

CLAIMS

1. A biological condition determining apparatus for determining a biological condition of a subject on a bed, the apparatus comprising:

a plurality of load detectors which are configured to be placed in the bed or under feet of the bed and which detect a load of the subject;

a respiration information extracting unit which extracts a plurality of respiration information from outputs of the plurality of load detectors, respectively;

a determining unit which determines a respiratory condition of the subject by comparing at least one of the plurality of respiration information with referential information prepared beforehand; and

an output unit which outputs the respiratory condition of the subject determined by the determining unit,

wherein the plurality of respiration information is a plurality of detected waveforms showing temporal variations, based on a respiration of the subject, of the outputs of the plurality of load detectors, respectively;

the referential information is a plurality of referential waveforms denoting a plurality of types of respiratory conditions, respectively; and

the determining unit is configured to determine the respiratory condition of the subject based on a comparison between a waveform having largest amplitude among the

plurality of respiration information, and the plurality of referential waveforms, and in a case that the waveform having the largest amplitude matches or resembles one of the plurality of referential waveforms, the determining unit determines that the respiratory condition of the subject is one of the plurality of types of respiratory conditions denoted by the one of the plurality of referential waveforms that matched or resembled the waveform having the largest amplitude.

2. The biological condition determining apparatus according to claim 1, wherein the plurality of referential waveforms includes a first referential waveform denoting that the respiratory condition of the subject is an ordinary respiratory state, a second referential waveform denoting that the respiratory condition of the subject is a snoring state, and a third referential waveform denoting that the respiratory condition of the subject is an apneic state.

3. A biological condition determining apparatus for determining a biological condition of a subject on a bed, the apparatus comprising:

four load detectors which are configured to be placed in the bed or under feet of the bed and which detect a load of the subject;

a respiration information extracting unit which extracts respiration information from an output of at least one of the four load detectors;

a determining unit which determines a respiratory condition of the subject by comparing the extracted respiration information with a referential information prepared beforehand;

an output unit which outputs the respiratory condition of the subject determined by the determining unit, and

a body posture identifying unit which obtains a body posture of the subject based on four outputs of the four load detectors,

wherein the body posture identifying unit is configured to obtain the body posture of the subject based on a comparison between the four outputs and a combination of four load values, the combination of four load values being stored in a manner that the combination of four load values and the body posture of the subject are associated with each other.

4. The biological condition determining apparatus according to claim 3, wherein the output unit outputs the body posture of the subject obtained by the body posture identifying unit.

5. The biological condition determining apparatus according to claim 3 or 4, further comprising an

associating unit which associates the respiratory condition of the subject determined by the determining unit with the body posture of the subject obtained by the body posture identifying unit.

6. The biological condition determining apparatus according to any one of claims 3 to 5, wherein the output unit outputs the obtained body posture of the subject by using an image imitating a human body shape.

7. The biological condition determining apparatus according to any one of claims 1 to 6, wherein the determining unit determines whether the respiratory condition of the subject is an ordinary respiratory state, a snoring state, or an apneic state.

8. The biological condition determining apparatus according to any one of claims 1 to 7, further comprising:
a storage unit which stores the referential information;

an information collecting unit which associates the respiration information used in the determining unit to determine the respiratory condition of the subject with a determination result of the determining unit so as to create an update information; and

an information editing unit which modifies the referential information based on the update information.

9. The biological condition determining apparatus according to any one of claims 1 to 8, further comprising a notifying unit which performs a notification based on a determination result of the determining unit.