WHAT IS CLAIMED IS:

1. An automatic displacement device for use in a carrier having a body that accommodates at least one heavy object, comprising:

at least one weight mount for holding the heavy object;

at least one actuator coupled to the weight mount;

a stability regulator electrically communicated to the actuator, including:

a sensor capable of measuring a state associated with an angle of the carrier's body and outputting a signal representative of the state, the sensor including a plurality of force-measuring elements to measure weight distribution of the body; and

a controller capable of calculating a tilt of the carrier according to the signal outputted from the sensor, and capable of commanding the actuator to move the weight mount in view of the tilt, so as to shift the gravity center of the heavy object and thus perform a compensation on the carrier.

2. The automatic displacement device of claim 1, wherein the sensor includes an inertial sensing unit located at the carrier's body.

3. The automatic displacement device of claim 1, wherein the carrier is provided with a plurality of wheels supporting the carrier's body; the sensor includes a plurality of force-measuring elements provided at the wheels.

4. The automatic displacement device of claim 1, wherein the sensor includes a position determination unit to obtain a location of the carrier, and the controller includes a memory unit containing road information, whereby when the carrier is

about to change direction, the controller commands the actuator to move the weight mount to facilitate the carrier to corner.

5. The automatic displacement device of claim 1, wherein the weight mount includes:

at least one support component for bearing the weight of the heavy object; and

a buffer component horizontally disposed between the heavy object and the support component.

6. In a method for controlling an automatic displacement device used in a carrier having a body that accommodates at least one heavy object, wherein the automatic displacement includes at least one weight mount capable of holding the heavy object, at least one actuator coupled to the weight mount, and a stability regulator including at least one sensor and at least one controller capable of commanding the actuator to move the weight mount in response to a change of road condition, the sensor including a position determination unit and a plurality of force-measuring elements to measure weight distribution of the body, the controller including a memory unit containing road information; the method comprising:

(a) configuring the sensor to measure a state associated with an angle of the carrier and to output a signal representative of the state;

(b) configuring the controller to calculate a tilt of the carrier according to the signal outputted from the sensor and to issue a command in view of the calculated tilt to the actuator; and

(c) configuring the actuator to move the weight mount according to the command

issued by the controller so as to shift the gravity center of the heavy object and thus perform a compensation on the carrier.

7. The method of claim 6, wherein;

in step (b), the controller is further configured to receive a signal representative of a carrier's location measured by the position determination unit, and to access a piece of road information in the memory unit associated with the carrier's location; and

in step (c), when the carrier is about to corner, the controller issues a command to the actuator to move the weight mount in view of the calculated tilt and the associated road information, to facilitate the carrier to corner.

8. An automatic displacement device for use in a carrier having a body that accommodates at least one heavy object, comprising:

at least one weight mount for holding the heavy object;

at least one actuator coupled to the weight mount;

at least one safety regulator electrically communicated to the actuator, the safety regulator including:

at least one sensor for measuring motion states of the carrier relative to surrounding objects and outputting signals representative of the motion states; and

at least one controller configured to receive the signals outputted from the sensor; if the carrier is at risk of a traffic accident, the controller issues a command to the actuator to move the heavy object away from an estimated

impact point and thus provide additional buffer space for the heavy object.

9. The automatic displacement device of claim 8, wherein the sensor includes at least one distance/velocity measurement unit.

10. The automatic displacement device of claim 9, wherein the distance/velocity measurement unit employs a technique of optical emission/return measurement.

11. The automatic displacement device of claim 9, wherein the sensor further includes a position determination unit for determining a location of the carrier, and the controller includes a memory unit containing road information.

12. The automatic displacement device of claim 8, wherein the weight mount includes:

at least one support component for bearing the weight of the heavy object; and

a buffer component horizontally disposed between the heavy object and the support component.

13. In a method for controlling an automatic displacement device used in a carrier having a body that accommodates at least one heavy object, wherein the automatic displacement includes at least one weight mount for holding the heavy object, at least one actuator coupled to the weight mount, and a stability regulator including at least one sensor and at least one controller capable of commanding the actuator to move the weight mount so as to provide a buffer protection for the weight object, the sensor including a position determination unit and a distance/velocity measurement unit, the controller including a memory unit containing road information; the method comprising:

(a) configuring the sensor to measure at least one motion state of the carrier relative to a surrounding object and to output a signal representative of the motion state;

(b) configuring the controller to receive the signal outputted from the sensor; if the carrier is at risk of a traffic accident, the controller issues a command to the actuator; and

(c) configuring the actuator to move the weight mount according to the command so as to move the heavy object away from an estimated impact point and thus provide a buffer protection for the heavy object.

14. The method of claim 13, wherein:

in step (a), the motion state of the carrier include a velocity of the carrier; and the sensor is further configured to obtain a location of the carrier;

in step (b), the controller is further configured to receive a signal representative of the carrier location and to access a piece of road information in the memory unit associated with the carrier location;

in step (c), when the carrier is at risk of a rollover accident, the controller issues a command to the actuator to move the weight mount together with heavy object towards the geometric centroid of the carrier's body so as to provide a buffer protection for the heavy object.

15. The method of claim 13, wherein:

in step (a), the motion state of the carrier includes a velocity and a distance of the carrier's body relative to the surrounding object;

in step (b); the controller decides whether or not the carrier is at risk of colliding with the surrounding object; and

in step (c), the actuator moves the weight mount together with the heavy object in a direction opposite to the surrounding object.