CLAIMS

[Claim 1]

A mobile body passage management system that manages passage of a mobile body that moves autonomously, comprising:

a resource management server, the resource management server includes

a storage unit that stores a resource necessary for the passage of the mobile body as resource data,

a resource management unit that manages an allocation situation of the resource to the mobile body, and

a use request processing unit that receives a request from the mobile body, performs new allocation of the resource, and releases the resource when use by the mobile body is finished, and

an operation management server, the operation management server manages an operation of the mobile body by associating the resource data provided from the resource management server with a situation of the mobile body,

wherein the resource management server is provided separately from the operation management server that manages the mobile body; wherein the resource data is data representing a plurality of sub areas obtained by dividing an area through which the mobile body passes in a building, and

wherein each of the plurality of sub areas has an area, and is allocable in different combinations of sub areas according to a size and a task of the mobile body.

[Claim 2]

The mobile body passage management system according to claim 1,

wherein the resource data is data obtained by assigning identification data to sub areas obtained by dividing an area through which the mobile body passes in a building,

the sub areas are allocable in different combinations according to specifications and/or tasks of the mobile body, and

the mobile body designates a sub area to be used by the mobile body and receives an allocation.

[Claim 3]

The mobile body passage management system according to claim 1,

wherein the resource data is data obtained by assigning identification data to sub areas obtained by dividing an area through which the mobile body passes in a building,

the mobile body designates a sub area to be used by the mobile body and requests allocation, and

the use request processing unit controls traffic of passage of a plurality of independently operating mobile bodies by performing any one of

control to give use permission to only one of the mobile bodies at a time with respect to the sub area,

control to limit the number available for the sub area to a predetermined number, and

control to give use permission to the sub area only in a specific entry direction.

[Claim 4]

The mobile body passage management system according to claim 2,

wherein the resource management unit provides the resource data to the mobile body, and

the mobile body searches for a moving route using the resource data, and requests allocation of sub areas constituting the moving route.

[Claim 5]

The mobile body passage management system according to claim 2 or claim 4,

wherein the mobile body stores specification data indicating the specification of the mobile body, and determines a sub area for which allocation is requested based on the specification data.

[Claim 6]

The mobile body passage management system according to any one of claims 1 to 5,

wherein the use request processing unit notifies the mobile body of a use condition of the resource when allocating the resource to the mobile body, and

the use condition includes at least one of a maximum speed limit, a maximum volume, a maximum luminous intensity, and a limit changed by time.

[Claim 7]

The mobile body passage management system according to any one of claims 1 to 6, wherein

the storage unit further stores marker data in which position information of a marker disposed in an area through which the mobile body passes is associated with identification data of the marker, and

the mobile body passage management system further includes a marker management unit that provides position information of a corresponding marker when an inquiry specifying identification information of the marker data is received from the mobile body.

[Claim 8]

The mobile body passage management system according to claim 1,

wherein a plurality of mobile bodies moves autonomously to perform a task,

the resource management server is provided separately from a plurality of operation management servers that manage movement of the mobile body,

the plurality of operation management servers manage the movement of the mobile body by associating the resource data provided from the resource management server with a situation of the movement of the mobile body managed by each of the plurality of operation management servers,

and

the mobile body searches for a moving route of the mobile body, determines a sub area for which allocation is requested based on the size and task of the mobile body and the moving route, specifies one of the sub areas and requests allocation from the resource management server when one sub area to be used by the mobile body is sufficient, specifies a combination of a plurality of sub areas at the same time and requests allocation from the resource management server when the combination of the plurality of sub areas adjacent to each other in a direction in which the mobile body moves is required based on the size of the mobile body, specifies the combination of the plurality of sub areas at the same time and requests allocation from the resource management server in a case where the combination of the sub areas is required based on the task of the mobile body even when the combination of the sub areas is not required based on the size of the mobile body, and receives allocation of the sub area or the combination of the sub areas from the resource management server.

[Claim 9]

A mobile body passage management method for managing passage of a mobile body that moves autonomously, the mobile body passage management method comprising:

a step of receiving, by a resource management server that is provided separately from an operation management server

that manages the mobile body and stores and manages a resource necessary for the passage of the mobile body as resource data, a request for the resource from the mobile body;

a step of permitting, by the resource management server, use of the requested resource in a case where the requested resource is usable as a result of referring to a use situation by another mobile body; and

a step of, by the resource management server, rejecting use of the requested resource in a case where the requested resource is not usable as a result of referring to a use situation by another mobile body,

wherein the operation management server manages the operation of the mobile body by associating the resource data provided from the resource management server with a situation of the mobile body;

wherein the resource data is data representing a plurality of sub areas obtained by dividing an area through which the mobile body passes in a building, and

wherein each of the plurality of sub areas has an area, and is allocable in different combinations of sub areas according to a size and a task of the mobile body.