[0009]

Embodiments of the present invention provide an information sharing support apparatus, system, method, and program that can contribute to sharing information of surroundings of an imaging object in three-dimensional point group data in real time.

SOLUTION TO PROBLEM

[0010]

An information sharing support apparatus according to a first aspect is an information sharing support apparatus that is communicably connected to a plurality of terminals and supports information sharing between the terminals, wherein the information sharing support apparatus includes: a visibility improvement part configured to perform objectification, meshing, or voxelization on three-dimensional point group data captured using sensors, an information addition part configured to perform an add-processing of tag information to a designated position(s) in data processed by the visibility improvement part, based on additional information including a designated position(s) and tag information acquired from any one of terminals connected to the information sharing support apparatus; and a data provision part configured to synchronously provide the data processed by the visibility improvement part add-processed by the information addition part to all of the terminals connected to the information sharing support apparatus.

[0011]

An information sharing support system according to a second aspect includes: the information sharing support apparatus according to the first aspect; and a plurality of terminals communicably connected to the information sharing support apparatus.

[0012]

An information sharing support method according to a third aspect includes: visibility improving to perform objectification, meshing, or voxelization on three-dimensional point group data captured using sensors, adding tag information to a designated position(s) in data processed by the visibility improving, based on additional information including a designated position(s) and tag information acquired from any one of terminals connected to hardware resources; and synchronously providing the add-processed data processed by the visibility improving to all of the terminals connected to the hardware resources.

[0013]

A program according to a fourth aspect is a program causing hardware resources to execute processings that support information sharing, wherein the program causes the hardware resources to execute the processings including: visibility improving to perform objectification, meshing, or voxelization on three-dimensional point group data captured using sensors, adding tag information to a designated position(s) in data processed by the visibility improving, based on additional information including a designated position(s) and tag information acquired from any one of terminals connected to the hardware resources; and synchronously providing the add-processed data processed by the visibility improving to all of the terminals connected to the hardware resources.

[0014]

The program can be recorded on a computer-readable storage medium. The storage medium can be non-transitory such as semiconductor memory, hard disk, magnetic recording medium, optical recording medium, or the like. Also, the present disclosure can also be realized as a computer program product. The program is input from an input apparatus or outside to a computer apparatus via a communication interface, is stored in a storage device, drives a processor in accordance with predetermined steps or processings, can cause to display results of processing including intermediate states as necessary in stage by stage via a display apparatus, or can cause to communicate with the outside via a communication interface. A computer apparatus for this purpose, as an example, typically comprises a processor, a storage device, an input apparatus, a communication interface, and a display apparatus as necessary, which are connectable to each other by a bus.

EFFECTS OF INVENTION

[0015]

According to the first to fourth aspects, it is possible to contribute to sharing information of surroundings of an imaging object in three-dimensional point group data in real time.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

[FIG. 1] FIG. 1 is a block diagram schematically showing an example

CLAIMS:

1. An information sharing support apparatus, that is communicably connected to a plurality of terminals and supports information sharing between/among the terminals,

wherein the information sharing support apparatus comprises:

a visibility improvement part configured to perform objectification, meshing, or voxelization on three-dimensional point group data captured using sensors,

an information addition part configured to perform an add-processing of tag information to a designated position(s) in data processed by the visibility improvement part, based on additional information including a designated position(s) and tag information acquired from any one of terminals connected to the information sharing support apparatus; and

a data provision part configured to synchronously provide the data processed by the visibility improvement part add-processed by the information addition part to all of the terminals connected to the information sharing support apparatus.

2. The information sharing support apparatus according to claim 1, further comprising an operation processing part configured to operate-process the three-dimensional point group data, based on operation information acquired from any one of terminals connected to the information sharing support apparatus,

wherein the information addition part is configured to add the tag information to the designated position(s) in the processing data operate-processed by the operation processing part, based on the additional information; and

the data provision part is configured to synchronously provide the processing data add-processed by the information addition part to all of the terminals connected to the information sharing support apparatus.

3. The information sharing support apparatus according to claim 1, further comprising an operation processing part configured to operate-process the processing data visibility-improve-processed by the visibility improvement part, based on operation information acquired from any one of the terminals connected to the information sharing support apparatus,

wherein the information addition part is configured to add-process the tag information to the designated position(s) in the processing data operate-processed by the operation processing part, based on the additional information; and

the data provision part is configured to synchronously provide the processing data add-processed by the information addition part to all of the terminals connected to the information sharing support apparatus.

4. The information sharing support apparatus according to any one of claims 1 to 3, further comprising a chat processing part configured to chat-process between/among the terminals connected to the information sharing support apparatus.

5. An information sharing support system, comprising:

the information sharing support apparatus according to any one of claims 1 to 4; and

a plurality of terminals communicably connected to the information sharing support apparatus.

6. The information sharing support system according to claim 5, comprising an eyeglass type display on any one of the terminals.

7. The information sharing support system according to claim 5 or 6, comprising a three-dimensional display and a non-contact UI device on any one of the terminals.

8. An information sharing support method of supporting information sharing using hardware resources, the method comprising:

visibility improving to perform objectification, meshing, or voxelization on three-dimensional point group data captured using sensors,

adding tag information to a designated position(s) in data processed by the visibility improving, based on additional information including a designated position(s) and tag information acquired from any one of terminals connected to the hardware resources; and

synchronously providing the add-processed data processed by the visibility improving to all of the terminals connected to the hardware resources.

9. A non-transitory computer-readable recording medium storing thereon a program causing hardware resources to execute processings that support information sharing, wherein the program causes the hardware resources to execute processings comprising:

visibility improving to perform objectification, meshing, or voxelization on three-dimensional point group data captured using sensors,

adding tag information to a designated position(s) in data processed by the visibility improving, based on additional information including a designated position(s) and tag information acquired from any one of terminals connected to the hardware resources; and

synchronously providing the add-processed data processed by the visibility improving to all of the terminals connected to the hardware resources.