CLAIMS

1. A railcar state monitoring device for use in a train set constituted by coupling cars each including a carbody, a pair of bogies and an underfloor device, the bogies being arranged at both respective longitudinal direction end portions of the carbody and supporting the carbody, the underfloor device being provided between the pair of bogies,

the train set including a first car and a second car adjacent to the first car, the first car including a first carbody and a pair of first bogies, the second car including a second carbody and a pair of second bogies,

the state monitoring device comprising:

sensors provided at the respective bogies and configured to detect state information of devices provided at the bogies;

wireless transmitters provided at the respective bogies and configured to wirelessly transmit sensor signals containing the detected state information; and

at least one wireless receiver configured to receive the sensor signals wirelessly transmitted from the wireless transmitters,

the at least one wireless receiver including a first wireless receiver arranged between the first bogie located close to the second car out of the pair of first bogies and the second bogie located close to the first car out of the pair of second bogies, the first wireless receiver being configured to receive the state information of the first bogie located close to the second car and the state information of the second bogie located close to the first car.

2. The railcar state monitoring device according to claim 1, wherein the wireless receiver is attached to lower portions of both longitudinal direction end portions of the carbody of one of the first car and the second car.

3. The railcar state monitoring device according to claim 2, wherein the carbody of the one car further includes a memory device configured to store the sensor signals received by the wireless receiver.

4. The railcar state monitoring device according to claim 1 or 2, wherein:

the train set further includes a third car adjacent to the second car;

the third car includes a third carbody and a pair of third bogies;

the state monitoring device further includes at least one memory device configured to store the sensor signals received by the wireless receiver;

the at least one wireless receiver further includes a second wireless receiver arranged between the second bogie located close to the third car out of the pair of second bogies and the third bogie located close to the second car out of the pair of third bogies;

the second wireless receiver is configured to receive the state information of the second bogie located close to the third car and the state information of the third bogie located close to the second car;

the at least one memory device includes a first memory device and a second memory device;

the first memory device is provided at the first car and stores the sensor signals received by the first wireless receiver; and

the second memory device is provided at the third car and stores the sensor signals received by the second wireless receiver.

5. The railcar state monitoring device according to claim 4, wherein:

the first wireless receiver is provided at the first car; and

the second wireless receiver is provided at the third car.

6. The railcar state monitoring device according to any one of claims 3 to 5, wherein the memory device stores the sensor signal so as to associate an ID of the sensor with a detection target device of the sensor.

7. The railcar state monitoring device according to any one of claims 1 to 6, wherein the number of sensors provided for each of the bogies is four.

8. The railcar state monitoring device according to claim 7, wherein:

the sensor and the wireless transmitter are accommodated in one casing; and

the casing is provided at an axle box of the bogie.

9. A train set comprising a state monitoring device and constituted by coupling cars each including a carbody, a pair of bogies and an underfloor device, the bogies being arranged at both respective longitudinal direction end portions of the carbody and supporting the carbody, the underfloor device being provided between the pair of bogies,

the train set further comprising a first car and a second car adjacent to the first car, the first car including a first carbody and a pair of first bogies, the second car including a second carbody and a pair of second bogies,

the state monitoring device including:

sensors provided at the respective bogies and configured to detect state information of devices provided at the bogies;

wireless transmitters provided at the respective bogies and configured to wirelessly transmit sensor signals containing the detected state information; and

at least one wireless receiver configured to receive the sensor signals wirelessly transmitted from the wireless transmitters,

the at least one wireless receiver being arranged between the first bogie located close to the second car out of the pair of first bogies and the second bogie located close to the first car out of the pair of second bogies,

the at least one wireless receiver being configured to receive the state information of the first bogie located close to the second car and the state information of the second bogie located close to the first car,

the car including the wireless receiver and the car not including the wireless receiver being alternately coupled with each other.