[CLAIMS]

[Claim 1]

An information collection system, comprising:

a patrolling robot, comprising:

a driving unit being autonomously moveable in a construction field;

an imaging unit being able to capture an image; and

a patrol processing unit performs an autonomous movement by the driving unit based on map information of the construction field and a predetermined patrol route including a node as a location to acquire state information indicating a state of a surrounding environment of the construction field, and in a case in which the node is reached, makes the imaging unit to capture the image and acquire the state information at least including the image;

an information collection device collects and stores the state information acquired by the patrolling robot;

a division processing unit divides the image acquired by the patrol processing unit into a partial image in a predetermined range; and

a progress management unit generates progress information indicating progress state of work for each node

based on the partial image divided by the division processing unit.

[Claim 2]

The information collection system according to claim 1, wherein the progress management unit generates the progress information for each type of the work and summarize the progress information for each type of the work in a table to generate a progress management table.

[Claim 3]

The information collection system according to claim 1 or 2, wherein the progress management unit visualizes and superimposes the progress state of the work on the map information based on the progress information to generate a progress state map.

[Claim 4]

The information collection system according to any one from claims 1 to 3, further comprising a worker management unit generates worker information indicating work state of workers based on the partial image divided by the division processing unit.

[Claim 5]

The information collection system according to any one from claims 1 to 4,

wherein the information collection device is connected to a distribution board supplies electric power to a

construction field, and

the information collection device comprises:

a display;

a collection processing unit collects the state information at least including an amount of used electric power by the distribution board and stores the collected state information in an information memory unit;

an information acquisition unit acquires work information relating to the work that at least including design drawings and work instructions in the construction field; and

a display control unit makes the display to display the state information collected by the collection processing unit and the work information acquired by the information acquisition unit.

[Claim 6]

A remote image display system, comprising:

a patrolling robot; and

a head-mounted display device,

wherein the patrolling robot comprises:

a driving unit being autonomously moveable in a construction field;

an imaging unit being able to capture an image;

a patrol processing unit performs an autonomous movement by the driving unit based on map information of

the construction field and a predetermined patrol route, and makes the imaging unit to capture the image,

a visual-field-angle information receiving portion receives visual-field-angle information transmitted from the head-mounted display device;

an extraction unit extracts an image corresponding to the visual-field-angle in a spherical image that is captured in the construction field by the imaging unit; and

an image transmission unit transmits the extracted extraction image to the head-mounted display device,

wherein the head-mounted display device is mountable on the head of a user, and the head-mounted display device comprises:

an orientation detection unit detects an orientation of the head;

a visual-field-angle calculation unit calculates visual-field-angle information indicating a direction of visual field corresponding to the detected orientation;

a transmission unit transmits the calculated visual-field-angle information to the patrolling robot;

an image receiving unit receives the extraction image; and

a display displays the received extraction

image.

[Claim 7]

The remote image display system according to claim 6,

wherein the imaging unit captures a spherical image as a live image in the construction field, and

the extraction unit extracts an image corresponding to the visual-field-angle information in the spherical image as the live image.

[Claim 8]

An information collection method, comprising:

a patrolling processing step by a patrolling robot including a driving unit being autonomously moveable in a construction field and an imaging unit being able to capture an image to perform an autonomous movement by the driving unit based on map information of the construction field and a predetermined patrol route including a node as a location to acquire state information indicating a state of a surrounding environment of the construction field, and in a case in which the node is reached, make the imaging unit to capture the image and acquire the state information at least including the image;

a collection step by an information collection device to collect and store the state information acquired by the patrolling processing step;

a division processing step by a division processing

unit to divide the image acquired by the patrolling processing step into a partial image in a predetermined range; and

a progress management step by a progress management unit to generate progress information indicating progress state of work for each of the node based on the partial image divided by the division processing step.

[Claim 9]

A remote image display method executed in a remote image display system including a patrolling robot and a head-mounted display device mountable on the head of a user, the remote image display method comprises:

a patrol processing step by the patrolling robot including a driving unit being autonomously moveable in a construction field and an imaging unit being able to capture an image to perform an autonomous movement by the driving unit based on map information of the construction field and a predetermined patrol route, and make the imaging unit to capture the image;

a visual-field-angle information receiving step by the patrolling robot to receive visual-field-angle information transmitted from the head-mounted display device;

an extraction step by the patrolling robot to extract an image corresponding to the visual-field-angle in a spherical image that is captured in the construction field

by the imaging unit;

an image transmission step by the patrolling robot to transmit the extracted extraction image to the head-mounted display device;

an orientation detection step by the head-mounted display device to detect an orientation of the head;

a visual-field-angle calculation step by the head-mounted display device to calculate visual-field-angle information indicating a direction of visual field corresponding to the detected orientation;

a transmission step by the head-mounted display device to transmit the calculated visual-field-angle information to the patrolling robot;

an image receiving step by the head-mounted display device to receive the extraction image; and

a display step by the head-mounted display device to display the received extraction image.