

CLAIMS

1. ~~An apparatus comprising:
a sensor constructed to be worn by a person and configured to sense information indicative of a direction intended by the person;
a processor, and
storage for instructions executable by the processor to:
determine the direction based on the information sensed by the sensor, and based on the direction and a location for the person, determine a geographic location.~~
2. ~~The apparatus of claim 1, wherein the sensor comprises:
a biopotential sensor constructed to be worn by the person and configured to sense biopotentials appearing on the person and associated with muscles controlling a body part or an appendage near the body part; and
a location sensor constructed to be worn by the person and configured to sense a location on the person.~~
3. ~~The apparatus of claim 2, wherein the instructions in the storage are executable by the processor to:
detect a primitive gesture representative of an intention expressed by the person, based on the biopotentials sensed by the biopotential sensor and based on the location on the person sensed by the location sensor, and
in response to the primitive gesture, determine the geographic location.~~
4. ~~The apparatus of claim 1, wherein the sensor comprises an eye tracking device.~~
5. ~~The apparatus of claim 1, wherein the sensor comprises a location sensor constructed to be worn by the person and configured to sense a location on the person.~~
6. ~~The apparatus of claim 1, wherein the sensor comprises a geomagnetic sensor.~~

7. — ~~The apparatus of claim 1, wherein the sensor comprises an altimeter.~~
8. — ~~The apparatus of claim 1, wherein the sensor comprises an encoder providing information indicating a change in position.~~
9. — ~~The apparatus of claim 3, wherein the biopotential sensor is configured to sense the biopotential signals on the top of the wrist.~~
10. — ~~The apparatus of claim 9, wherein the appendage comprises one or more fingers of a hand connected to the wrist.~~
11. — ~~The apparatus of claim 10, wherein the primitive gesture comprises a pose of the appendage.~~
12. — ~~The apparatus of claim 11, wherein the pose of the appendage comprises a pose of the hand.~~
13. — ~~The apparatus of claim 12, wherein the pose of the hand includes a pose of one or more fingers.~~
14. — ~~The apparatus of claim 12, wherein the pose of the hand includes a movement of one or more fingers.~~
15. — ~~The apparatus of claim 12, wherein the pose of the hand includes a pose of a single finger.~~
16. — ~~The apparatus of claim 12, wherein the pose of the hand includes movement of a single finger.~~
17. — ~~The apparatus of claim 16, wherein the single finger is the thumb.~~

18. — ~~The apparatus of claim 16, wherein the single finger is the index finger.~~
19. — ~~The apparatus of claim 12, wherein the pose of the hand includes a position of the hand relative to the wrist.~~
20. — ~~The apparatus of claim 3, wherein the primitive gesture comprises a finger swipe.~~
21. — ~~The apparatus of claim 3, wherein the primitive gesture comprises a finger lift.~~
22. — ~~The apparatus of claim 3, wherein the primitive gesture comprises a finger hold.~~
23. — ~~The apparatus of claim 2, wherein the location on the person comprises data indicative of a heading.~~
24. — ~~The apparatus of claim 1, wherein the processor further performs an action based on the determined geographic location.~~
25. — ~~The apparatus of claim 24, wherein the action comprises selecting an object based on the geographic location.~~
26. — ~~The apparatus of claim 25, wherein the selected object comprises an object in a three-dimensional scene.~~
27. — ~~The apparatus of claim 26, wherein the three-dimensional scene comprises a computer generated three-dimensional scene.~~
28. — ~~The apparatus of claim 26, wherein the three-dimensional scene comprises a real-world scene.~~

~~29. The apparatus of claim 2, wherein the location sensor comprises an accelerometer, the location signals generated by the accelerometer comprising a signal indicative of direction and magnitude of acceleration of the location on the person.~~

~~30. The apparatus of claim 2, wherein the location sensor comprises a gyroscope, the location signals generated by the gyroscope comprising a signal indicative of orientation and angular velocity of the location on the person.~~

CLAIMS

1. A system comprising:

a biopotential sensor, the biopotential sensor configured to be worn by a person at a wrist and to sense biopotentials at the wrist;

a wrist location sensor, the wrist location sensor configured to be worn at the wrist and to provide wrist location data indicative of a location of the wrist; and

a processor;

wherein the system is configured to:

based on at least the wrist location data from the wrist location sensor, determine a directional vector intended by the person;

based on at least the biopotentials sensed by the biopotential sensor, detect a gesture indicating an intention to make a selection; and

based on the directional vector and the detected gesture, select a target, the selected target being indicated by the directional vector as determined when the gesture indicating the intention to make a selection is detected.

2. The system of claim 1, wherein the target is a geographic location.

3. The system of claim 1, wherein the target is an object.

4. The system of claim 3, wherein the system is further configured to:
after selecting the object based on the directional vector and the detected gesture, control
the object;
wherein the step of controlling the object comprises:
based on at least the wrist location data from the wrist location sensor and the
biopotentials sensed by the biopotential sensor, determining one or more commands;
transmitting the one or more commands to the object.
5. The system of claim 4, wherein the system is further configured to:
initiate a mode in which the step of controlling the object may be performed;
wherein initiating the mode in which the step of controlling the object may be performed
comprises:
based on one or more of (i) the wrist location data from the wrist location sensor
and (ii) the biopotentials sensed by the biopotential sensor, detecting a wake word
gesture, the wake word gesturing indicating an intention to initiate the mode in which the
step of controlling the object may be performed.
6. The system of claim 1, wherein the step of determining the directional vector intended by
the person is performed based on both:
the wrist location data from the wrist location sensor; and
data indicating a location of the person.
7. The system of claim 6, wherein the data indicating the location of the person is global
positioning system (GPS) data.
8. The system of claim 6, wherein the data indicating the location of the person is based on
triangulation using directions from multiple reference points.

9. The system of claim 6, wherein the step of selecting the target is based on at least:
the directional vector based on (i) the wrist location data from the wrist location sensor
and (ii) the data indicating a location of the person;
the detected gesture based on at least the biopotentials sensed by the biopotential sensor;
and
context data comprising information related to the target.
10. The system of claim 9, wherein the context data comprises a location of the target.
11. The system of claim 9, wherein the context data comprises image data or video data.
12. A system comprising:
a biopotential sensor, the biopotential sensor configured to be worn by a person at a wrist
and to sense biopotentials at the wrist; and
a wrist location sensor, the wrist location sensor configured to be worn at the wrist and to
provide wrist location data indicative of a location of the wrist;
the system being configured to provide output data based on the biopotentials sensed by
the biopotential sensor and the wrist location data sensed by the wrist location sensor to one or
more processors configured to:
based on at least the wrist location data from the wrist location sensor, determine
a directional vector intended by the person;
based on at least the biopotentials sensed by the biopotential sensor, detect a
gesture indicating an intention to make a selection; and
based on the directional vector and the detected gesture, select a target, the
selected target being indicated by the directional vector as determined when the gesture
indicating the intention to make a selection is detected.

13. The system of claim 12, wherein the target is a geographic location.
14. The system of claim 12, wherein the target is an object.
15. The system of claim 14, wherein the one or more processors are further configured to:
after selecting the object based on the directional vector and the detected gesture, control
the object;
wherein the step of controlling the object comprises:
based on at least the wrist location data from the wrist location sensor and the
biopotentials sensed by the biopotential sensor, determining one or more commands;
transmitting the one or more commands to the object.
16. The system of claim 15, wherein the one or more processors are further configured to:
initiate a mode in which the step of controlling the object may be performed;
wherein initiating the mode in which the step of controlling the object may be performed
comprises:
based on one or more of (i) the wrist location data from the wrist location sensor
and (ii) the biopotentials sensed by the biopotential sensor, detecting a wake word
gesture, the wake word gesturing indicating an intention to initiate the mode in which the
step of controlling the object may be performed.
17. The system of claim 12, wherein the step of determining the directional vector intended
by the person is performed based on both:
the wrist location data from the wrist location sensor; and
data indicating a location of the person.
18. The system of claim 17, wherein the data indicating the location of the person is global
positioning system (GPS) data.

19. The system of claim 17, wherein the data indicating the location of the person is based on triangulation using directions from multiple reference points.

20. The system of claim 17, wherein the step of selecting the target is based on at least:
the directional vector based on (i) the wrist location data from the wrist location sensor
and (ii) the data indicating a location of the person;
the detected gesture based on at least the biopotentials sensed by the biopotential sensor;
and
context data comprising information related to the target.

21. The system of claim 20, wherein the context data comprises a location of the target.

22. The system of claim 20, wherein the context data comprises image data or video data.