MARKED-UP CLAIMS

We Claim:

1. A method to collect physiological data using a dynamically configurable biopotential electrode array, comprising:
detecting contact between at least two contiguousadjacent electrode tiles of the biopotential electrode array and skin of a user;
electrically coupling the at least two contiguousadjacent electrode tiles, based on detecting contact, to form a first active electrode area within the biopotential electrode array, the first active electrode area functioning as a single electrode; and; and
collecting physiological data associated with the user via the coupled electrode tiles of the first active electrode area; and, wherein the contiguous electrode tiles share a border.

2. The method as claimed in of claim 1, further comprising:
polling the at least two electrically coupled electrode tiles within the first active electrode area to detect whether the contact between the at least two contiguousadjacent electrode tiles and the skin of the user is maintained.

3. The method as claimed inof claim 2, further comprising:
decoupling the at least two contiguousadjacent electrode tiles after contact between the skin of the user and the at least two contiguousadjacent electrode tiles is terminated.

4. The method as claimed inof claim 1 , further comprising:
polling, concurrently with collecting the physiological data, polling a plurality of non-coupled electrode tiles of the biopotential electrode array to detect contact between non-coupled electrode tiles of the plurality of electrode tiles and the skin of the user.

5. The method as claimed inof claim 4, further comprising:
electrically coupling at least two contiguousadjacent electrode tiles, based on detecting contact, to form a second active electrode area within the biopotential electrode array, the second active electrode area functioning as a single electrode; and; and
collecting physiological data associated with the user via the coupled electrode tiles of the second active electrode area.

6. The method as claimed inof claim 5, wherein,
the first active electrode area and the second active electrode area exist nonconcurrentlynoncurrently within the biopotential electrode array.

7. The method as claimed inof claim 1, further comprising:
determining whether a minimum number of active electrode areas exist within the biopotential electrode array; and
collecting physiological data associated with the user based on the determination that the minimum number of active electrode areas exist.

8. The method as claimed inof claim 1, further comprising:
detecting a plurality of active electrode areas within the biopotential electrode array;
comparing signal qualities associated with each of the plurality of active electrode areas; and
selecting at least one of the plurality of active electrode areas to collect physiological data based on the comparison of signal qualities.

9. The method as claimed in~~of~~ claim 1, wherein,
the at least two electrode tiles comprise one or more biosensors to collect the physiological data.

the one or more biosensors comprise an electrocardiogram ~~(ECG)~~ sensor~~)~~ or a galvanic skin response ~~(GSR)~~ sensor.

11. The method as claimed in~~of~~ claim 1 , further comprising:
analyzing the collected physiological data associated with the user; and determining a state of the user based on the analysis of the collected physiological data.

12. The method as claimed in~~of~~ claim 1, wherein,
the biopotential electrode array is embedded on a surface area of a handheld electronic device.

13. A communications device configured to collect physiological data using a dynamically configurable biopotential electrode array, comprising:
the biopotential electrode array;
a detection module configured to detect contact between at least two contiguous~~adjacent~~ electrode tiles of the biopotential array and skin of a user;
a coupling module configured to electrically couple the at least two contiguous~~adjacent~~ electrode tiles, based on detecting contact, to form a first active electrode area within the biopotential electrode area, the first active electrode area configured to function as a single electrode; and~~; and~~
a collection module configured to collect physiological data associated with the user via the coupled electrode tiles of the first active electrode area; and, ~~.~~
wherein the contiguous electrode tiles share a border.

14. The communications device as claimed in~~of~~ claim 13, further comprising: a polling module configured to poll the at least two electrically coupled electrode tiles within the first active electrode area to detect whether the contact between the at least two contiguous~~adjacent~~ electrode tiles and the skin of the user is maintained.

15. The communications device as claimed in~~of~~ claim 14, wherein, the coupling module is further configured to decouple the at least two contiguous~~adjacent~~ electrode tiles after contact between the skin of the user and the at least two contiguous~~adjacent~~ electrode tiles is terminated.

16. The communications device as claimed in~~of~~ claim 14~~13~~, wherein, the polling module is further configured to poll, concurrently with collecting the physiological data, a plurality of non-coupled electrode tiels~~tiles~~ of the biopotential electrode array to dected~~detect~~ contact between non-coupled electrode tiles of the plurality of electrode tiles and the skin of the user.

17. The communications device as claimed in~~of~~ claim 16, wherein, the coupling module is further configured to electrically couple at least two contiguous~~adjacent~~ electrode tiles, based on detecting contact, to form a second active electrode area within the biopotential electrode array, the second active electrode area configured to function as a single electrode; and~~; and~~

the collection module is further configured to collect physiological data associated with the user via the coupled electrode tiles of the second active electrode area.

18. The communications device as claimed in~~of~~ claim 17, wherein,
the first active electrode area and the second active electrode area exist nonconcurrently~~noncurrently~~ within the biopotential electrode array.

19. The communications device as claimed in~~of~~ claim 13, wherein, the collection module is further configured to determine whether a minimum number of active electrode areas exist within the biopotential electrode array; and
the collection module being further configured to collect physiological data associated with the user based on the determination that the minimum number of active electrode areas exist.

20. The communications device as claimed in~~of~~ claim 13, further comprising a comparing module and a selection module, wherein,
the detection module is further configured to detect a plurality of active electrode areas within the biopotential electrode array;
the comparing module is configured to compare signal qualities associated with each of the plurality of active electrode areas; and
the selection module is configured to select at least one of the plurality of active electrode areas to collect physiological data based on the comparison of signal qualities.

21. The communications device as claimed in~~of~~ claim 13, wherein, the at least two electrode tiles comprise one or more biosensors to collect the physiological data.

22. The communications device as claimed in~~of~~ claim 21 , wherein, the one or more biosensors comprise an electrocardiogram ~~(ECG)~~ sensor or a galvanic skin response ~~(GSR)~~ sensor.

23. The communications device as claimed in~~of~~ claim 13, further comprising an analysis module and a state module, wherein,
the analysis module is configured to analyze the collected physiological data associated with the user; and
the state module is configured to determine a state of the user based on the analysis of the collected physiological data.

24. The communications device as claimed in~~of~~ claim 13, wherein, the biopotential electrode array is embedded on a surface area of the communications device.

25. A system configured to collect physiological data using a dynamically configurable biopotential electrode array, comprising:
means for detecting contact between at least two contiguous~~adjacent~~ electrode tiles of the biopotential electrode array and skin of a user;
means for electrically coupling the at least two contiguous~~adjacent~~ electrode tiles, based on detecting contact, to form a first active electrode area within the biopotential electrode array, the first active electrode area configured to function as a single electrode; and~~; and~~
means for collecting physiological data associated with the user via the coupled electrode tiles of the first active electrode area; and,~~.~~
wherein the contiugous electrode tiles share a border.

26. The system as claimed in~~of~~ claim 25, further comprising:
means for polling the at least two electrically coupled electrode tiles within the first active electrode area to detect whether the contact between the at least two contiguous~~adjacent~~ electrode tiles and the skin of the user is maintained.

27. The system as claimed in~~of~~ claim 26, further comprising:
means for decoupling the at least two contiguous~~adjacent~~ electrode tiles after contact between the skin of the user and the at least two contiguous~~adjacent~~ electrode tiles is terminated.

28. The system as claimed in~~of~~ claim 25, further comprising:
means for polling, concurrently with collecting the physiological data, a plurality of non-coupled electrode tiles of the biopotential electrode array to detect contact between non-coupled electrode tiles of the plurality of electrode tiles and the skin of the user.

29. The system as claimed in~~of~~ claim 28 further comprising:
means for electrically coupling at least two contiguous~~adjacent~~ electrode tiles, based on detecting contact, to form a second active electrode area within the biopotential electrode array, the second active electrode area configured to function as a single electrode; and~~; and~~
means for collecting physiological data associated with the user via the coupled electrode tiles of the second active electrode area.

30. The system as claimed in~~of~~ claim 29, wherein,
the first active electrode area and the second active electrode area exist nonconcurrently~~noncurrently~~ within the biopotential electrode array.

31. The system as claimed in~~of~~ claim 25, further comprising:
means for determining whether a minimum number of active electrode areas exist within the biopotential electrode array; and
means for collecting physiological data associated with the user based on the determination that the minimum number of active electrode areas exist.

32. The system as claimed in~~of~~ claim 25, further comprising:
means for detecting a plurality of active electrode areas within the biopotential electrode array;
means for comparing signal qualities associated with each of the plurality of active electrode areas; and
means for selecting at least one of the plurality of active electrode areas to collect physiological data based on the comparison of signal qualities.

33. The system as claimed in~~of~~ claim 25 , wherein,
the at least two electrode tiles comprise one or more biosensors to collect the physiological data.

34. The system as claimed in~~of~~ claim 33, wherein,
the one or more biosensors comprise an electrocardiogram ~~(ECG)~~ sensor or a galvanic skin response ~~(GSR)~~ sensor.

35. The system as claimed in~~of~~ claim 25, further comprising:
means for analyzing the collected physiological data associated with the user; and

means for determining a state of the user based on the analysis of the collected physiological data.

36-38. (Deleted)