

CLAIMS

1. A wearable physiological monitoring device, comprising:
 - a disposable component comprising:
 - a first electrode;
 - a second electrode;
 - a cradle, wherein the cradle comprises:
 - a battery;
 - a first electrical contact and a second electrical contact, both the first and second electrical contacts being electrically coupled to the battery;
 - a third electrical contact electrically coupled to the first electrode;
 - a fourth electrical contact electrically coupled to the second electrode; and
 - a disposable component latching system; and
 - a reusable component configured to be secured to the disposable component, the reusable component comprising:
 - a reusable component latching system configured to operably engage the disposable component latching system;
 - an electronics module;
 - an electrical interface associated with the electronics module, wherein the electrical interface comprises a fifth electrical contact for electrically coupling the electronics module to the first electrical contact, a sixth electrical contact for electrically coupling the electronics module to the second electrical contact, a seventh electrical contact for electrically coupling the electronics module to the third electrical contact, and an eighth electrical contact for electrically coupling the electronics module to the fourth electrical contact;
 - wherein the cradle further comprises:

a battery disconnect switch located between the first electrical contact and the battery, said battery disconnect switch comprising:

a first trace electrically coupled to the first electrical contact, said first trace comprising a first free end;

a second trace electrically coupled to the battery, said second trace comprising a second free end, wherein the first free end is electrically isolated from the second free end;

a button comprising a top side in proximity to the first trace and a bottom side in proximity to the second trace;

a conductive plate located on the bottom side of the button;

wherein the button is spring-loaded so that in a first configuration, the conductive plate is not in electrical contact with the first free end and the second free end, and in a second configuration when pressure is applied to the button, the conductive plate comes into electrical contact with the first free end and the second free end so as to electrically couple the first free end to the second free end.

2. The device of claim 1, wherein the reusable component is configured to apply pressure to the button when the reusable component is latched on to the disposable component.
3. The device of claim 1, wherein the reusable component comprises a protrusion to apply pressure to the button when the reusable component is latched on to the disposable component.
4. A wearable physiological monitoring device, comprising:
 - a disposable component comprising:
 - a first electrode;
 - a second electrode;
 - a cradle, wherein the cradle comprises:
 - a battery;

a first electrical contact and a second electrical contact, both the first and second electrical contacts being electrically coupled to the battery;

a third electrical contact electrically coupled to the first electrode;

a fourth electrical contact electrically coupled to the second electrode; and

a disposable component latching system; and

a reusable component configured to be secured to the disposable component, the reusable component comprising:

a reusable component latching system configured to operably engage the disposable component latching system;

an electronics module;

an electrical interface associated with the electronics module, wherein the electrical interface comprises a fifth electrical contact for electrically coupling the electronics module to the first electrical contact, a sixth electrical contact for electrically coupling the electronics module to the second electrical contact, a seventh electrical contact for electrically coupling the electronics module to the third electrical contact, and an eighth electrical contact for electrically coupling the electronics module to the fourth electrical contact;

wherein each of the fifth electrical contact, sixth electrical contact, seventh electrical contact, and eighth electrical contact are spring loaded electrical connectors;

wherein each one of the first electrical contact, second electrical contact, third electrical contact, and fourth electrical contact comprises a multilayered ink contact comprising a first ink layer and a second ink layer, further wherein the first ink layer has a higher conductivity than the second ink layer, and the second ink layer is made up of material with a smaller particle size than the first ink layer.

5. The device of claim 4, wherein:
 - the first ink layer comprises a silver ink, wherein a thickness of the first ink layer is approximately 0.01mm; and
 - the second ink layer comprises a carbon ink, wherein a thickness of second ink layer is approximately 0.013mm.
6. The device of claim 4, further comprising:
 - a gasket, wherein the gasket comprises a first individual enclosure around the fifth electrical contact that does not enclose any other electrical contact, a second individual enclosure around the sixth electrical contact that does not enclose any other electrical contact, a third individual enclosure around the seventh electrical contact that does not enclose any other electrical contact, and a fourth individual enclosure around the eighth electrical contact that does not enclose any other electrical contact, in such a way that water cannot enter or exit any individual enclosures when the reusable component is engaged with the disposable component.
7. The device of claim 6, wherein each one of the first, second, third, and fourth individual enclosure is cylindrical in shape.
8. The device of claim 6, wherein the gasket comprises a top half attached to the reusable component and a bottom half attached to the disposable component.
9. The device of claim 6, wherein the gasket is entirely attached to the reusable component.
10. The device of claim 6, wherein the gasket is entirely attached to the disposable component.
11. A method of assembling a device comprising a plastic housing and a PCBA located inside the plastic housing, wherein the plastic housing comprises a top half and a bottom half, the method comprising:
 - placing the PCBA on the bottom half of the plastic housing in such a way that the PCBA is not mechanically coupled to the bottom half;

placing the top half on the bottom half of the plastic housing in such a way that the PCBA is not mechanically coupled to the top half; and
ultrasonically welding the top half to the bottom half.

12. A device comprising a plastic housing and a PCBA located inside the plastic housing, wherein the plastic housing comprises a top half and a bottom half, wherein the PCBA is not rigidly attached to either the top half or the bottom half, wherein the top half and the bottom half are ultrasonically welded together.