CLAIMS

[Claim 1] An action detection system comprising:

(a) a plurality of first sensor devices provided in a space comprising at least one room, each first sensor device including:

(i) a first sensor that detects first detection information; and

(ii) a first communication means for transmitting the first detection information;

(b) a robot configured for at least one of a cleaning robot function, a pet robot function, and a security robot function within the space, the robot including:

(i) a plurality of second sensors that detect second detection information, the plurality of second sensors including:

(1) a position sensor for detecting geometric information of the space; and

(2) at least one of an image sensor and a voice sensor;

(ii) a second communication means for transmitting and receiving information; and

(iii) a movement means capable of moving the robot in the at least one room of the space; and

(c) a server including a third communication means and a storage means,

(i) wherein the third communication means is configured for transmitting and receiving the first detection information from the first communication means and the second detection information from the second communication means;

(ii) wherein the server is configured to:

(1) receive the first detection information detected by the first sensor of each of the plurality of first sensor devices and the second detection information detected by the plurality of second sensors of the robot;

(2) discriminate, among the first detection information detected by each of the plurality of the first sensor devices, between:

(a) the first detection information related to the robot; and

(b) the first detection information related to at least one mobile body other than the robot;

(3) detect an action of the at least one mobile body, using the discriminated first detection information related to the at least one mobile body; and

(4) store in the storage means:

(a) sensor position information indicating positions where the plurality of first sensor devices are installed, the sensor position information expressed by a coordinate system of

the space;

(b) a correspondence relationship between geometric information of the space and information on positions where the plurality of first sensor devices are provided; and

(c) the first detection information related to the at least one mobile body as event information, the first detection information including time point when data of the first sensor devices is received;

(5) compare the event information with a current set of the first detection information to diagnose at least one abnormality state; and

(6) associate each abnormality state associated with a target coordinate; and

(iii) wherein, for each abnormality state diagnosis, the server is configured to:

(1) send an instruction to the robot via the third communication means, the instruction configured to instruct the robot to move proximate to the target coordinate associated with the abnormality state and collect, for delivery back to the server of:

(a) an image taken by the image sensor of the robot in proximity to the target coordinate; and

(b) a voice recorded by the voice sensor of the robot in proximity to the target coordinate; and

(2) receive and analyze the image or the voice from

the robot to sense a presence or an absence of an abnormality; and

(3) output an abnormality report.

[Claim 2] The system of claim 1, wherein the mobile body is at least one of a human and an animal.

[Claim 3] The system of claim 1, wherein the plurality of sensor devices include at least one home appliance.