CLAIMS

1. A movable shelf device that includes a first shelf and a second shelf that are opposed to each other in a first direction parallel to a horizontal surface, and in which the first shelf and the second shelf are provided so as to be movable relative to each other in the first direction, and an inter-shelf passage is formed between the first shelf and the second shelf in a state in which the first shelf and the second shelf are spaced away from each other, the movable shelf device comprising:

an obstacle sensor configured to detect, when the inter-shelf passage is formed, an obstacle that is present in the inter-shelf passage; and

a range sensor configured to detect an inter-shelf distance, which is a distance between the first shelf and the second shelf that are opposed to each other in the first direction,

wherein the obstacle sensor and the range sensor are constituted by a single active sensor configured to detect a subject by transmitting light and receiving reflected light from the subject, and

a detection range of the obstacle sensor is dynamically and variably set so that the entire region of the inter-shelf passage is the detection range in accordance with the inter-shelf distance.

2. The movable shelf device according to claim 1,

wherein the single active sensor is attached to one of the first shelf and the second shelf, and a reflective plate is attached to the other one of the first shelf and the second shelf, and

the single active sensor detects the obstacle based on the reflected light from an object present in the inter-shelf passage while regarding the object as the subject, and detects the inter-shelf distance based on the reflected light from the reflective plate while regarding the reflective plate as the subject.

3. The movable shelf device according to claim 2,

wherein a plurality of the reflective plates are provided at positions that are parallel to the horizontal surface, and are distanced from each other in a second direction that is orthogonal to the first direction.

4. A movable shelf device that includes a first shelf and a second shelf that are opposed to each other in a first direction parallel to a horizontal surface, and in which the first shelf and the second shelf are provided so as to be movable relative to each other in the first direction, and an inter-shelf passage is formed between the first shelf and the second shelf in a state in which the first shelf and the second shelf are spaced away from each other, the movable shelf device comprising:

an obstacle sensor configured to detect, when the inter-shelf passage is formed, an obstacle that is present in the inter-shelf passage; and

a range sensor configured to detect an inter-shelf distance, which is a distance between the first shelf and the second shelf that are opposed to each other in the first direction,

wherein the obstacle sensor and the range sensor are constituted by a single active sensor configured to detect a subject by transmitting light and receiving reflected light from the subject, and

a detection range of the obstacle sensor is dynamically and variably set in accordance with the inter-shelf distance,

wherein the single active sensor is attached to one of the first shelf and the second shelf, and a reflective plate is attached to the other one of the first shelf and the second shelf, and

the single active sensor detects the obstacle based on the reflected light from an object present in the inter-shelf passage while regarding the object as the subject, and detects the inter-shelf distance based on the reflected light from the reflective plate while regarding the reflective plate as the subject,

wherein a plurality of the reflective plates are provided at positions

that are parallel to the horizontal surface, and are distanced from each other in a second direction that is orthogonal to the first direction.