WHAT IS CLAIMED IS:

1. A wearable device comprising:

a first light emitting diode (LED) source configured to emit a first light having first wavelengths;

a second LED source configured to emit a second light having second wavelengths;

vibration motors;

a microprocessor configured to interpret an operation control signal and to generate a first control signal and a second control signal based on a result of the interpreting;

a battery configured to supply operating voltages to the first LED source, the second LED source, the vibration motors, and the microprocessor;

an input device configured to connect to the microprocessor; and

a wireless transceiver configured to wirelessly communicate with a mobile device paired with the wearable device, and to connect to the microprocessor,

wherein at least one of the first LED source and the second LED source is turned on in response to the first control signal,

at least one of the vibration motors is turned on in response to the second control signal,

the microprocessor is configured to accumulate and record a first on-time of the first LED source, a second on-time of the second LED source, and third on-times of the vibration motors,

wherein the operation control signal is output from one of the input device and the wireless transceiver,

wherein the input device includes a first user interface and a second user interface,

a number of LED sources turned on in response to the first control signal between the first LED source and the second LED source when the operation control signal is a first operation control signal input through the first user interface is greater

than a number of LED sources turned on in response to the first control signal between the first LED source and the second LED source when the operation control signal is a second operation control signal input through the second user interface, and

a number of vibration motors turned on in response to the second control signal among the vibration motors when the operation control signal is a third operation control signal input through the first user interface is greater than a number of vibration motors turned on in response to the second control signal among the vibration motors when the operation control signal is a fourth operation control signal input through the second user interface.

2. The wearable device of claim 1, further comprising:

a memory device configured to store information associated with operation modes,

wherein the microprocessor is configured to select one of the operation modes stored in the memory device using the operation control signal, and to generate the first control signal and the second control signal based on the selected operation mode.

3. The wearable device of claim 1, wherein the microprocessor is configured to execute firmware for accumulating and recording an operation time of the wearable device, the first on-time, the second on-time, and the third on-times.

4. The wearable device of claim 1, further comprising:

a wireless transceiver configured to connect to the microprocessor,

wherein the microprocessor is configured to transmit state information including at least one of an operation time of the wearable device, the accumulated first on-time, the accumulated second on-time, and the accumulated third on-times to a mobile device through the wireless transceiver in response to a state request signal transmitted from a wireless transceiver, and

the state request signal is transmitted from the mobile device.

5. The wearable device of claim 1, further comprising:

body fat sensors configured to measure a body fat of a user that wears the wearable device around the waist,

wherein the microprocessor is configured to receive a body fat measurement signal output from the mobile device through the wireless transceiver, to enable the body fat sensors in response to the body fat measurement signal, to measure the body fat of the user using measurement signals transmitted from the body fat sensors, and to transmit body fat data corresponding to a measurement result to the mobile device through the wireless transceiver.

6. The wearable device of claim 5, further comprising:

a motion sensor configured to measure a motion of the user that wears the wearable device around the waist,

wherein the microprocessor is configured to receive a motion measurement signal output from the mobile device through the wireless transceiver, to enable the motion sensor in response to the motion measurement signal, to measure the motion of the user using a measurement signal transmitted from the motion sensor, and to transmit motion data corresponding to a measurement result to the mobile device through the wireless transceiver.

7. The wearable device of claim 1, wherein the microprocessor is configured to detect power-on of the wearable device, to count an operation time of the wearable device based on a detection result, and to automatically power off the wearable device when a count value reaches a reference value.

8. The wearable device of claim 1, wherein the first LED source includes infrared (IR) LED lamps, and

the second LDE source includes near infrared (NIR) LED lamps.

9. A wearable device in a structure to be wearable around the waist of a user to measure a body fat of the user, the wearable device comprising:

a first light emitting diode (LED) source configured to emit a first light having first wavelengths toward the waist;

a second LED source configured to emit a second light having second wavelengths toward the waist;

vibration motors configured to provide a vibration to the waist;

an input device configured to provide a user interface to the user, wherein the input device includes a first user interface and a second user interface;

a wireless transceiver configured to wirelessly communicate with a mobile device;

a body fat sensors configured to measure the body fat; and

a microprocessor configured to interpret an operation control signal input through one of the input device and the wireless transceiver and to generate a first control signal and a second control signal based on a result of the interpreting, wherein the operation control signal is output from one of the input device and the wireless transceiver,

wherein at least one of the first LED source and the second LED source is turned on in response to the first control signal between the first LED source and the second LED source when the operation control signal is a first operation control signal input through the first user interface is greater than a number of LED sources turned on in response to the first control signal between the first LED source and the second LED source when the operation control signal is a second operation control signal input through the second user interface,

at least one of the vibration motors is turned on in response to the second control signal among the vibration motors when the operation control signal is a third operation control signal input through the first user interface is greater than a number of vibration motors turned on in response to the second control signal among the vibration motors when the operation control signal is a fourth operation control signal input through the second user interface, and

the microprocessor is configured to accumulate and store a first on-time of the first LED source, a second on-time of the second LED source, and third on-times of the vibration motors.

10. The wearable device of claim 9, further comprising:

a memory device configured to store information associated with operation modes,

wherein the microprocessor is configured to select one of the operation modes stored in the memory device using the operation control signal, and to generate the first control signal and the second control signal based on the selected operation mode.

11. The wearable device of claim 10, wherein the microprocessor is configured to transmit state information including at least one of an operation time of the wearable device, the accumulated first on-time, the accumulated second on-time, and the accumulated third on-times to a mobile device through the wireless transceiver in response to a state request signal transmitted from a wireless transceiver, and

the state request signal is transmitted from the mobile device.

12. The wearable device of claim 11, wherein the microprocessor is configured to receive a body fat measurement signal output from the mobile device through the wireless transceiver, to enable the body fat sensors in response to the body fat measurement signal, to measure the body fat of the user using measurement signals transmitted from the body fat sensors, and to transmit body fat data corresponding to a measurement result to the mobile device through the wireless transceiver.

13. The wearable device of claim 11, further comprising:

a motion sensor configured to measure a motion of the user,

wherein the microprocessor is configured to receive a motion measurement signal output from the mobile device through the wireless transceiver, to enable the motion sensor in response to the motion measurement signal, to measure the motion of

the user using a measurement signal transmitted from the motion sensor, and to transmit motion data corresponding to a measurement result to the mobile device through the wireless transceiver.

14. A method of controlling an operation of a wearable device using the wearable device in a structure to be wearable around the waist of a user to measure a body fat of the user and a mobile device capable of wirelessly communicating with the wearable device, the method comprising:

receiving, by a microprocessor included in the wearable device, an operation control signal input through one of an input device included in the wearable device and a wireless transceiver included in the wearable device, wherein the input device includes a first user interface and a second user interface and wherein the operation control signal is output from one of the input device and the wireless transceiver;

selecting, by the microprocessor, one of operation modes of the wearable device from a memory device configured to store information associated with the operation modes using the operation control signal, and to generate a first control signal and a second control signal based on the selected operation mode;

turning on at least one of a first light emitting diode (LED) source and a second LED source included in the wearable device in response to the first control signal between the first LED source and the second LED source when the operation control signal is a first operation control signal input through the first user interface is greater than a number of LED sources turned on in response to the first control signal between the first LED source and the second LED source when the operation control signal is a second operation control signal input through the second user interface, and turning on at least one of vibration motors included in the wearable device in response to the second control signal among the vibration motors when the operation control signal is a third operation control signal input through the first user interface is greater than a number of vibration motors turned on in response to the second control signal among the vibration motors when the operation control signal is a fourth operation control signal input through the second user interface;

accumulating and recording, by the microprocessor, a first on-time of the first LED source, a second on-time of the second LED source, and third on-times of the vibration motors;

receiving, by the microprocessor, a state request signal transmitted from a wireless communication device through the wireless transceiver; and

transmitting, by the microprocessor, at least one of an operation time of the wearable device, the accumulated first on-time, the accumulated second on-time, and the accumulated third on-times to the mobile device through the wireless transceiver in response to the state request signal.

15. The method of claim 14, further comprising:

receiving, by the microprocessor, a body fat measurement signal output from the mobile device through the wireless transceiver;

enabling, by the microprocessor, body fat sensors included in the wearable device in response to the body fat measurement signal; and

measuring, by the microprocessor, the body fat of the user using measurement signals transmitted from the body fat sensors, and transmitting body fat data corresponding to a measurement result to the mobile device through the wireless transceiver.

16. The method of claim 14, further comprising:

receiving, by the microprocessor, a motion measurement signal transmitted from the mobile device through the wireless transceiver;

enabling, by the microprocessor, a motion sensor included in the wearable device in response to the motion measurement signal; and

measuring, by the microprocessor, the motion of the user using a measurement signal transmitted from the motion sensor, and transmitting motion data corresponding to a measurement result to the mobile device through the wireless transceiver.