

Moreover even though some devices are detachable, they are not modular and none describe the feature of being interchangeable. For instance, once the device is designed to monitor cardiac frequency, that same design is not able to monitor another parameter, such as temperature.

SUMMARY

According to a first aspect, a textile motherboard is provided, characterized by the implementation of at least one substrate that consists of a textile material and serves as support for a textile circuit or part of it; wherein the textile substrate additionally includes at least one portion of a textile conductive layer and a portion of a textile isolating layer; at least a conductive routing that defines trajectories of the textile circuit or part of it, in the at least one portion of textile conductive layer, and that serves as transmission platform for the textile circuit that conforms the textile motherboard; at least one component incorporated into the substrate and attached to the conductive routing, which conforms a peripheral of the textile motherboard, or that conforms a peripheral or a part of a peripheral employable in another textile motherboard; at least an interconnection terminal attached to the conductive routing, which consists of at least a means of textile union, which enables the connection and disconnection of at least one electronic, or photonic peripheral, which exhibits at least one complementary means of textile union, which enables the interchange of peripherals usable in the textile motherboard; wherein the at least one conductive routing is attached by means of textile vertical interconnect accesses (VIA) to another conductive routing placed in another portion of conductive layer in the at least one substrate and; the textile motherboard is configured to monitor, inform, and control parameters of a user that wears a garment, which incorporates such textile motherboard.

Also absent in the state-of-the-art is the ability of the textiles to manipulate objects of interest, such as the lights of a public establishment, after selecting a (textile) menu of options.

BRIEF DESCRIPTION OF THE INVENTION.

In order to address the abovementioned problem in the state-of-the-art, it is the object of the present invention to disclose embodiments that provide the structure of a textile motherboard (TMB) The substrate of the TMB, object of the present invention, is conformed of textile material. Furthermore, the TMB may be structured with single-layer or multiple-layer designs, incorporating perforations for layer interconnection. Layers and perforations are conformed of textile materials and are incorporated into the TMB by means of textile manipulation techniques.

The routing of the TMB includes at least two different types of routing: maze routing and X-Y routing. Both routing types may be implemented in the TMB, for instance by utilizing textile printing techniques or by incorporating the routes by following a required pattern using textile manipulation techniques.

The peripherals may be broadly classified as input or output peripherals. In order to yield flexibility, the TMB incorporates terminals in the CPU and peripherals that simplify the modular and interchangeable design of the TMB by employing conventional textile connectors.

Finally, the implementation of an interchangeable TMB design, including input and output peripherals, enables the user to manipulate objects of interest, such as the lights of a public establishment, after selecting a menu of options.

CLAIMS

1. A textile motherboard, characterized by the implementation of:

- 5 at least one substrate that consists of a textile material and serves as support for a textile circuit or part of it; wherein the textile substrate additionally includes at least one portion of a textile conductive layer and a portion of a textile isolating layer;
- 10 at least a conductive routing that defines trajectories of the textile circuit or part of it, in the at least one portion of textile conductive layer, and that serves as transmission platform for the textile circuit that conforms the textile motherboard;
- 15 at least one component incorporated into the substrate and attached to the conductive routing, which conforms a peripheral of the textile motherboard, or that conforms a peripheral or a part of a peripheral employable in another textile motherboard;
- 20 at least an interconnection terminal attached to the conductive routing, which consists of at least a means of textile union, which enables the connection and disconnection of at least one electronic, or photonic peripheral, which exhibits at least one complementary means of textile union, which enables the interchange of peripherals usable in the textile motherboard;

wherein the at least one conductive routing is attached by means of textile vertical interconnect accesses (VIA) to another conductive routing placed in another portion of conductive layer in the at least one substrate and;

5 the textile motherboard is configured to monitor, inform, and control parameters of a user that wears a garment, which incorporates such textile motherboard.

2. Textile motherboard according to claim 1, wherein the textile motherboard is conformed of at least two substrates and at least one conductive routing in
10 each substrate, and the connection between conductive routings is achieved by means of textile vertical interconnect accesses (VIA)

3. Textile motherboard according to claims 1 or 2, wherein the textile vertical interconnect accesses (VIA) may be selected from a tag or a sequential or a
15 thru or a photo-defined or a controlled depth or a buried VIA, and alike structures, or combinations thereof.

4. Textile motherboard according to any of the claims 1 to 3, wherein the substrates or portions of conductive layers are separated by at least one
20 isolating layer.

5. Textile motherboard according to claim 4, wherein the isolating layer may be the same as the substrate layer.

6. Textile motherboard according to claim 1, wherein one of the at least one electronic, or photonic peripheral includes a central processing unit (CPU)
7. Textile motherboard according to claim 6, wherein the central processing unit
5 (CPU) consists of a microcontroller or a microprocessor.
8. Textile motherboard according to any of the claims 1 to 7, wherein the at least one conductive routing consists of a textile electric conductor or a textile arrangement that incorporates a fiber optic or a textile arrangement that
10 incorporates a waveguide.
9. Textile motherboard according to claim 8, wherein the textile conductor consists of an interwoven route within the textile that conforms the substrate layer.
- 15 10. Textile motherboard according to claim 8, wherein the textile conductor consists of multiple layers, which define the conductive routings, and are placed adjacent in a single plane separated by isolating layers, or are placed superposed in an alternating manner with the isolating layers.
- 20 11. Textile motherboard according to any of the claims 1 to 10, wherein the interconnection terminal is configured to enable the interchange of central

processing units or of peripheral elements, in order to monitor different variables or to inform or to signalize or to control operations of alike elements.

12. Textile motherboard according to claim 11, wherein the interconnection terminal
5 consists of a snap or a hook or a hook and loop system attached to the
conductive routing.