor, ambient temperature sensor, user back temperature sensor, heating temperature sensor, cooling temperature sensor, heat sink temperature sensor, processor/controller temperature sensor, current sensor and combinations of two or more of the foregoing.

10. The backrest of claim 8, wherein the user control is a remote control.

11. The backrest of claim 8, wherein the user instructions comprise: high cooling, low cooling, off, low heating and high heating.

12. The backrest of claim 1, further comprising a wheelchair mount assembly for mounting the backrest to a wheelchair.

13. The backrest of claim 12, wherein the wheelchair mount assembly is configured for mounting the backrest to a wheelchair having two upward projecting backrest support tubes.

14. The backrest of claim 13, wherein the wheelchair mount assembly comprises:

a first tube mount, for mounting to a one of the upward projecting backrest support tubes;

a second tube mount, for mounting to the other of the upward projecting backrest support tubes;

a tilt shaft assembly having:

a first tube mount connection and an opposed second tube mount connection, the tube mount connections configured to connect to the tube mounts in a manner that accommodates divergences from parallel as between the two upward projecting backrest support tubes; and

a tilt shaft spanning the first tube mount connection and the second tube mount connection; and

a tilt shaft receiving port mounted to the backboard,

whereby in use, the backrest is tiltable about the tilt shaft.

15. A wheelchair comprising the backrest of claim 1.

16. A backrest for a mobility device, the backrest comprising:

a backboard having a front side, a rear side, and a cooling opening therethrough;

a resiliently compressible cushioning having a cushioning surface, and overlying and affixed to the backboard front side, whereby, responsive to user pressure, the cushioning compresses and the cushioning moves rearward, and, responsive to a reduction in user pressure, the cushioning expands and the cushioning surface moves frontward;

a heating element at the cushioning surface, wherein the cushioning comprises compressible foam and a fabric cover bonded to the compressible foam; and the heating element comprises a heating wire interposed between the foam and the fabric cover, whereby in use the heating element moves rearward and frontward with the rearward and frontward movement of the cushioning surface;

a cooling assembly having: a heat conduction pad containing a liquid silicone gel, and located at the cushioning surface; a Peltier chip bonded to the heat conduction pad; a heat sink abutting the Peltier chip; and a floating mount for the Peltier chip and heat sink, comprising a pivot mount affixed to the backboard wherein, in use, the Peltier chip moves with the heat conduction pad responsive to user pressure, within the cooling opening, and the heat sink dissipates heat at the backboard rear side;

a fan; and a fan air flow path that includes the heat sink, wherein in use a fan generated flow of air passes over the heat sink when the cooling element is operational;

a processing unit connected to the heating element, the cooling element;

a battery connected to the processing unit; and

a user control connected to the processing unit,

wherein, in use the processing unit directs electrical power from the battery to the heating element or the cooling element, responsive to user instructions from the user control.

17. The backrest of claim 16, further comprising at least one sensor connected to the processing unit, at least one sensor selected from the group consisting of: pressure sensor, ambient temperature sensor, user back temperature sensor, heating temperature sensor, cooling temperature sensor, heat sink temperature sensor, processor/controller temperature sensor, current sensor and combinations of two or more of the foregoing.