CLAIMS

WHAT IS CLAIMED IS:

1. A mattress system comprising:

a foam layer positioned proximate a mattress top and having a head end, a foot end, and opposite lateral ends; and

a sensor strip including:

a carrier strip, and

a plurality of sensors attached to the carrier strip and spaced apart from each other in a longitudinal direction of the carrier strip, the carrier strip configured to be releasably attached to the foam layer and extend between the opposite lateral ends of the foam layer.

2. The mattress system of claim 1, further comprising:

a mattress cover disposed on the foam layer and covering the foam layer and the sensor strip, wherein the mattress cover is free of the carrier strip that is attached to the foam layer.

3. The mattress system of claim 1, wherein the carrier strip has a first strip surface and a second strip surface opposite to the first strip surface, the first strip surface configured to be releasably attached to the foam layer, and

wherein the plurality of sensors are disposed at the first strip surface of the carrier strip.

4. The mattress system of claim 1, wherein the plurality of sensors are stitched to the carrier strip.

5. The mattress system of claim 1, wherein the plurality of sensors are attached to the carrier strip by adhesive.

6. The mattress system of claim 1, wherein:

the carrier strip includes a first fastener configured to be releasably attached to the foam layer,

the foam layer includes a second fastener configured to releasably attach the first fastener of the carrier strip, and

the first and second fasteners include hook-and-loop fasteners.

7. A mattress system comprising:

a foam layer positioned proximate a mattress top and having a head end, a foot end, and opposite lateral ends;

a first air chamber positioned under a first portion of the foam layer;

a second air chamber positioned under a second portion of the foam layer, wherein the first portion and the second portion are arranged side-by-side between the opposite lateral ends of the foam layer;

a sensor strip including:

a carrier strip having a first strip portion and a second strip portion,

a plurality of first sensors attached to the first strip portion of the carrier strip and spaced apart from each other in a longitudinal direction of the carrier strip,

a plurality of second sensors attached to the second strip portion of the carrier strip and spaced apart from each other in the longitudinal direction of the carrier strip,

wherein the carrier strip is configured to be releasably attached to the foam layer and extend between the opposite lateral ends of the foam layer, the first strip portion and the second strip portion configured to be disposed at the first portion and the second portion of the foam layer, respectively.

8. The mattress system of claim 7, wherein the carrier strip has a first strip surface and a second strip surface opposite to the first strip surface, the first strip surface configured to be releasably attached to the first portion and the second portion of the foam layer, and

wherein the plurality of first sensors and the plurality of second sensors are disposed at the first strip surface of the carrier strip.

9. The mattress system of claim 7, wherein the plurality of first sensors are spaced five inches apart from each other on the first strip portion of the carrier strip and the plurality of second sensors are spaced five inches apart from each other on the second strip portion of the carrier strip.

10. The mattress system of claim 1, wherein the plurality of sensors are spaced five inches apart from each other in the longitudinal direction of the carrier strip.

11. The mattress system of claim 1, wherein the sensor strip includes micro-hooks configured to releasably attach directly to a surface of the foam layer.

12. A mattress system comprising:

a top layer positioned proximate a mattress top and having a head end, a foot end, and opposite lateral ends; and

a sensor strip including:

a carrier strip, and

a plurality of sensors attached to the carrier strip and spaced apart from each other in a longitudinal direction of the carrier strip, the carrier strip configured to be releasably attached to the top layer and extend between the opposite lateral ends of the top layer.

13. The mattress system of claim 1, wherein the carrier strip is configured to extend between a midpoint of the foam layer and a location that is a predetermined distance away from an edge of a first lateral end of the opposite lateral ends of the foam layer, wherein the carrier strip does not extend over the edge of the first lateral end of the opposite lateral ends of the foam layer.

14. The mattress system of claim 1, wherein the carrier strip does not extend over either of opposite sides of the foam layer, and

wherein the plurality of sensors include wires, the wires being collectively routed over an edge of a first lateral end of the opposite lateral ends of the foam layer and down one of the opposite sides of the foam layer.

15. The mattress system of claim 1, wherein the plurality of sensors include wires, the wires being collectively routed through at least one hole defined through the foam layer.

16. The mattress system of claim 1, wherein the sensor strip further includes a plurality of additional materials, wherein each of the plurality of additional materials are ultrasonically welded to the carrier strip between each of the plurality of sensors in the longitudinal direction of the carrier strip.

17. The mattress system of claim 16, wherein at least one of the plurality of additional materials forms at least one of (i) a circle around at least one of the plurality of sensors and (ii) a triangle around at least one of the plurality of sensors.

18. The mattress system of claim 16, wherein at least one of the plurality of additional materials forms a square around at least one of the plurality of sensors.

19. The mattress system of claim 16, wherein at least one of the plurality of additional materials extends a length between two consecutive sensors of the plurality of sensors in the longitudinal direction of the carrier strip.

~~20. The mattress system of claim 16, wherein each of the plurality of additional materials is welded to the carrier strip in welding locations that straddle a wire that wiredly connects the plurality of sensors in series in the longitudinal direction of the carrier strip.~~

~~21. The mattress system of claim 1, wherein the plurality of sensors are wired in series.~~

~~22. The mattress system of claim 3, wherein the carrier strip includes a sensor cover layer that is attached to the first strip surface and covers at least part of the plurality of sensors at the first strip surface.~~

~~23. The mattress system of claim 1, wherein the carrier strip includes opposite lead portions that are configured to be releasably attached to opposite sides of the foam layer.~~

~~24. The mattress system of claim 23, wherein the opposite lead portions of the carrier strip are configured to be releasably attached to opposite sides of at least a portion of the mattress system.~~

~~25. The mattress system of claim 23, wherein the opposite lead portions of the carrier strip are nine feet long.~~

~~26. The mattress system of claim 1, wherein the mattress system is king-sized, California king-sized, or queen-sized.~~

~~27. The mattress system of claim 1, wherein the sensor strip is configured to be releasably attached to the foam layer free of an intermediary surface between the sensor strip and the foam layer.~~

~~28. The mattress system of claim 11, wherein the micro-hooks are configured to releasably attach directly to a bottom surface of the foam layer.~~

~~29. The mattress system of claim 1, further comprising loop fasteners attached to a bottom surface of the foam layer.~~

~~30. The mattress system of claim 29, wherein the sensor strip includes hook fasteners that are configured to releasably attach to the loop fasteners.~~

~~31. The mattress system of claim 1, further comprising a mattress core positioned under the compressible layer.~~

~~32. The mattress system of claim 12, wherein the top layer is a compressible material, foam, or fabric.~~

~~33~~20. A method for providing a mattress, comprising:

arranging a set of mattress layers in place, the layers including a foam layer, the foam layer being positioned proximate a mattress top and having a head end, a foot end, and opposite lateral ends;

attaching a first sensor strip to the foam layer of the mattress layers between the opposite lateral ends of the foam layer;

placing a mattress cover on the foam layer to cover the foam layer and the first sensor strip, wherein the mattress cover is free of the first sensor strip that is attached to the foam layer;

removing the mattress cover from the foam layer;

detaching the first sensor strip from the foam layer;

attaching a second sensor strip to the foam layer in place of the first sensor strip; and

placing the mattress cover on the foam layer to cover the foam layer and the second sensor strip, wherein the mattress cover is free of the second sensor strip that is attached to the foam layer.

34. The method of claim 33, wherein the second sensor strip includes a plurality of sensors that are different in type from a plurality of sensors of the first sensor strip.

35. The method of claim 33, wherein the second sensor strip includes a plurality of sensors that are different in number and arrangement from a plurality of sensors of the first sensor strip.

36. The method of claim 33, further comprising:

attaching a reinforcement strap across a bottom of the set of mattress layers; and

attaching the first sensor strip to the reinforcement strap at the bottom of the set of mattress layers.

37. The method of claim 36, wherein detaching the first sensor strip from the foam layer comprises:

detaching the first sensor strip from the reinforcement strap at the bottom of the set of mattress layers; and

detaching the first sensor from the foam layer at the mattress top.

38. The method of claim 37, further comprising:

attaching the second sensor strip to the reinforcement strap at the bottom of the set of mattress layers.

39. The method of claim 33, further comprising:

attaching a reinforcement strap across a bottom of the set of mattress layers; and

attaching the first sensor strip onto the bottom of the set of mattress layers adjacent to the reinforcement strap.