What is claimed is:

1. A device for sensing and processing a land transportation environment of a vehicle, comprising:

an inertial sensor configured to sense an impact on cargo contained in the cargo compartment of the vehicle due to rapid acceleration or deceleration of the vehicle;

a processor configured to, based on a first frequency corresponding to the impact sensed by the inertial sensor, calculate a second frequency to cancel out the first frequency, and output a control signal including the second frequency;

a vibration generator configured to vibrate at the second frequency in response to the control signal; and

a memory configured to store pattern data and flag data, the pattern data comprising characteristics of a plurality of predefined patterns and a plurality of pattern identifiers representing each of the plurality of predefined patterns, and the flag data comprising flags representing whether an external environmental factor or transporter intervention is involved based on each of the plurality of pattern identifiers,

wherein the processor is further configured to:

load the pattern data and the flag data from the memory,

extract the characteristics of the plurality of predefined patterns to be identified based on sequential

temperature values over time included in temperature data received from an external source,

identify a pattern of temperature change by obtaining the plurality of predefined pattern identifiers of the patterns based on the extracted characteristics and the pattern data, and

determine, based on the identified pattern, whether the change in temperature is caused by the external environment or by the transporter intervention.

2. The device of claim 1, wherein the processor comprises:

a first computation unit configured to calculate the phase of each of first signals inducing the impact; and

a correction unit configured to generate second signals, each having a phase opposite to that of the corresponding first signals, and output a control signal including the second signals to the vibration generator.

3. The device of claim 2, wherein the inertial sensor is configured to sense a natural frequency generated as the cargo oscillates vertically within a unit time due to the acceleration and inertial direction of the vehicle,

wherein the first computation unit is configured to

calculate the phase of each of the first signals based on the acceleration of the vehicle and the physical properties of the cargo based on a mass of the cargo, and

wherein the correction unit is configured to generate the second signals having the same natural frequency and amplitude but an opposite phase.

4. The device of claim 3, wherein the processor further comprises a second computation unit configured to:

analyze a pattern of temperature variations included in received external temperature data,

diagnose cause of the temperature variation by determining whether the temperature variation is caused by external environmental factor or intervention of transporter, and

generate cause data including the cause of the temperature variation.

5. The device of claim 4, wherein the second computation unit is configured to diagnose the cause based on the acquired pattern identifier and the flag data.

6. The device of claim 5,

wherein the processor further comprises a neural network processing unit configured to create an artificial intelligence model trained with a learning dataset, including a first data comprising points representing sequential temperature values over time, and a second data comprising pattern identifiers corresponding to graphs formed by connecting the points,

wherein the second computation unit is configured to:

input data including the points into the artificial intelligence model,

predict the pattern identifier as output from the artificial intelligence model, and

determine the pattern by searching for a matching pattern identifier among the multiple pattern identifiers.

7. The device of claim 6, wherein the second computation unit is configured to estimate a trend line representing the trend of temperature variations over time based on the temperature data and the cause data.

8. The device of claim 7, further comprising a communication module configured to transmit the cause data to

an external device via a communication network,

wherein the second computation unit is configured to control the memory to store the cause data.

9. A method for sensing and processing a land transportation environment of a vehicle, comprises:

sensing an impact on cargo contained in the cargo compartment of a vehicle due to rapid acceleration or deceleration, and a first frequency corresponding to the sensed impact;

calculating a second frequency to cancel out the first frequency;

vibrating at the second frequency; and

determining cause of temperature variations of temperature data based on received external temperature data,

wherein the determining comprises:

loading pattern data and flag data, the pattern data comprising characteristics of a plurality of predefined patterns and a plurality of pattern identifiers representing each of the plurality of predefined patterns, and the flag data comprising flags representing whether an external environmental factor or transporter intervention is involved based on each of the

plurality of pattern identifiers,

extracting the characteristics of the plurality of predefined patterns to be identified based on sequential temperature values over time included in temperature data received from an external source,

identifying a pattern of temperature change by obtaining the plurality of predefined pattern identifiers of the patterns based on the extracted characteristics and the pattern data, and

determining, based on the identified pattern, whether the change in temperature is caused by the external environment or by the transporter intervention.

10. A computer program stored in a recording medium, which, when combined with hardware, executes the method of claim 9.