CLAIMS

1. A carotid physiological parameter monitoring system, comprising:

an electrocardiographic (ECG) monitoring device to be disposed on a user's left and right wrists or on the user's chest, wherein the ECG monitoring device comprises a device body and a plurality of electrodes provided on the device body to obtain ECG waveforms;

a carotid pulse wave detector to be disposed on the user's neck at a position corresponding to the user's carotid arteries, wherein the carotid pulse wave detector comprises at least one sensor for obtaining carotid pulse waveforms; and

at least one controller provided in at least one of the ECG monitoring device, the carotid pulse wave detector, and a mobile device, wherein the controller is configured to obtain a carotid physiological parameter of the user by calculating with the ECG waveforms and the carotid pulse waveforms, wherein the carotid physiological parameter includes carotid pulse wave velocity or the carotid blood pressure to determine a degree of carotid stenosis, wherein the mean arterial pressure is obtained through the following equation (I) or equation (II):

$$\mathrm{MAP} = a\left(\frac{l_p}{t_{pa}} \times c\right) + b \quad \cdots\cdots \text{ equation (I);}$$

$$\mathrm{MAP} = \mathrm{A}\left(\frac{l_p}{t_{pa}} \times \mathrm{C}\right)^2 + \mathrm{B} \quad \cdots\cdots \text{ equation (II);}$$

wherein MAP is the mean arterial pressure, which is the carotid blood pressure; l_p is the length of the path along which the pulse propagates through the arteries; t_{pa} is the pulse arrival time; a, b, and c are correction parameters, the correction parameter a ranging from 0.01 to 0.15, the correction parameter b ranging from 0.01 to 0.15, and the correction parameter c ranging from 1 to 1000; and A, B, and C are correction

parameters, the correction parameter A ranging from 0.01 to 0.15, the correction parameter B ranging from 0.01 to 0.15, and the correction parameter C ranging from 1 to 1000;

wherein the sensor of the carotid pulse wave detector is configured to be disposed at a pulse measuring point on a user's neck, wherein the pulse measuring point is a point in a line segment defined as follows: the line segment starts from a starting point (or 0 cm position) defined as a point that is to the left or right of, and horizontally spaced apart by 3±0.3 cm from, the peak of the thyroid cartilage, and the line segment extends from the starting point (or 0 cm position) for 4 cm along a direction that extends distally at an angle of 135 degrees with respect to a horizontal direction.

2. The carotid physiological parameter monitoring system of claim 1, wherein the ECG monitoring device, the carotid pulse wave detector and the mobile device are connected via wireless transmission.

3. The carotid physiological parameter monitoring system of claim 1, wherein the carotid pulse wave detector is any measuring device selected from the group consisting of a Doppler radar, a pressure sensor, an acoustic wave sensor, an ultrasound sensor, and a photoplethysmographic (PPG) sensor.

4. The carotid physiological parameter monitoring system of claim 1, wherein the device body includes a left wrist-mounted device and a right wrist-mounted device; the electrodes comprise a right electrode (RA), a left electrode (LA), and a ground electrode (G); the right electrode (RA) is provided at the right wrist-mounted device; the left electrode (LA) is provided at the left wrist-mounted device; and the ground electrode (G) is provided in the left wrist-mounted device or the right wrist-mounted device and is adjacent to a lateral

side of a corresponding one of the right electrode (RA) and the left electrode (LA).

5. The carotid physiological parameter monitoring system of any one of claim 1 to 3, wherein the device body includes a chest-mounted device; the electrodes comprise a right electrode (RA), a left electrode (LA), and a ground electrode (G); the right electrode (RA) and the left electrode (LA) are provided on a right side and a left side of the chest-mounted device respectively; and the ground electrode (G) is provided alongside the right electrode but is not located between the right electrode and the left electrode.

6. The carotid physiological parameter monitoring system of claim 5, wherein the chest-mounted device is configured to be attached to a user's chest, the right electrode (RA) and the ground electrode (G) are horizontally arranged in an area higher than and to the right of the user's xiphoid process (from the user's point of view), and the left electrode (LA) is higher than and to the left of the user's xiphoid process (also from the user's point of view) and is horizontally aligned with the right electrode (RA) and the ground electrode (G).

7. The carotid physiological parameter monitoring system of claim 5, wherein the chest-mounted device is configured to be attached to a user's chest, the right electrode (RA) and the ground electrode (G) are horizontally arranged in an area higher than and to the right of the user's xiphoid process (from the user's point of view), and the left electrode (LA) is higher than and to the left of the user's xiphoid process (also from the user's point of view) and is lower than the right electrode (RA) and the ground electrode (G).

8. The carotid physiological parameter monitoring system of claim 5, wherein the chest-mounted device is configured to be attached to a user's chest, the right electrode (RA) and

the ground electrode (G) are vertically arranged in an area higher than and to the right of the user's xiphoid process (from the user's point of view), with the right electrode (RA) higher than the ground electrode (G), and the left electrode (LA) is higher than and to the left of the user's xiphoid process (also from the user's point of view) and is horizontally aligned with the ground electrode (G).